OFFICE OF CHIEF ACADEMIC OFFICER
Summary of State Board of Education Agenda Items
Consent Agenda
January 16, 2025

OFFICE OF SECONDARY EDUCATION

D. Approval to begin the Administrative Procedures Act process: To readopt the *2016 Mississippi College- and Career-Readiness Standards for English Language Arts and Mathematics*

Executive Summary

In accordance with State Board of Education policy Rule 28.1, which allows for Standards revisions every five to seven years, the Office of Secondary Education solicited feedback from education stakeholders on the *2016 Mississippi College-and-Career-Readiness Standards for English Language Arts* and the *2016 Mississippi-College-and-Career- Readiness Standards for Mathematics.* The MDE received feedback from approximately 418 stakeholders, including 97 actionable comments for both sets of standards. The Office of Secondary Education, in conjunction with the Division of Literacy and the Office of Student Assessment, issued a statewide call for teachers to serve on the Mathematics and English Language Arts review teams that reviewed all feedback received from the field and determined revisions that were needed. Stakeholder feedback and members of the review teams both represented all four congressional districts as well a spectrum of teaching experience in English Language Arts and Mathematics.

While the content standards in both English Language Arts and Mathematics continue to outline the skills and knowledge expected of students in grades Kindergarten through twelfth, revisions have been made to both documents to clarify learning outcomes and align objectives to standards.

Recommendation: Approval

Back-up material attached

7 Miss. Admin. Code, Part 134

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~~2016~~ 2025
Mississippi College- and Career-Readiness Standards for English Language Arts

~~Effective Date: 2016-2017 School Year~~

~~2016~~ 2025 Mississippi College- and Career-Readiness Standards for English Language Arts

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Director, Office of Human Resources
Mississippi Department of Education

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New Table of Contents

~~Acknowledgements~~

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~~The Mississippi Department of Education gratefully acknowledges the following individuals who provided feedback in developing the 2015 Mississippi College- and Career Readiness Standards for English Language Arts.~~

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Acknowledgments

2025 MS CCRS FOR ENGLISH LANGUAGE ARTS REVIEW COMMITTEE

The Mississippi Department of Education gratefully acknowledges the hard work of the following individuals for their involvement and feedback in the readoption process of the 2025 Mississippi College- and Career-Readiness Standards for English Language Arts.

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~~Introduction~~

Mission Statement

The Mississippi Department of Education is dedicated to student success including the improvement of student achievement in English Language Arts in order to produce citizens who are capable of making complex decisions, solving complex problems, and communicating fluently in a global society. The Mississippi College- and Career-Readiness Standards provide a consistent, clear understanding of what students are expected to know and be able to do by the end of each grade level or course. The standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills that students need for success in college and careers and to compete in the global economy.

Purpose

The primary purpose of the ~~2016~~ 2025 Mississippi College- and Career-Readiness Standards is to provide a basis for curriculum development for Grades K-12 English Language Arts teachers in Mississippi. This document provides an outline of what students should know and be able to do by the end of each grade level in preparation for college and career. The primary purpose of this document is to provide a basis for curriculum development for K-12 English Language Arts teachers, outlining what students should know and be able to do by the end of each grade level and course. Mississippi-specific courses that were revised to align with the Mississippi College- and Career-Readiness Standards include Survey of African American Writing, Creative Writing, Debate, Foundations of Journalism, Broadcast Journalism, Print Journalism, Mississippi Writers, Oral Communication, Technical and Workplace Writing, Survey of Twentieth Century Writing, and World Literature. The ~~new~~ Southern Regional Education Board (SREB) Literacy ~~Ready course is~~ Readiness courses are included as ~~a~~ transitions to high school and college English courses.

~~Organization of the 2016 Mississippi College- and Career-Readiness Standards~~

~~The 2016 Mississippi College- and Career-Readiness Standards are divided into 6 sections. The first section includes an introduction to the document, an overview of the Mississippi College- and Career-Readiness Standards for English Language Arts. The second section includes the MS CCRS for ELA for kindergarten through second grade. The third section includes the MS CCRS for ELA for grades 3-5. The fourth section includes the MS CCRS for ELA, including Literacy in Social Studies, Science, and Technical Subjects. The final section includes the Mississippi Specific High School ELA electives, Advanced Placement courses, and the SREB Bridge Course.~~

Implementation

The required year for the implementation of the ~~2016~~ 2025 Mississippi College- and Career-Readiness Standards is school year ~~2016-2017~~ 2025-2026.

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~~Mississippi College- and Career-Readiness Standards (MS CCRS) for English Language Arts Overview~~

MISSISSIPPI DEPARTMENT OF EDUCATION

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Mississippi College- and Career-Readiness Standards (MS CCRS) for English Language Arts

OVERVIEW

The Mississippi College- and Career-Readiness Standards (MS CCRS) for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects ("the Standards") are the culmination of an extended, broad-based effort to fulfill the charge to create next generation K–12 standards in order to help ensure that all students are college and career ready in literacy no later than the end of high school.

The Standards set requirements not only for English language arts (ELA) but also for literacy in history/social studies, science, and technical subjects. Just as students must learn to read, write, speak, listen, and use language effectively in a variety of content areas, so too must the Standards specify the literacy skills and understandings required for college and career readiness in multiple disciplines. Literacy standards for grade 6 and above are predicated on teachers of ELA, history/social studies, science, and technical subjects using their content area expertise to help students meet the particular challenges of reading, writing, speaking, listening, and language in their respective fields. It is important to note that the 6–12 literacy standards in history/social studies, science, and technical subjects are not meant to replace content standards in those areas but rather to supplement them.

As a natural outgrowth of meeting the charge to define college and career readiness, the Standards also lay out a vision of what it means to be a literate person in the twenty-first century. Indeed, the skills and understandings students are expected to demonstrate have wide applicability outside the classroom or workplace. Students who meet the Standards readily undertake the close, attentive reading that is at the heart of understanding and enjoying complex works of literature. They habitually perform the critical reading necessary to pick carefully through the staggering amount of information available today in print and digitally. They actively seek the wide, deep, and thoughtful engagement with high-quality literary and informational texts that builds knowledge, enlarges experience, and broadens worldviews. They reflexively demonstrate the cogent reasoning and use of evidence that is essential to both private deliberation and responsible citizenship in a democratic republic. In short, students who meet the Standards develop the skills in reading, writing, speaking, and listening that are the foundation for any creative and purposeful expression in language.

THE READOPTION PROCESS

The 2016 Mississippi College- and Career-Readiness Standards (MS CCRS) were reviewed after a statewide stakeholder survey, as a full-scale revision was not warranted. The survey aimed to validate the standards or to identify specific areas for review, to ensure continued relevance and alignment with educational goals.

The survey included three sections:

- Demographics: collected data on respondents' congressional district, grade levels taught, teaching experience, role, highest degree attained, and notable achievements
- Standards Rating: used a Likert scale to evaluate perceptions of the MS CCRS, assessing clarity, grade-level progression, relevance to real-world skills, and alignment with workplace competencies such as problem-solving and collaboration
- Standards Review (Optional): allowed respondents to submit specific standards for review, focusing on clarity, grade-level appropriateness, learning progression, and content accuracy, accompanied by actionable feedback

The survey yielded 418 total responses and 97 comments regarding standards, with 20 comments pertaining to K-12 English Language Arts standards. A diverse group of veteran educators representing each congressional districts and all grade bands met in the summer and fall of 2024 to review the feedback and make recommendations.

For a full list of edits made to the standards, refer to the 2016 and 2025 Mississippi College- and Career-Readiness Standards Comparison Guide in Appendix B.

Key Design Considerations

Mississippi College- and Career-Readiness and Grade-Specific Standards

The Mississippi College- and Career-Readiness (MS CCRS) standards anchor the document and define general, cross-disciplinary literacy expectations that must be met for students to be prepared to enter college and workforce training programs ready to succeed. The K–12 grade-specific standards define end-of-year expectations and a cumulative progression designed to enable students to meet college and career readiness expectations no later than the end of high school. The MS CCRS and high school (grades 9–12) standards work in tandem to define the college and career readiness line—the former providing broad standards, the latter providing additional specificity. Hence, both should be considered when developing college and career readiness assessments.

Students advancing through the grades are expected to meet each year's grade specific standards, retain or further develop skills and understandings mastered in preceding grades, and work steadily toward meeting the more general expectations described by the MS CCRS standards.

Grade Levels for K–8; Grade Bands for 9–10 and 11–12

The Standards use individual grade levels in kindergarten through grade 8 to provide useful specificity; the Standards use two-year bands in grades 9–12 to allow flexibility in high school course design.

A Focus on Results Rather than Means

By emphasizing required achievements, the Standards leave room for school districts to determine how those goals should be reached and what additional topics should be addressed. Thus, the Standards do not mandate such things as a particular writing process or the full range of metacognitive strategies that students may need to monitor and direct their thinking and learning. Teachers are thus free to provide students with whatever tools and knowledge their professional judgment and experience identify as most helpful for meeting the goals set out in the Standards.

An Integrated Model of Literacy

Although the Standards are divided into Reading, Writing, Speaking and Listening, and Language strands for conceptual clarity, the processes of communication are closely connected, as reflected throughout this document. For example, Writing standard 9 requires that students be able to write about what they read. Likewise, Speaking and Listening standard 4 sets the expectation that students will share findings from their research.

Research and Media Skills Blended into the Standards as a Whole

To be ready for college, workforce training, and life in a technological society, students need the ability to gather, comprehend, evaluate, synthesize, and report on information and ideas, to conduct original research in order to answer questions or solve problems, and to analyze and create a high volume and extensive range of print and non-print texts in media forms old and new. Research, media skills, and understandings are embedded throughout the Standards rather than treated in a separate section.

Shared Responsibility for Students' Literacy Development

The Standards insist that instruction in reading, writing, speaking, listening, and language be a shared responsibility within the school. The K–5 standards include expectations for reading, writing, speaking, listening, and language applicable to a range of subjects, including but not limited to ELA. The grades 6–12 standards are divided into two sections, one for ELA and the other for history/social studies, science, and technical subjects. This division reflects the unique, time-honored place of ELA teachers in developing students' literacy skills while at the same time recognizing that teachers in other areas must have a role in this development as well.

Part of the motivation behind the interdisciplinary approach to literacy promulgated by the Standards is extensive research establishing the need for college and career ready students to be proficient in reading complex informational text independently in a variety of content areas. Most of the required reading in college and workforce training programs is informational in structure and challenging in content; postsecondary education programs typically provide students with both a higher volume of such reading than is generally required in K–12 schools and comparatively little scaffolding.

The Standards are not alone in calling for a special emphasis on informational text. The ~~2009~~ 2022 reading framework of the National Assessment of Educational Progress (NAEP) requires a high and increasing proportion of informational text on its assessment as students advance through the grades.

Strategies for Content Area Reading

Though strategies utilized in reading and language arts classes provide the framework that students need to comprehend content-specific texts, students must also be equipped with transferable skills and strategies that can be used across grade levels and curricula. The following are suggestions for content area reading that can be incorporated in all classrooms.

~~Suggestions for Teaching Content-Specific Vocabulary and Facilitating Comprehension~~

- Establish goals and purposes for reading.
- Plan pre-reading activities that allow students to develop prerequisite knowledge and vocabulary about content-specific topics. Activities may include reading materials, videos, websites, and field trips.
- Plan post-reading activities that allow students to demonstrate mastery of skills and concepts through visual, kinesthetic, oral, and/or written products. Comprehension is often aided when linked to the creation of a product.
- Create mental or visual images associated with technical vocabulary words.
- Link new vocabulary with background knowledge.
- Focus on the semantic relationships of new and familiar words.
- Use synonyms, antonyms, and dictionary definitions to understand the meaning of specialized and technical vocabulary.
- Analyze the structure of new words (affixes, compound words, etc.) to determine word meaning.
- Maintain word banks and word walls for new words (**Note**: Word banks and word walls should be interactive; students must regularly interact with words banks and word walls to fully expand their vocabulary and analyze how words and concepts aid in reading comprehension).
- Use semantic gradients (vocabulary continuums) to illustrate a continuum of words by degree. Semantic gradients often feature antonyms or opposites on each end of the continuum. This strategy broadens students' knowledge of related and opposite words.
- Develop activities that allow students to work collaboratively to figure out the meaning of new words.
- Encourage students to generate and ask questions of texts.
- Design activities that allow students to make inferences, predict, summarize, and visualize concepts.
- Examine physical features of texts, such as different kinds of text features, including typeface, headings, and subheadings.

Many of the suggested strategies (e.g., prediction, summarizing, analyzing text features) must be directly taught (explicit instruction) and practiced, while other strategies (e.g., creating visual or mental images) can be components of incidental (implicit) instruction.

Additionally, students must engage in reading, writing, speaking, and listening activities that are authentic and content-specific. Textbooks and discipline-specific texts, such as primary and secondary source documents, articles, tables, and graphs, must be cornerstones in social studies, science, and technical subjects to aid students in using reading strategies that are discipline-specific.

(Adapted from *Research-Based Content Area Reading Instruction*, Texas Reading Initiative, *Guidance for Literacy in the Content Areas*, Engage NY, and *Vocabulary Filters: A Framework for Choosing Which Words to Teach)*

Distribution of Literary and Informational Passages by Grade in the ~~2009~~ 2022 and 2024 NAEP Reading Framework

Grade	Literary	Informational
4	50%	50%
8	45%	55%
12	30%	70%

~~Source: National Assessment Governing Board. (2008). *Reading framework for the 2009 National Assessment of Educational Progress.* Washington, DC: U.S. Government Printing Office.~~

Source: National Assessment Governing Board. (2022). *Reading framework for the 2022 and 2024 National Assessment of Educational Progress.* Washington, DC: U.S. Government Printing Office.

The Standards aim to align instruction with this framework so that many more students than at present can meet the requirements of college and career readiness. In K–5, the Standards follow NAEP's lead in balancing the reading of literature with the reading of informational texts, including texts in history/social studies, science, and technical subjects. In accord with NAEP's growing emphasis on informational texts in the higher grades, the Standards demand that a significant amount of reading of informational texts take place in and outside the ELA classroom. Fulfilling the Standards for 6–12 ELA requires much greater attention to a specific category of informational text—literary nonfiction—than has been traditional.

Because the ELA classroom must focus on literature (stories, drama, and poetry) as well as literary nonfiction, a great deal of informational reading in grades 6–12 must take place in other classes if the NAEP assessment framework is to be matched instructionally.~~[1]~~ **The percentages on the table reflect the sum of student reading, not just reading in ELA settings.** Teachers of senior English classes, for example, are not required to devote 70 percent of reading to informational texts. Rather, 70 percent of student reading across the grade should be informational. To measure students' growth toward college and career readiness, assessments aligned with the Standards should adhere to the distribution of texts across grades cited in the NAEP framework.

Distribution of Communicative Purposes by Grade in the ~~2011~~ 2017 NAEP Writing Framework

Grade	To Persuade	To Explain	To Convey Experience
4	30%	35%	35%
8	35%	35%	30%
12	40%	40%	20%

~~Source: National Assessment Governing Board. (2007). *Writing framework for the 2011 National Assessment of Educational Progress, pre-publication edition.* Iowa City, IA: ACT, Inc.~~

Source: National Assessment Governing Board. (2017). *Writing framework for the 2017 National Assessment of Educational Progress.* Washington, DC: U.S. Government Printing Office.

NAEP likewise outlines a distribution across the grades of the core purposes and types of student writing. The ~~2011~~ 2017 NAEP framework, like the Standards, cultivates the development of three mutually reinforcing writing capacities: writing to persuade, to explain, and to convey real or imagined experience. Evidence concerning the demands of college and career readiness gathered during development of the Standards concurs with NAEP's shifting emphases: standards for grades 9–12 describe writing in all three forms, but, consistent with NAEP, the overwhelming focus of writing throughout high school should be on arguments and informative/explanatory texts.~~[2]~~

As with reading, the percentages in the table reflect the sum of student writing, not just writing in ELA settings. It follows that writing assessments aligned with the Standards should adhere to the distribution of writing purposes across grades outlined by NAEP.

Focus and Coherence in Instruction and Assessment

While the Standards delineate specific expectations in reading, writing, speaking, listening, and language, each standard need not be a separate focus for instruction and assessment. Often,

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~~[1]The percentages on the table reflect the sum of student reading, not just reading in ELA settings. Teachers of senior English classes, for example, are not required to devote 70 percent of reading to informational texts. Rather, 70 percent of student reading across the grade should be informational.~~

~~[2] As with reading, the percentages in the table reflect the sum of student writing, not just writing in ELA settings.~~

(note: footnotes were added into the text)

several standards can be addressed by a single rich task. For example, when editing writing, students address Writing standard 5 ("Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach") as well as Language standards 1–3 (which deal with conventions of Standard English and knowledge of language). When drawing evidence from literary and informational texts per Writing Standard 9, students are also demonstrating their comprehension skill in relation to specific standards in Reading. When discussing something they have read or written, students are also demonstrating their speaking and listening skills. The CCR anchor standards themselves provide another source of focus and coherence.

The same ten CCR anchor standards for Reading apply to both literary and informational texts, including texts in history/social studies, science, and technical subjects. The ten CCR anchor standards for Writing cover numerous text types and subject areas. This means that students can develop mutually reinforcing skills and exhibit mastery.

~~Students Who are College- and Career-Ready~~

College- and Career-Ready Students

The descriptions that follow are not standards themselves but instead offer a portrait of students who meet the standards set out in this document. As students advance through the grades and master the standards in reading, writing, speaking, listening, and language, they are able to exhibit with increasing fullness and regularity these capacities of the literate individual.

They demonstrate independence.

Students can, without significant scaffolding, comprehend and evaluate complex texts across a range of types and disciplines, and they can construct effective arguments and convey intricate or multifaceted information. Likewise, students are able independently to discern a speaker's key points, request clarification, and ask relevant questions. They build on others' ideas, articulate their own ideas, and confirm they have been understood. Without prompting, they demonstrate command of Standard English and acquire and use a wide-ranging vocabulary. More broadly, they become self-directed learners, effectively seeking out and using resources to assist them, including teachers, peers, and print and digital reference materials.

They build strong content knowledge.

Students establish a base of knowledge across a wide range of subject matter by engaging with works of quality and substance. They become proficient in new areas through research and study. They read purposefully and listen attentively to gain both general knowledge and discipline-specific expertise. They refine and share their knowledge through writing and speaking.

They respond to the varying demands of audience, task, purpose, and discipline.

Students adapt their communication in relation to audience, task, purpose, and discipline. They set and adjust purpose for reading, writing, speaking, listening, and language use as warranted by the task. They appreciate nuances, such as how the composition of an audience should affect tone when speaking and how the connotations of words affect meaning. They also know that different disciplines call for different types of evidence (e.g., documentary evidence in history, experimental evidence in science).

They comprehend as well as critique.

Students are engaged and open-minded—but discerning—readers and listeners. They work diligently to understand precisely what an author or speaker is saying, but they also question an author's or speaker's assumptions and premises and assess the veracity of claims and the soundness of reasoning.

They value evidence.

Students cite specific evidence when offering an oral or written interpretation of a text. They use relevant evidence when supporting their own points in writing and speaking, making their reasoning clear to the reader or listener, and they constructively evaluate others' use of evidence.

They use technology and digital media strategically and capably.

Students employ technology thoughtfully to enhance their reading, writing, speaking, listening, and language use. They tailor their searches online to acquire useful information efficiently, and they integrate what they learn using technology with what they learn offline. They are familiar with the strengths and limitations of various technological tools and mediums and can select and use those best suited to their communication goals.

They come to understand other perspectives and cultures.

Students appreciate that the twenty-first-century classroom and workplace are settings in which people from often widely divergent cultures and who represent diverse experiences and perspectives must learn and work together. Students actively seek to understand other perspectives and cultures through reading and listening, and they are able to communicate effectively with people of varied backgrounds. They evaluate other points of view critically and constructively. Through reading great classic and contemporary works of literature representative of a variety of periods, cultures, and worldviews, students can vicariously inhabit worlds and have experiences much different than their own.

~~Overall~~ Organization of the Standards ~~for English Language Arts~~

~~The Standards comprise three main sections: a comprehensive K–5 section and two content area–specific sections for grades 6–12, one for ELA and one for history/social studies, science, and technical subjects.~~

~~Each section is divided into strands. K–5 and 6–12 ELA have Reading, Writing, Speaking and Listening, and Language strands; the 6–12 history/ social studies, science, and technical subjects section focuses on Reading and Writing. Each strand is headed by a strand-specific set of College- and Career-Readiness Anchor Standards that is identical across all grades and content areas.~~

The 2025 Mississippi College- and Career-Readiness Standards for English Language Arts are divided into five sections. The first section consists of an introduction to the document and an overview of the document. The second section outlines the MS CCRS Anchor Standards for ELA. The third section includes the MS CCRS for ELA for kindergarten through fifth grade. The fourth section contains the MS CCRS for secondary ELA, including standards for Literacy and Writing in Social Studies, Science, and Technical Subjects. The final section includes the Mississippi Specific High School ELA electives, Advanced Placement courses, and the SREB Literacy Readiness bridge courses.

The K-5 and 6-12 ELA Standards are divided into four strands: Reading, Writing, Speaking and Listening, and Language. Each strand is headed by a strand-specific set of College- and Career-Readiness Anchor Standards that is identical across all grades and content areas.

Standards for each grade within K–8 and for grades 9–10 and 11–12 follow the CCR anchor standards in each strand. Each grade-specific standard (as these standards are collectively referred to) corresponds to the same-numbered CCR anchor standard. Put another way, each CCR anchor standard has an accompanying grade-specific standard translating the broader MS CCRS statement into grade-appropriate end-of-year expectations.

Individual CCR anchor standards can be identified by their strand, CCR status, and number (R.CCR.6, for example). Individual grade-specific standards can be identified by their strand, grade, and number (or number and letter, where applicable), so that RI.4.3, for example, stands for Reading, Informational Text, grade 4, standard 3 and W.5.1a stands for Writing, grade 5, standard 1a. Strand designations can be found in brackets alongside the full strand title.

Who is responsible for which portion of the Standard?

A single K–5 section lists standards for reading, writing, speaking, listening, and language across the curriculum. Grades 6–12 are covered in two content area–specific sections, the first for the English language arts teacher and the second for teachers of history/social studies, science, and technical subjects. Each section uses the same CCR anchor standards but also includes grade-specific standards tuned to the literacy requirements of the particular discipline(s).

Key Features of the Standards

Reading: Text complexity and the growth of comprehension

The Reading standards place equal emphasis on the sophistication of what students read and the skill with which they read. Standard 10 defines a grade-by grade "staircase" of increasing text complexity that rises from beginning reading to the college and career readiness level. Whatever they are reading, students must also show a steadily growing ability to discern more from and make fuller use of text, including making an increasing number of connections among ideas and between texts, considering a wider range of textual evidence, and becoming more sensitive to inconsistencies, ambiguities, and poor reasoning in texts.

~~**The following link provides a rubric for determining text complexity of informational texts:**~~
~~http://www.mde.k12.ms.us/docs/secondary-education/qualitative-rubrics-for-measuring-text-complexity-informational-and-literary.pdf?sfvrsn=2~~

~~**The following link provides a rubric for determining text complexity of literature:**~~
~~http://www.mde.k12.ms.us/docs/secondary-education/qualitative-rubrics-for-measuring-text-complexity-informational-and-literary.pdf?sfvrsn=2~~

Link: Qualitative Rubrics for Measuring Text Complexity of Literary and Informational Texts

Writing: Text types, responding to reading, and research

The Standards acknowledge the fact that whereas some writing skills, such as the ability to plan, revise, edit, and publish, are applicable to many types of writing, other skills are more properly defined in terms of specific writing types: arguments, informative/explanatory texts, and narratives. Standard 9 stresses the importance of the writing-reading connection by requiring students to draw upon and write about evidence from literary and informational texts. Because of the centrality of writing to most forms of inquiry, research standards are prominently included in this strand, though skills important to research are infused throughout the document.

Speaking and Listening: Flexible communication and collaboration

Including but not limited to skills necessary for formal presentations, the Speaking and Listening standards require students to develop a range of broadly useful oral communication and interpersonal skills. Students must learn to work together, express and listen carefully to ideas, integrate information from oral, visual, quantitative, and media sources, evaluate what they hear, use media and visual displays strategically to help achieve communicative purposes, and adapt speech to context and task.

Language: Conventions, effective use, and vocabulary

The Language standards include the essential "rules" of standard written and spoken English, but they also approach language as a matter of craft and informed choice among alternatives. The vocabulary standards focus on understanding words and phrases, their relationships, and their nuances and on acquiring new vocabulary, particularly general academic and domain-specific words and phrases.

~~College- and Career- Readiness~~ Anchor Standards

The K–12 standards define what students should understand and be able to do by the end of each grade. The standards correspond to the College- and Career-Readiness (CCR) anchor standards below by number. The MS CCRS and grade-specific standards are necessary complements—the former providing broad standards, the latter providing additional specificity—that together define the skills and understandings that all students must demonstrate.

~~College- and Career-Readiness Anchor Standards~~

COLLEGE- AND CAREER-READINESS STANDARDS: READING (R)

~~The K–12 standards define what students should understand and be able to do by the end of each grade. The standards correspond to the College- and Career-Readiness (CCR) anchor standards below by number. The MS CCRS and grade-specific standards are necessary complements—the former providing broad standards, the latter providing additional specificity—that together define the skills and understandings that all students must demonstrate.~~

Key Ideas and Details	
CCR.R.1	Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
CCR.R.2	Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.
CCR.R.3	Analyze how and why individuals, events, or ideas develop and interact over the course of a text.
Craft and Structure	
CCR.R.4	Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.
CCR.R.5	Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.
CCR.R.6	Assess how point of view or purpose shapes the content and style of a text.
Integration of Knowledge and Ideas	
CCR.R.7	Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
CCR.R.8	Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.
CCR.R.9	Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.
Range of Reading and Level of Text Complexity	
CCR.R.10	Read and comprehend complex literary and informational texts independently and proficiently.

Note on range and content of student reading:

To build a foundation for college and career readiness, students must read widely and deeply from among a broad range of high-quality, increasingly challenging literary and informational texts. Through extensive reading of stories, dramas, poems, and myths from diverse cultures and different time periods, students gain literary and cultural knowledge as well as familiarity with various text structures and elements. By reading texts in history/social studies, science, and other disciplines, students build a foundation of knowledge in these fields that will also give them the background to be better readers in all content areas. Students also acquire the habits of reading independently and closely, which are essential to their future success.

COLLEGE- AND CAREER-READINESS STANDARDS: WRITING (W)

Text Types and Purposes[3]	
CCR.W.1	Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.
CCR.W.2	Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.
CCR.W.3	Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details and well-structured event sequences.
Production and Distribution of Writing	
CCR.W.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
CCR.W.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
CCR.W.6	Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.
Research to Build and Present Knowledge	
CCR.W.7	Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.
CCR.W.8	Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.
CCR.W.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
Range if Writing	
CCR.W.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

Note on range and content of student writing:

To build a foundation for college and career readiness, students need to learn to use writing as a way of offering and supporting opinions, demonstrating understanding of the subjects they are studying, and conveying real and imagined experiences and events. They learn to appreciate that a key purpose of writing is to communicate clearly to an external, sometimes unfamiliar audience, and they begin to adapt the form and content of their writing to accomplish a particular task and purpose. They develop the capacity to build knowledge on a subject through research projects and to respond analytically to literary and informational sources. To meet these goals, students must devote significant time and effort to writing, producing numerous pieces over short and extended time frames throughout the year.

[3] ~~These broad types of writing include many subgenres.~~

COLLEGE- AND CAREER-READINESS STANDARDS: SPEAKING AND LISTENING (SL)

Comprehension and Collaboration	
CCR.SL.1	Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
CCR.SL.2	Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.
CCR.SL.3	Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.
Presentation of Knowledge and Ideas	
CCR.SL.4	Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.
CCR.SL.5	Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.
CCR.SL.6	Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

Note on range and content of student speaking and listening:

To build a foundation for college and career readiness, students must have ample opportunities to take part in a variety of rich, structured conversations—as part of a whole class, in small groups, and with a partner. Being productive members of these conversations requires that students contribute accurate, relevant information; respond to and develop what others have said; make comparisons and contrasts; and analyze and synthesize a multitude of ideas in various domains.

New technologies have broadened and expanded the role that speaking and listening play in acquiring and sharing knowledge and have tightened their link to other forms of communication. Digital texts confront students with the potential for continually updated content and dynamically changing combinations of words, graphics, images, hyperlinks, and embedded video and audio.

COLLEGE- AND CAREER-READINESS STANDARDS: LANGUAGE (L)

Conventions of Standard English	
CCR.L.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
CCR.L.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
Knowledge of Language	
CCR.L.3	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.
Vocabulary Acquisition and Use	
CCR.L.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.
CCR.L.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
CCR.L.6	Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.

Note on range and content of student language usage:

To build a foundation for college and career readiness in language, students must gain control over many conventions of Standard English grammar, usage, and mechanics as well as learn other ways to use language to convey meaning effectively. They must also be able to determine or clarify the meaning of grade-appropriate words encountered through listening, reading, and media use; come to appreciate that words have nonliteral meanings, shadings of meaning, and relationships to other words; and expand their vocabulary in the course of studying content. The inclusion of Language standards in their own strand should not be taken as an indication that skills related to conventions, effective language use, and vocabulary are unimportant to reading, writing, speaking, and listening; indeed, they are inseparable from such contexts.

~~Mississippi College- and Career- Readiness Standards for English Scaffolding Document~~

~~Overview of the MS CCRS Scaffolding Document~~

~~Purpose~~

~~The primary purpose of the 2016 2025 Mississippi College- and Career-Readiness Standards Scaffolding Document is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 2025 Mississippi College- and Career-Readiness Standards, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery.~~

~~Organization of the 2016 2025 Mississippi College- and Career-Standards Scaffolding Document~~

~~The 2016 2025 Mississippi College- and Career-Readiness Standards Scaffolding Document is divided by grade level. Within each grade level, the Scaffolding Document is separated into the four strands identified in the Mississippi College- and Career-Readiness Standards for English Language Arts: Reading, Writing, Speaking and Listening, and Language.~~

~~Each standard is then broken down into three categories: Prerequisite Knowledge, Conceptual Understanding, and Evidence of Knowledge. The Prerequisite Knowledge column lists the skills that students should have mastered in previous grades in order to work towards mastery of the grade-specific standard. In other words, this column details what a student needs to KNOW before mastering the grade-specific standard. The Conceptual Understanding column explains the deeper understanding of concepts, not actions or skills, which are required for mastery of the grade specific standard. In other words, this column explains what a student needs to UNDERSTAND before mastering the grade-specific standard. The last column, Evidence of Knowledge, explains what student mastery looks like, including what work a student produces to exhibit mastery of the grade-specific standard. In other words, this column describes what a student needs to DO to show mastery of the grade-specific standard.~~

~~Finally, key terms are included for each standard. These key terms include the ideas, concepts, and verbs that are necessary for mastery of the standard.~~

~~A link to the scaffolding document can be found on the last page of each grade level's standards. The scaffolding documents for all grades may be accessed here: http://www.mde.k12.ms.us/ESE/ccr~~

MS CCRS for English Language Arts Grades ~~K-2~~ K-5

Kindergarten

~~The following standards offer a focus for instruction each year and help ensure that students gain adequate exposure to a range of texts and tasks. Rigor is also infused through the requirement that students read increasingly complex texts through the grades. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

These standards are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system. These foundational skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines. Instruction should be differentiated: good readers will need much less practice with these concepts that struggling readers will. The point is to teach students what they need to learn and not what they already know—to discern when particular children or activities warrant more or less attention.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources.

Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at mdek12.org/secondaryeducation/englishlanguage/

Reading Literature	
Key Ideas and Details	
RL.K.1	With prompting and support, ask and answer questions about key details in a text.
RL.K.2	With prompting and support, retell familiar stories, including key details.
RL.K.3	With prompting and support, identify characters, settings, and major events in a story.
Craft and Structure	
RL.K.4	Ask and answer questions about unknown words in a text.
RL.K.5	Recognize common types of texts (e.g., storybooks, poems).
RL.K.6	With prompting and support, name the author and illustrator of a story and define the role of each in telling the story.
Integration of Knowledge and Ideas	
RL.K.7	With prompting and support, describe the relationship between illustrations and the story in which they appear (e.g., what moment in a story an illustration depicts).
RL.K.8	Not applicable to literature.
RL.K.9	With prompting and support, compare and contrast the adventures and experiences of characters in familiar stories.
Range of Reading and Level of Text Complexity	
RL.K.10	Actively engage in group reading activities with purpose and understanding.

Kindergarten

Reading Informational Text	
Key Ideas and Details	
RI.K.1	With prompting and support, ask and answer questions about key details in a text.
RI.K.2	With prompting and support, identify the main topic and retell key details of a text.
RI.K.3	With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text.
Craft and Structure	
RI.K.4	With prompting and support, ask and answer questions about unknown words in a text.
RI.K.5	Identify the front cover, back cover, and title page of a book.
RI.K.6	Name the author and illustrator of a text and define the role of each in presenting the ideas or information in a text.
Integration of Knowledge and Ideas	
RI.K.7	With prompting and support, describe the relationship between illustrations and the text in which they appear (e.g., what person, place, thing, or idea in the text an illustration depicts).
RI.K.8	With prompting and support, identify the reasons an author gives to support points in a text.
RI.K.9	With prompting and support, identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).
Range of Reading and Level of Text Complexity	
RI.K.10	Actively engage in group reading activities with purpose and understanding.

Kindergarten

~~These standards are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system. These foundational skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines. Instruction should be differentiated: good readers will need much less practice with these concepts than struggling readers will. The point is to teach students what they need to learn and not what they already know—to discern when particular children or activities warrant more or less attention.~~

Reading Foundational Skills	
Print Concepts	
RF.K.1	Demonstrate understanding of the organization and basic features of print.
RF.K.1a	Follow words from left to right, top to bottom, and page by page.
RF.K.1b	Recognize that spoken words are represented in written language by specific sequences of letters.
RF.K.1c	Understand that words are separated by spaces in print.
RF.K.1d	Recognize and name all upper- and lowercase letters of the alphabet.
Phonological Awareness	
RF.K.2	Demonstrate understanding of spoken words, syllables, and sounds (phonemes).
RF.K.2a	Recognize and produce rhyming words.
RF.K.2b	Count, pronounce, blend, and segment syllables in spoken words.
RF.K.2c	Blend and segment onsets and rimes of single-syllable spoken words.
RF.K.2d	Isolate and pronounce the initial, medial vowel, and final sounds (phonemes) in three-phoneme (consonant-vowel-consonant, or CVC) words.[1] (This does not include CVCs ending with /l/, /r/, or /x/.)
RF.K.2e	Add or substitute individual sounds (phonemes) in simple, one-syllable words to make new words.
Phonics and Word Recognition	
RF.K.3	Know and apply grade-level phonics and word analysis skills in decoding words.
RF.K.3a	Demonstrate basic knowledge of one-to-one letter-sound correspondences by producing the primary sound ~~or many of the most frequent sounds~~ for each consonant.
RF.K.3b	Associate the long and short sounds with the common spellings (graphemes) for the five major vowels.

Kindergarten

RF.K.3c	Read common high-frequency words by sight (e.g., *the*, *of*, *to*, *you*, *she*, *my*, *is*, *are*, *do*, *does*).
RF.K.3d	Distinguish between similarly spelled words by identifying the sounds of the letters that differ.
Fluency	
RF.K.4	Read emergent-reader texts with purpose and understanding.

Kindergarten

~~The following standards for Kindergarten offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades. The expected growth in student writing ability is reflected both in the standards themselves.~~

Writing	
Text Types and Purposes	
W.K.1	Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book (e.g., *My favorite book is...*).
W.K.2	Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.
W.K.3	Use a combination of drawing, dictating, and writing to narrate a single event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened.
Production and Distribution of Writing	
W.K.4	Begins in grade 3.
W.K.5	With guidance and support from adults, respond to questions and suggestions from peers and add details to strengthen writing as needed.
W.K.6	With guidance and support from adults, explore a variety of digital tools to produce and publish writing, including in collaboration with peers.
Research to Build and Present Knowledge	
W.K.7	Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them).
W.K.8	With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
W.K.9	Begins in grade 4.
Range of Writing	
W.K.10	Begins in grade 3.

Kindergarten

~~The following standards for Kindergarten offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

Speaking and Listening	
Comprehension and Collaboration	
SL.K.1	Participate in collaborative conversations with diverse partners about *kindergarten topics and texts* with peers and adults in small and larger groups.
SL.K.1a	Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion).
SL.K.1b	Continue a conversation through multiple exchanges.
SL.K.2	Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.
SL.K.3	Ask and answer questions in order to seek help, get information, or clarify something that is not understood.
Presentation of Knowledge and Ideas	
SL.K.4	Describe familiar people, places, things, and events and, with prompting and support, provide additional detail.
SL.K.5	Add drawings or other visual displays to descriptions as desired to provide additional detail.
SL.K.6	Speak audibly and express thoughts, feelings, and ideas clearly.

Kindergarten

~~The following standards for grades Kindergarten offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

Language	
Conventions of Standard English	
L.K.1	Demonstrate command of the conventions of standard English grammar and usage when writing (printing or keyboarding) or speaking.
L.K.1a	Print ~~many~~ all upper- and lowercase letters.
L.K.1b	Use frequently occurring nouns and verbs.
L.K.1c	Form regular plural nouns orally by adding /s/ or /es/ (e.g., *dog, dogs; wish, wishes*).
L.K.1d	Understand and use question words (interrogatives) (e.g., *who, what, where, when, why, how*).
L.K.1e	Use the most frequently occurring prepositions (e.g., *to, from, in, out, on, off, for, of, by, with*).
L.K.1f	Produce and expand complete sentences in shared language activities.
L.K.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
L.K.2a	Capitalize the first word in a sentence and the pronoun *I*.
L.K.2b	Recognize and name end punctuation.
L.K.2c	~~Write a letter or letters for most consonant and short-vowel sounds (phonemes).~~ Write the letter or letters that correspond to the correct consonant and short-vowel sounds (phonemes).
L.K.2d	Spell simple words phonetically, drawing on knowledge of sound-letter relationships.
Knowledge of Language	
L.K.3	Begins in grade 2.
Vocabulary Acquisition and Use	
L.K.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on kindergarten reading and content.
L.K.4a	Identify new meanings for familiar words and apply them accurately (e.g., knowing *duck* is a bird and learning the verb to *duck*).
L.K.4b	Use the most frequently occurring inflections and affixes (e.g., *-ed, -s, re-, un-, pre-, -ful, -less*) as a clue to the meaning of an unknown word.
L.K.5	With guidance and support from adults, explore word relationships and nuances in word meanings.
L.K.5a	Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent.

Kindergarten

L.K.5b	Demonstrate understanding of frequently occurring verbs and adjectives by relating them to their opposites (antonyms).
L.K.5c	Identify real-life connections between words and their use (e.g., note places at school that are colorful).
L.K.5d	Distinguish shades of meaning among verbs describing the same general action (e.g., *walk, march, strut, prance*) by acting out the meanings.
L.K.6	Use words and phrases acquired through conversations, reading and being read to, and responding to texts.

~~**Scaffolding Document**~~

~~The primary purpose of the 2016 Mississippi College- and Career-Readiness Standards Scaffolding Document is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career-Readiness Standards, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery.~~

~~The Scaffolding Document can be found at http://www.mde.k12.ms.us/ESE/ccr.~~

Grade 1

~~The following standards offer a focus for instruction each year and help ensure that students gain adequate exposure to a range of texts and tasks. Rigor is also infused through the requirement that students read increasingly complex texts through the grades. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.
These standards are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system. These foundational skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines. Instruction should be differentiated: good readers will need much less practice with these concepts that struggling readers will. The point is to teach students what they need to learn and not what they already know—to discern when particular children or activities warrant more or less attention.
Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources.
Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at mdek12.org/secondaryeducation/englishlanguage/

Reading Literature	
Key Ideas and Details	
RL.1.1	Ask and answer questions about key details in a text.
RL.1.2	Retell stories, including key details, and demonstrate understanding of their central message or lesson.
RL.1.3	Describe characters, settings, and major events in a story, using key details.
Craft and Structure	
RL.1.4	Identify words and phrases in stories or poems that suggest feelings or appeal to the senses.

RL.1.5	Explain major differences between books that tell stories and books that give information, drawing on a wide reading of a range of text types.
RL.1.6	Identify who is telling the story at various points in a text.
Integration of Knowledge and Ideas	
RL.1.7	Use illustrations and details in a story to describe its characters, setting, or events.
RL.1.8	Not applicable to literature.
RL.1.9	Compare and contrast the adventures and experiences of characters in stories.
Range of Reading and Level of Text Complexity	
RL.1.10	With prompting and support, read prose and poetry of appropriate complexity for grade 1.

Grade 1

Reading Informational Text	
Key Ideas and Details	
RI.1.1	Ask and answer questions about key details in a text.
RI.1.2	Identify the main topic and retell key details of a text.
RI.1.3	Describe the connection between two individuals, events, ideas, or pieces of information in a text.
Craft and Structure	
RI.1.4	Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.
RI.1.5	Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.
RI.1.6	Distinguish between information provided by pictures or other illustrations and information provided by the words in a text.
Integration of Knowledge and Ideas	
RI.1.7	Use the illustrations and details in a text to describe its key ideas.
RI.1.8	Identify the reasons an author gives to support points in a text.
RI.1.9	Identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).
Range of Reading and Level of Text Complexity	
RI.1.10	With prompting and support, read informational texts appropriately complex for grade 1.

Grade 1

~~These standards are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system. These foundational skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines. Instruction should be differentiated: good readers will need much less practice with these concepts than struggling readers will. The point is to teach students what they need to learn and not what they already know—to discern when particular children or activities warrant more or less attention.~~

Reading Foundational Skills	
Print Concepts	
RF.1.1	Demonstrate understanding of the organization and basic features of print.
RF.1.1a	Recognize the distinguishing features of a sentence (e.g., first word, capitalization, ending punctuation).
Phonological Awareness	
RF.1.2	Demonstrate understanding of spoken words, syllables, and sounds (phonemes).
RF.1.2a	Distinguish long from short vowel sounds in spoken single-syllable words.
RF.1.2b	Orally produce single-syllable words by blending sounds (phonemes), including consonant blends.
RF.1.2c	Isolate and pronounce initial, medial vowel, and final sounds (phonemes) in spoken single-syllable words.
RF.1.2d	Segment spoken single-syllable words into their complete sequence of individual sounds (phonemes).
Phonics and Word Recognition	
RF.1.3	Know and apply grade-level phonics and word analysis skills in decoding words.
RF.1.3a	Know the spelling-sound correspondences for common consonant digraphs.
RF.1.3b	Decode regularly spelled one-syllable words
RF.1.3c	Know final -e and common vowel team conventions for representing long vowel sounds.
RF.1.3d	Use knowledge that every syllable must have a vowel sound to determine the number of syllables in a printed word.
RF.1.3e	Decode two-syllable words following basic patterns by breaking the words into syllables.
RF.1.3f	Read words with inflectional endings.
RF.1.3g	~~Recognize and read grade-appropriate irregularly spelled words.~~ Apply letter-sound knowledge to recognize and read irregularly spelled words.

Grade 1

Fluency	
RF.1.4	Read with sufficient accuracy and fluency to support comprehension.
RF.1.4a	Read grade-level text with purpose and understanding.
RF.1.4b	Read grade-level text orally with accuracy, appropriate rate, and expression on successive readings.
RF.1.4c	Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

Grade 1

~~The following standards for Grade 1 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades. The expected growth in student writing ability is reflected both in the standards themselves.~~

Writing	
Text Types and Purposes	
W.1.1	Write opinion pieces in which they introduce the topic or name the book they are writing about, state an opinion, supply a reason for the opinion, and provide some sense of closure.
W.1.2	Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure.
W.1.3	Write narratives in which they recount two or more appropriately sequenced events, include some details regarding what happened, use temporal words to signal event order, and provide some sense of closure.
Production and Distribution of Writing	
W.1.4	Begins in grade 3.
W.1.5	With guidance and support from adults, focus on a topic, respond to questions and suggestions from peers, and add details to strengthen writing as needed.
W.1.6	With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.
Research to Build and Present Knowledge	
W.1.7	Participate in shared research and writing projects (e.g., explore a number of "how-to" books on a given topic and use them to write a sequence of instructions).
W.1.8	With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
W.1.9	Begins in grade 4.
Range of Writing	
W.1.10	Begins in grade 3.

Grade 1

~~The following standards for Grade 1 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

Speaking and Listening	
Comprehension and Collaboration	
SL.1.1	Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.
SL.1.1a	Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).
SL.1.1b	Build on others' talk in conversations by responding to the comments of others through multiple exchanges.
SL.1.1c	Ask questions to clear up any confusion about the topics and texts under discussion.
SL.1.2	Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
SL.1.3	Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
Presentation of Knowledge and Ideas	
SL.1.4	Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.
SL.1.5	Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.
SL.1.6	Produce complete sentences when appropriate to task and situation.

Grade 1

~~The following standards for Grade 1 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

Language	
Conventions of Standard English	
L.1.1	Demonstrate command of the conventions of standard English grammar and usage when writing (printing or keyboarding) or speaking.
L.1.1a	Print all upper- and lowercase letters.
L.1.1b	Use common, proper, and possessive nouns.
L.1.1c	Use singular and plural nouns with matching verbs in basic sentences (e.g., He hops; We hop).
L.1.1d	Use personal, possessive, and indefinite pronouns (e.g., I, me, my; they, them, their, anyone, everything).
L.1.1e	Use verbs to convey a sense of past, present, and future (e.g., Yesterday I walked home; Today I walk home; Tomorrow I will walk home).
L.1.1f	Use frequently occurring adjectives.
L.1.1g	Use frequently occurring conjunctions (e.g., *and, but, or, so, because*).
L.1.1h	Use determiners (e.g., articles, demonstratives).
L.1.1i	Use frequently occurring prepositions (e.g., *during, beyond, toward).*
L.1.1j	Produce and expand complete simple and compound declarative, interrogative, imperative, and exclamatory sentences in response to prompts.
L.1.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
L.1.2a	Capitalize dates and names of people.
L.1.2b	Use end punctuation for sentences.
L.1.2c	Use commas in dates and to separate single words in a series.
L.1.2d	Use conventional spelling for words with common spelling patterns and for frequently occurring irregular words.
L.1.2e	Spell untaught words phonetically, drawing on phonemic awareness and spelling conventions.
Knowledge of Language	
L.1.3	Begins in grade 2.

Grade 1

Vocabulary Acquisition and Use	
L.1.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 1 reading and content*, choosing flexibly from an array of strategies.
L.1.4a	Use sentence-level context as a clue to the meaning of a word or phrase.
L.1.4b	Use frequently occurring affixes as a clue to the meaning of a word.
L.1.4c	Identify frequently occurring root words (e.g., *look*) and their inflectional forms (e.g., *looks, looked, looking*).
L.1.5	With guidance and support from adults, demonstrate understanding of word relationships and nuances in word meanings.
L.1.5a	Sort words into categories (e.g., colors, clothing) to gain a sense of the concepts the categories represent.
L.1.5b	Define words by category and by one or more key attributes (e.g., a *duck* is a bird that swims; a *tiger* is a large cat with stripes).
L.1.5c	Identify real-life connections between words and their use (e.g., note places at home that are *cozy*).
L.1.5d	Distinguish shades of meaning among verbs differing in manner (e.g., *look, peek, glance, stare, glare, scowl*) and adjectives differing in intensity (e.g., large, gigantic) by defining or choosing them or by acting out the meanings.
L.1.6	Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships (e.g., *because*).

~~**Scaffolding Document**~~

~~The primary purpose of the 2016 Mississippi College- and Career-Readiness Standards Scaffolding Document is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career-Readiness Standards, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery.~~

~~The Scaffolding Document can be found at http://www.mde.k12.ms.us/ESE/ccr.~~

Grade 2

~~The following standards offer a focus for instruction each year and help ensure that students gain adequate exposure to a range of texts and tasks. Rigor is also infused through the requirement that students read increasingly complex texts through the grades. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

These standards are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system. These foundational skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines. Instruction should be differentiated: good readers will need much less practice with these concepts that struggling readers will. The point is to teach students what they need to learn and not what they already know—to discern when particular children or activities warrant more or less attention.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources.

Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at mdek12.org/secondaryeducation/englishlanguage/

Reading Literature	
Key Ideas and Details	
RL.2.1	Ask and answer such questions as *who, what, where, when, why*, and *how* to demonstrate understanding of key details in a text.

RL.2.2	Recount stories, including fables and folktales from diverse cultures, and determine their central message, lesson, or moral.
RL.2.3	Describe how characters in a story respond to major events and challenges.
Craft and Structure	
RL.2.4	Describe how words and phrases (e.g., regular beats, alliteration, rhymes, repeated lines) supply rhythm and meaning in a story, poem, or song.
RL.2.5	Describe the overall structure of a story, including describing how the beginning introduces the story and the ending concludes the action.
RL.2.6	Acknowledge differences in the points of view of characters, including by speaking in a different voice for each character when reading dialogue aloud.
Integration of Knowledge and Ideas	
RL.2.7	Use information gained from the illustrations and words in a print or digital text to demonstrate understanding of its characters, setting, or plot.
RL.2.8	(not applicable to literature)
RL.2.9	Compare and contrast two or more versions of the same story (e.g., Cinderella stories) by different authors or from different cultures.
Range of Reading and Level of Text Complexity	
RL.2.10	By the end of the year, read and comprehend literature, including stories and poetry, in the grades 2–3 text complexity band proficiently, with scaffolding as needed at the high end of the range.

Grade 2

Reading Informational Text	
Key Ideas and Details	
RI.2.1	Ask and answer such questions as *who, what, where, when, why*, and *how* to demonstrate understanding of key details in a text.
RI.2.2	Identify the main topic of a multi-paragraph text as well as the focus of specific paragraphs within the text.
RI.2.3	Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.
Craft and Structure	
RI.2.4	Determine the meaning of words and phrases in a text relevant to a *grade 2 topic or subject area.*
RI.2.5	Know and use various text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text efficiently.
RI.2.6	Identify the main purpose of a text, including what the author wants to answer, explain, or describe.
Integration of Knowledge and Ideas	
RI.2.7	Explain how specific images (e.g., a diagram showing how a machine works) contribute to and clarify a text.
RI.2.8	Describe how reasons support specific points the author makes in a text.
RI.2.9	Compare and contrast the most important points presented by two texts on the same topic.
Range of Reading and Level of Text Complexity	
RI.2.10	By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 2–3 text complexity band proficiently, with scaffolding as needed at the high end of the range.

Grade 2

~~These standards are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system. These foundational skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines. Instruction should be differentiated: good readers will need much less practice with these concepts than struggling readers will. The point is to teach students what they need to learn and not what they already know—to discern when particular children or activities warrant more or less attention.~~

Reading Foundational Skills	
Print Concepts	
Not applicable in grade 2.	
Phonological Awareness	
Not applicable in grade 2.	
Phonics and Word Recognition	
RF.2.3	Know and apply grade-level phonics and word analysis skills in decoding words.
RF.2.3a	Distinguish long and short vowels when reading regularly spelled one-syllable words.
RF.2.3b	Know spelling-sound correspondences for additional common vowel teams.
RF.2.3c	Decode regularly spelled two-syllable words with long vowels.
RF.2.3d	Decode words with common prefixes and suffixes.
RF.2.3e	Identify words with inconsistent but common spelling-sound correspondences.
RF.2.3f	Recognize and read grade-appropriate irregularly spelled words.
Fluency	
RF.2.4	Read with sufficient accuracy and fluency to support comprehension.
RF.2.4a	Read grade-level text with purpose and understanding.
RF.2.4b	Read grade-level text orally with accuracy, appropriate rate, and expression on successive readings.
RF.2.4c	Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

Grade 2

~~The following standards for Grade 2 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades. The expected growth in student writing ability is reflected both in the standards themselves.~~

Writing	
Text Types and Purposes	
W.2.1	Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., *because*, *and*, *also*) to connect opinion and reasons, and provide a concluding statement or section.
W.2.2	Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.
W.2.3	Write narratives in which they recount a well-elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings, use temporal words to signal event order, and provide a sense of closure.
Production and Distribution of Writing	
W.2.4	Begins in grade 3.
W.2.5	With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing.
W.2.6	With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.
Research to Build and Present Knowledge	
W.2.7	Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).
W.2.8	Recall information from experiences or gather information from provided sources to answer a question.
W.2.9	Begins in grade 4.
Range of Writing	
W.2.10	Begins in grade 3.

Grade 2

~~The following standards for Grade 2 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

Speaking and Listening	
Comprehension and Collaboration	
SL.2.1	Participate in collaborative conversations with diverse partners about *grade 2 topics and texts* with peers and adults in small and larger groups.
SL.2.1a	Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
SL.2.1b	Build on others' talk in conversations by linking their comments to the remarks of others.
SL.2.1c	Ask for clarification and further explanation as needed about the topics and texts under discussion.
SL.2.2	Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.
SL.2.3	Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.
Presentation of Knowledge and Ideas	
SL.2.4	Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.
SL.2.5	Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.
SL.2.6	Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See grade 2 Language standards 1 for specific expectations.)

Grade 2

~~The following standards for Grade 2 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

Language	
Conventions of Standard English	
L.2.1	Demonstrate command of the conventions of standard English grammar and usage when writing (printing, cursive, or keyboarding) or speaking.
L.2.1a	Use collective nouns (e.g., *group*).
L.2.1b	Form and use frequently occurring irregular plural nouns (e.g., *feet, children, teeth, mice, fish*).
L.2.1c	Use reflexive pronouns (e.g., *myself, ourselves*).
L.2.1d	Form and use the past tense of frequently occurring irregular verbs (e.g., *sat, hid, told*).
L.2.1e	Use adjectives and adverbs, and choose between them depending on what is to be modified.
L.2.1f	Produce, expand, and rearrange complete simple and compound sentences (e.g., *The boy watched the movie; The little boy watched the movie; The action movie was watched by the little boy*).
L.2.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
L.2.2a	Capitalize holidays, product names, and geographic names.
L.2.2b	Use commas in greetings and closings of letters.
L.2.2c	Use an apostrophe to form contractions and frequently occurring possessives.
L.2.2d	Generalize learned spelling patterns when writing words (e.g., cage → badge; boy → boil).
L.2.2e	Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.
Knowledge of Language	
L.2.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.
L.2.3a	Compare formal and informal uses of English.
Vocabulary Acquisition and Use	
L.2.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 2 reading and content, choosing flexibly from an array of strategies.
L.2.4a	Use sentence-level context as a clue to the meaning of a word or phrase.

Grade 2

L.2.4b	Determine the meaning of the new word formed when a known prefix is added to a known word (e.g., *happy/unhappy, tell/retell*).
L.2.4c	Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., *addition, additional*).
L.2.4d	Use knowledge of the meaning of individual words to predict the meaning of compound words (e.g., *birdhouse, lighthouse, housefly; bookshelf, notebook, bookmark*).
L.2.4e	Use glossaries and beginning dictionaries, both print and digital, to determine or clarify the meaning of words and phrases.
L.2.5	Demonstrate understanding of word relationships and nuances in word meanings.
L.2.5a	Identify real-life connections between words and their use (e.g., *describe foods that are spicy or juicy*).
L.2.5b	Distinguish shades of meaning among closely related verbs (e.g., *toss, throw, hurl*) and closely related adjectives (e.g., *thin, slender, skinny, scrawny*).
L.2.6	Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., *When other kids are happy that makes me happy*).

~~**Scaffolding Document**~~

~~The primary purpose of the 2016 Mississippi College- and Career-Readiness Standards Scaffolding Document is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career-Readiness Standards, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery.~~

~~The Scaffolding Document can be found at http://www.mde.k12.ms.us/ESE/ccr.~~

MISSISSIPPI DEPARTMENT OF EDUCATION
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~~MS CCRS for English Language Arts Grades 3-5~~

MISSISSIPPI DEPARTMENT OF EDUCATION
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Grade 3

~~The following standards offer a focus for instruction each year and help ensure that students gain adequate exposure to a range of texts and tasks. Rigor is also infused through the requirement that students read increasingly complex texts through the grades. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

These standards are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system. These foundational skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines. Instruction should be differentiated: good readers will need much less practice with these concepts that struggling readers will. The point is to teach students what they need to learn and not what they already know—to discern when particular children or activities warrant more or less attention.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources.

Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at mdek12.org/secondaryeducation/englishlanguage/

Reading Literature	
Key Ideas and Details	
RL.3.1	Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.

RL.3.2	Recount stories, including fables, folktales, and myths from diverse cultures; determine the central message, lesson, or moral and explain how it is conveyed through key details in the text.
RL.3.3	Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.
Craft and Structure	
RL.3.4	Determine the meaning of words and phrases as they are used in a text, distinguishing literal from nonliteral language.
RL.3.5	Refer to parts of stories, dramas, and poems when writing or speaking about a text, using terms such as chapter, scene, and stanza; describe how each successive part builds on earlier sections.
RL.3.6	Distinguish their own point of view from that of the narrator or those of the characters.
Integration of Knowledge and Ideas	
RL.3.7	Explain how specific aspects of a text's illustrations contribute to what is conveyed by the words in a story (e.g., create mood, emphasize aspects of a character or setting).
RL.3.8	(not applicable to literature)
RL.3.9	Compare and contrast the themes, settings, and plots of stories written by the same author about the same or similar characters (e.g., in books from a series).
Range of Reading and Level of Text Complexity	
RL.3.10	By the end of the year, read and comprehend literature, including stories, dramas, and poetry, at the high end of the grades 2–3 text complexity band independently and proficiently.

Grade 3

Reading Informational Text	
Key Ideas and Details	
RI.3.1	Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
RI.3.2	Determine the main idea of a text; recount the key details and explain how they support the main idea.
RI.3.3	Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.
Craft and Structure	
RI.3.4	Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a *grade 3 topic or subject area*.
RI.3.5	Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.
RI.3.6	Distinguish their own point of view from that of the author of a text.
Integration of Knowledge and Ideas	
RI.3.7	Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).
RI.3.8	Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence).
RI.3.9	Compare and contrast the most important points and key details presented in two texts on the same topic.
Range of Reading and Level of Text Complexity	
RI.3.10	By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 2–3 text complexity band independently and proficiently.

Grade 3

~~These standards are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system. These foundational skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines. Instruction should be differentiated: good readers will need much less practice with these concepts than struggling readers will. The point is to teach students what they need to learn and not what they already know—to discern when particular children or activities warrant more or less attention.~~

Reading Foundational Skills	
Print Concepts	
Not applicable in grade 3.	
Phonological Awareness	
Not applicable in grade 3.	
Phonics and Word Recognition	
RF.3.3	Know and apply grade-level phonics and word analysis skills in decoding words.
RF.3.3a	Identify and know the meaning of the most common prefixes and derivational suffixes.
RF.3.3b	Decode words with common Latin suffixes.
RF.3.3c	Decode multisyllable words.
RF.3.3d	Read grade-appropriate irregularly spelled words.
Fluency	
RF.3.4	Read with sufficient accuracy and fluency to support comprehension.
RF.3.4a	Read grade-level text with purpose and understanding.
RF.3.4b	Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings.
RF.3.4c	Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

Grade 3

~~The following standards for Grade 3 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades. The expected growth in student writing ability is reflected both in the standards themselves.~~

Writing	
Text Types and Purposes	
W.3.1	Write opinion pieces on topics or texts, supporting a point of view with reasons.
W.3.1a	Introduce the topic or text they are writing about, state an opinion, and create an organizational structure that lists reasons.
W.3.1b	Provide reasons that support the opinion.
W.3.1c	Use linking words and phrases (e.g., *because*, *therefore*, *since*, *for example*) to connect opinion and reasons.
W.3.1d	Provide a concluding statement or section.
W.3.2	Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
W.3.2a	Introduce a topic and group related information together; include illustrations when useful to aiding comprehension.
W.3.2b	Develop the topic with facts, definitions, and details.
W.3.2c	Use linking words and phrases (e.g., *also*, *another*, *and*, *more*, *but*) to connect ideas within categories of information.
W.3.2d	Provide a concluding statement or section.
W.3.3	Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.
W.3.3a	Establish a situation and introduce a narrator and/or characters; organize an event sequence that unfolds naturally.
W.3.3b	Use dialogue and descriptions of actions, thoughts, and feelings to develop experiences and events or show the response of characters to situations.
W.3.3c	Use temporal words and phrases to signal event order.
W.3.3d	Provide a sense of closure.
Production and Distribution of Writing	
W.3.4	With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose. (Grade-specific expectations for writing types are defined in standards 1–3 above.)

Grade 3

W.3.5	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language standards 1-3 up to and including grade 3).
W.3.6	With guidance and support from adults, use technology to produce and publish writing (using keyboarding skills) as well as to interact and collaborate with others.
Research to Build and Present Knowledge	
W.3.7	Conduct short research projects that build knowledge about a topic.
W.3.8	Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.
W.3.9	Begins in grade 4.
Range of Writing	
W.3.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Grade 3

~~The following standards for Grade 3 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

Speaking and Listening	
Comprehension and Collaboration	
SL.3.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.
SL.3.1a	Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
SL.3.1b	Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
SL.3.1c	Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.
SL.3.1d	Explain their own ideas and understanding in light of the discussion.
SL.3.2	Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
SL.3.3	Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.
Presentation of Knowledge and Ideas	
SL.3.4	Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.
SL.3.5	Create engaging audio recordings of stories or poems that demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details.
SL.3.6	Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See grade 3 Language standards 1 and 3 for specific expectations.)

Grade 3

~~The following standards for Grade 3 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

Language	
Conventions of Standard English	
L.3.1	Demonstrate command of the conventions of standard English grammar and usage when writing (printing, cursive, or keyboarding) or speaking.
L.3.1a	Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general and their functions in particular sentences.
L.3.1b	Form and use regular and irregular plural nouns.
L.3.1c	Use abstract nouns (e.g., childhood).
L.3.1d	Form and use regular and irregular verbs.
L.3.1e	Form and use the simple (e.g., I walked; I walk; I will walk) verb tenses.
L.3.1f	Ensure subject-verb and pronoun-antecedent agreement.
L.3.1g	Form and use comparative and superlative adjectives and adverbs, and choose between them depending on what is to be modified.
L.3.1h	Use coordinating and subordinating conjunctions.
L.3.1i	Produce simple, compound, and complex sentences.
L.3.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
L.3.2a	Capitalize appropriate words in titles.
L.3.2b	Use commas in addresses.
L.3.2c	Use commas and quotation marks in dialogue.
L.3.2d	Form and use possessives.
L.3.2e	Use conventional spelling for high-frequency and other studied words and for adding suffixes to base words (e.g., *sitting, smiled, cries, happiness*).
L.3.2f	Use spelling patterns and generalizations (e.g., *word families, position-based spellings, syllable patterns, ending rules, meaningful word parts*) in writing words.
L.3.2g	Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.
Knowledge of Language	
L.3.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.

Grade 3

L.3.3a	Choose words and phrases for effect.
L.3.3b	Recognize and observe differences between the conventions of spoken and written standard English.
Vocabulary Acquisition and Use	
L.3.4	Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on grade 3 reading and content, choosing flexibly from a range of strategies.
L.3.4a	Use sentence-level context as a clue to the meaning of a word or phrase.
L.3.4b	Determine the meaning of the new word formed when a known affix is added to a known word (e.g., agreeable/disagreeable, comfortable/uncomfortable, care/careless, heat/preheat).
L.3.4c	Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., company, companion).
L.3.4d	Use glossaries or beginning dictionaries, both print and digital, to determine or clarify the precise meaning of key words and phrases.
L.3.5	Demonstrate understanding of figurative language, word relationships and nuances in word meanings.
L.3.5a	Distinguish the literal and nonliteral meanings of words and phrases in context (e.g., take steps).
L.3.5b	Identify real-life connections between words and their use (e.g., describe people who are friendly or helpful).
L.3.5c	Distinguish shades of meaning among related words that describe states of mind or degrees of certainty (e.g., knew, believed, suspected, heard, wondered).
L.3.6	Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships (e.g., After dinner that night we went looking for them).

~~**Scaffolding Document**~~

~~The primary purpose of the 2016 Mississippi College- and Career-Readiness Standards Scaffolding Document is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career-Readiness Standards, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery.~~

~~The Scaffolding Document can be found at http://www.mde.k12.ms.us/ESE/ccr.~~

Grade 4

~~The following standards offer a focus for instruction each year and help ensure that students gain adequate exposure to a range of texts and tasks. Rigor is also infused through the requirement that students read increasingly complex texts through the grades. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

These standards are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system. These foundational skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines. Instruction should be differentiated: good readers will need much less practice with these concepts that struggling readers will. The point is to teach students what they need to learn and not what they already know—to discern when particular children or activities warrant more or less attention.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Beginning in grade 4, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).

Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at mdek12.org/secondaryeducation/englishlanguage/

Reading Literature
Key Ideas and Details

RL.4.1	Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
RL.4.2	Determine a theme of a story, drama, or poem from details in the text; summarize the text.
RL.4.3	Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions).
Craft and Structure	
RL.4.4	Determine the meaning of words and phrases as they are used in a text, including those that allude to significant characters found in mythology (e.g., Herculean).
RL.4.5	Explain major differences between poems, drama, and prose, and refer to the structural elements of poems (e.g., verse, rhythm, meter) and drama (e.g., casts of characters, settings, descriptions, dialogue, stage directions) when writing or speaking about a text.
RL.4.6	Compare and contrast the point of view from which different stories are narrated, including the difference between first- and third-person narrations.
Integration of Knowledge and Ideas	
RL.4.7	Make connections between the text of a story or drama and a visual or oral presentation of the text, identifying where each version reflects specific descriptions and directions in the text.
RL.4.8	Not applicable to literature.
RL.4.9	Compare and contrast the treatment of similar themes and topics (e.g., opposition of good and evil) and patterns of events (e.g., the quest) in stories, myths, and traditional literature from different cultures.
Range of Reading and Level of Text Complexity	
RL.4.10	By the end of the year, read and comprehend literature, including stories, dramas, and poetry, in the grades 4–5 text complexity band proficiently, with scaffolding as needed at the high end of the range.

Grade 4

Reading Informational Text	
Key Ideas and Details	
RI.4.1	Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
RI.4.2	Determine the main idea of a text and explain how it is supported by key details; summarize the text.
RI.4.3	Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.
Craft and Structure	
RI.4.4	Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.
RI.4.5	Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.
RI.4.6	Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided.
Integration of Knowledge and Ideas	
RI.4.7	Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.
RI.4.8	Explain how an author uses reasons and evidence to support particular points in a text.
RI.4.9	Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.
Range of Reading and Level of Text Complexity	
RI.4.10	By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 4–5 text complexity band proficiently, with scaffolding as needed at the high end of the range.

Grade 4

~~These standards are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system. These foundational skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines. Instruction should be differentiated: good readers will need much less practice with these concepts than struggling readers will. The point is to teach students what they need to learn and not what they already know—to discern when particular children or activities warrant more or less attention.~~

Reading Foundational Skills	
Print Concepts	
Not applicable in grade 4.	
Phonological Awareness	
Not applicable in grade 4.	
Phonics and Word Recognition	
RF.4.3	Know and apply grade-level phonics and word analysis skills in decoding words.
RF.4.3a	Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.
Fluency	
RF.4.4	Read with sufficient accuracy and fluency to support comprehension.
RF.4.4a	Read grade-level text with purpose and understanding.
RF.4.4b	Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings.
RF.4.4c	Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

Grade 4

~~The following standards for Grade 4 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades. The expected growth in student writing ability is reflected both in the standards themselves.~~

Writing	
Text Types and Purposes	
W.4.1	Write opinion pieces on topics or texts, supporting a point of view with reasons and information.
W.4.1a	Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer's purpose.
W.4.1b	Provide reasons that are supported by facts and details.
W.4.1c	Link opinion and reasons using words and phrases (e.g., for instance, in order to, in addition).
W.4.1d	Provide a concluding statement or section related to the opinion presented.
W.4.2	Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
W.4.2a	Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.
W.4.2b	Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.
W.4.2c	Link ideas within categories of information using words and phrases (e.g., another, for example, also, because).
W.4.2d	Use precise language and domain-specific vocabulary to inform about or explain the topic.
W.4.2e	Provide a concluding statement or section related to the information or explanation presented.
W.4.3	Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.
W.4.3a	Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally.
W.4.3b	Use dialogue and description to develop experiences and events or show the responses of characters to situations.

Grade 4

W.4.3c	Use a variety of transitional words and phrases to manage the sequence of events.
W.4.3d	Use concrete words and phrases and sensory details to convey experiences and events precisely.
W.4.3e	Provide a conclusion that follows from the narrated experiences or events.
Production and Distribution of Writing	
W.4.4	Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
W.4.5	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language standards 1-3 up to and including grade 4.)
W.4.6	With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills.
Research to Build and Present Knowledge	
W.4.7	Conduct short research projects that build knowledge through investigation of different aspects of a topic.
W.4.8	Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.
W.4.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.4.9a	Apply *grade 4 Reading standards* to literature (e.g., "Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text [e.g., a character's thoughts, words, or actions].").
W.4.9b	Apply *grade 4 Reading standards* to informational texts (e.g., "Explain how an author uses reasons and evidence to support particular points in a text").
Range of Writing	
W.4.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Grade 4

~~The following standards for Grade 4 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

Speaking and Listening	
Comprehension and Collaboration	
SL.4.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.
SL.4.1a	Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
SL.4.1b	Follow agreed-upon rules for discussions and carry out assigned roles.
SL.4.1c	Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others.
SL.4.1d	Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.
SL.4.2	Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
SL.4.3	Identify the reasons and evidence a speaker provides to support particular points.
Presentation of Knowledge and Ideas	
SL.4.4	Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
SL.4.5	Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.
SL.4.6	Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation. (See grade 4 Language standards 1 for specific expectations.)

Grade 4

~~The following standards for Grade 4 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades. Beginning in grade 3, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).~~

Language	
Conventions of Standard English	
L.4.1	Demonstrate command of the conventions of standard English grammar and usage when writing (printing, cursive, or keyboarding) or speaking.
L.4.1a	Use relative pronouns (who, whose, whom, which, that) and relative adverbs (where, when, why).
L.4.1b	Form and use the progressive (e.g., I was walking; I am walking; I will be walking) verb tenses.
L.4.1c	Use modal auxiliaries (e.g., can, may, must) to convey various conditions.
L.4.1d	Order adjectives within sentences according to conventional patterns (e.g., a small red bag rather than a red small bag).
L.4.1e	Form and use prepositional phrases.
L.4.1f	Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons.*
L.4.1g	Correctly use frequently confused words (e.g., to, too, two; there, their).*
L.4.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
L.4.2a	Use correct capitalization.
L.4.2b	Use commas and quotation marks to mark direct speech and quotations from a text.
L.4.2c	Use a comma before a coordinating conjunction in a compound sentence.
L.4.2d	Spell grade-appropriate words correctly, consulting references as needed.
Knowledge of Language	
L.4.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.
L.4.3a	Choose words and phrases to convey ideas precisely.*
L.4.3b	Choose punctuation for effect.*

Grade 4

L.4.3c	Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion).
Vocabulary Acquisition and Use	
L.4.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 4 reading and content, choosing flexibly from a range of strategies.
L.4.4a	Use context (e.g., definitions, examples, or restatements in text) as a clue to the meaning of a word or phrase.
L.4.4b	Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., telegraph, photograph, autograph).
L.4.4c	Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.
L.4.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
L.4.5a	Explain the meaning of simple similes and metaphors (e.g., as pretty as a picture) in context.
L.4.5b	Recognize and explain the meaning of common idioms, adages, and proverbs.
L.4.5c	Demonstrate understanding of words by relating them to their opposites (antonyms) and to words with similar but not identical meanings (synonyms).
L.4.6	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., quizzed, whined, stammered) and that are basic to a particular topic (e.g., wildlife, conservation, and endangered when discussing animal preservation).

~~**Scaffolding Document**~~

~~The primary purpose of the 2016 Mississippi College- and Career-Readiness Standards Scaffolding Document is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career-Readiness Standards, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery.~~

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Grade 5

~~The following standards offer a focus for instruction each year and help ensure that students gain adequate exposure to a range of texts and tasks. Rigor is also infused through the requirement that students read increasingly complex texts through the grades. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

These standards are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system. These foundational skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines. Instruction should be differentiated: good readers will need much less practice with these concepts that struggling readers will. The point is to teach students what they need to learn and not what they already know—to discern when particular children or activities warrant more or less attention.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Beginning in grade 4, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).

Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at mdek12.org/secondaryeducation/englishlanguage/

Reading Literature	
Key Ideas and Details	
RL.5.1	Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
RL.5.2	Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.
RL.5.3	Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text (e.g., how characters interact).
Craft and Structure	
RL.5.4	Determine the meaning of words and phrases as they are used in a text, including figurative language such as metaphors and similes.
RL.5.5	Explain how a series of chapters, scenes, or stanzas fits together to provide the overall structure of a particular story, drama, or poem.
RL.5.6	Describe how a narrator's or speaker's point of view influences how events are described.
Integration of Knowledge and Ideas	
RL.5.7	Analyze how visual and multimedia elements contribute to the meaning, tone, or beauty of a text (e.g., graphic novel, multimedia presentation of fiction, folktale, myth, poem).
RL.5.8	Not applicable to literature.
RL.5.9	Compare and contrast stories in the same genre (e.g., mysteries and adventure stories) on their approaches to similar themes and topics.
Range of Reading and Level of Text Complexity	
RL.5.10	By the end of the year, read and comprehend literature, including stories, dramas, and poetry, at the high end of the grades 4–5 text complexity band independently and proficiently.

Grade 5

Reading Informational Text	
Key Ideas and Details	
RI.5.1	Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
RI.5.2	Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
RI.5.3	Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.
Craft and Structure	
RI.5.4	Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.
RI.5.5	Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts.
RI.5.6	Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.
Integration of Knowledge and Ideas	
RI.5.7	Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.
RI.5.8	Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).
RI.5.9	Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.
Range of Reading and Level of Text Complexity	
RI.5.10	By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4–5 text complexity band independently and proficiently.

Grade 5

~~These standards are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system. These foundational skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines. Instruction should be differentiated: good readers will need much less practice with these concepts than struggling readers will. The point is to teach students what they need to learn and not what they already know—to discern when particular children or activities warrant more or less attention.~~

Reading Foundational Skills	
Print Concepts	
Not applicable in grade 5.	
Phonological Awareness	
Not applicable in grade 5.	
Phonics and Word Recognition	
RF.5.3	Know and apply grade-level phonics and word analysis skills in decoding words.
RF.5.3a	Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.
Fluency	
RF.5.4	Read with sufficient accuracy and fluency to support comprehension.
RF.5.4a	Read grade-level text with purpose and understanding.
RF.5.4b	Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings.
RF.5.4c	Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

Grade 5

~~The following standards for Grade 5 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades. The expected growth in student writing ability is reflected both in the standards themselves.~~

Writing	
Text Types and Purposes	
W.5.1	Write opinion pieces on topics or texts, supporting a point of view with reasons and information.
W.5.1a	Introduce a topic or text clearly, state an opinion, and create an organizational structure in which ideas are logically grouped to support the writer's purpose.
W.5.1b	Provide logically ordered reasons that are supported by facts and details.
W.5.1c	Link opinion and reasons using words, phrases, and clauses (e.g., consequently, specifically).
W.5.1d	Provide a concluding statement or section related to the opinion presented.
W.5.2	Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
W.5.2a	Introduce a topic clearly, provide a general observation and focus, and group related information logically; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.
W.5.2b	Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.
W.5.2c	Link ideas within and across categories of information using words, phrases, and clauses (e.g., in contrast, especially).
W.5.2d	Use precise language and domain-specific vocabulary to inform about or explain the topic.
W.5.2e	Provide a concluding statement or section related to the information or explanation presented.
W.5.3	Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.
W.5.3a	Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally.

Grade 5

W.5.3b	Use narrative techniques, such as dialogue, description, and pacing, to develop experiences and events or show the responses of characters to situations.
W.5.3c	Use a variety of transitional words, phrases, and clauses to manage the sequence of events.
W.5.3d	Use concrete words and phrases and sensory details to convey experiences and events precisely.
W.5.3e	Provide a conclusion that follows from the narrated experiences or events.
Production and Distribution of Writing	
W.5.4	Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
W.5.5	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. (Editing for conventions should demonstrate command of Language standards 1-3 up to and including grade 5.)
W.5.6	With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills.
Research to Build and Present Knowledge	
W.5.7	Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.
W.5.8	Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.
W.5.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.5.9a	Apply grade 5 Reading standards to literature (e.g., “Compare and contrast two or more characters, settings, or events in a story or a drama, drawing on specific details in the text [e.g., how characters interact]”).
W.5.9b	Apply grade 5 Reading standards to informational texts (e.g., “Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point[s]”).
Range of Writing	
W.5.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Grade 5

~~The following standards for Grade 5 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

Speaking and Listening	
Comprehension and Collaboration	
SL.5.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.
SL.5.1a	Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
SL.5.1b	Follow agreed-upon rules for discussions and carry out assigned roles.
SL.5.1c	Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.
SL.5.1d	Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.
SL.5.2	Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
SL.5.3	Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.
Presentation of Knowledge and Ideas	
SL.5.4	Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
SL.5.5	Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.
SL.5.6	Adapt speech to a variety of contexts and tasks, using formal English when appropriate to task and situation. (See grade 5 Language standards 1 and 3 for specific expectations.)

Grade 5

~~The following standards for Grade 5 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades. Beginning in grade 3, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).~~

Language	
Conventions of Standard English	
L.5.1	Demonstrate command of the conventions of standard English grammar and usage when writing (printing, cursive, or keyboarding) or speaking.
L.5.1a	Explain the function of conjunctions, prepositions, and interjections in general and their function in particular sentences.
L.5.1b	Form and use the perfect (e.g., I had walked; I have walked; I will have walked) verb tenses.
L.5.1c	Use verb tense to convey various times, sequences, states, and conditions.
L.5.1d	Recognize and correct inappropriate shifts in verb tense.*
L.5.1e	Use correlative conjunctions (e.g., either/or, neither/nor).
L.5.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
L.5.2a	Use punctuation to separate items in a series.*
L.5.2b	Use a comma to separate an introductory element from the rest of the sentence.
L.5.2c	Use a comma to set off the words yes and no (e.g., Yes, thank you), to set off a tag question from the rest of the sentence (e.g., It's true, isn't it?), and to indicate direct address (e.g., Is that you, Steve?).
L.5.2d	Use underlining, quotation marks, or italics to indicate titles of works.
L.5.2e	Spell grade-appropriate words correctly, consulting references as needed.
Knowledge of Language	
L.5.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.
L.5.3a	Expand, combine, and reduce sentences for meaning, reader/listener interest, and style.
L.5.3b	Compare and contrast the varieties of English (e.g., dialects, registers) used in stories, dramas, or poems.

Grade 5

Vocabulary Acquisition and Use	
L.5.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 5 reading and content, choosing flexibly from a range of strategies.
L.5.4a	Use context (e.g., cause/effect relationships and comparisons in text) as a clue to the meaning of a word or phrase.
L.5.4b	Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., photograph, photosynthesis).
L.5.4c	Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.
L.5.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
L.5.5a	Interpret figurative language, including similes and metaphors, in context.
L.5.5b	Recognize and explain the meaning of common idioms, adages, and proverbs.
L.5.5c	Use the relationship between particular words (e.g., synonyms, antonyms, homographs) to better understand each of the words.
L.5.6	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships (e.g., however, although, nevertheless, similarly, moreover, in addition*)*.

~~Scaffolding Document~~

~~The primary purpose of the 2016 Mississippi College- and Career-Readiness Standards Scaffolding Document is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career-Readiness Standards, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery.~~

~~The Scaffolding Document can be found at http://www.mde.k12.ms.us/ESE/ccr.~~

MS CCRS ~~for~~
English Language Arts
Grades 6-8

Grade 6

~~The following standards offer a focus for instruction each year and help ensure that students gain adequate exposure to a range of texts and tasks. Rigor is also infused through the requirement that students read increasingly complex texts through the grades. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

~~The CCR anchor standards and high school grade-specific standards work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.~~

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Beginning in grade 4, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).

The CCR anchor standards and secondary grade-specific standards work in tandem to define college- and career-readiness expectations—the former providing broad standards, the latter providing additional specificity. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at mdek12.org/secondaryeducation/englishlanguage/

Reading Literature	
Key Ideas and Details	
RL.6.1	Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RL.6.2	Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text based upon this determination.

RL.6.3	Describe how the plot of a literary text unfolds in a series of episodes as well as how the characters respond or change as the plot moves toward a resolution.
Craft and Structure	
RL.6.4	Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of a specific word choice on meaning and tone.
RL.6.5	Analyze how a particular sentence, chapter, scene, or stanza fits into the overall structure of a text and contributes to the development of the theme, setting, or plot.
RL.6.6	Explain how an author develops the point of view of the narrator or speaker in a text.
Integration of Knowledge and Ideas	
RL.6.7	Compare and contrast the experience of reading a story, drama, or poem to listening to or viewing an audio, video, or live version of the text, including contrasting what they "see" and "hear" when reading the text to what they perceive when they listen or watch.
RL.6.8	Not applicable to literature.
RL.6.9	Compare and contrast texts in different forms or genres (e.g., stories and poems; historical novels and fantasy stories) in terms of their approaches to similar themes and topics.
Range of Reading and Level of Text Complexity	
RL.6.10	By the end of the year, read and comprehend literature, including stories, dramas, and poems, in the grades 6–8 text complexity band proficiently, with scaffolding as needed at the high end of the range.

Grade 6

Reading Informational Text	
Key Ideas and Details	
RI.6.1	Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RI.6.2	Determine a central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.
RI.6.3	Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text (e.g., through examples or anecdotes).
Craft and Structure	
RI.6.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.
RI.6.5	Analyze how a particular sentence, paragraph, chapter, or section fits into the overall structure of a text and contributes to the development of the ideas.
RI.6.6	Determine an author's point of view or purpose in a text and explain how it is conveyed in the text.
Integration of Knowledge and Ideas	
RI.6.7	Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.
RI.6.8	Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.
RI.6.9	Compare and contrast one author's presentation of events with that of another (e.g., a memoir written by and a biography on the same person).
Range of Reading and Level of Text Complexity	
RI.6.10	By the end of the year, read and comprehend literary nonfiction in the grades 6–8 text complexity band proficiently, with scaffolding as needed at the high end of the range.

Grade 6

~~The following standards for Grade 6 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

Writing	
Text Types and Purposes	
W.6.1	Write arguments to support claims with clear reasons and relevant evidence.
W.6.1a	Introduce claim(s) and organize the reasons and evidence clearly.
W.6.1b	Support claim(s) with clear reasons and relevant evidence, using credible sources and demonstrating an understanding of the topic or text.
W.6.1c	Use words, phrases, and clauses to clarify the relationships among claim(s) and reasons.
W.6.1d	Establish and maintain a formal style.
W.6.1e	Provide a concluding statement or section that follows from the argument presented.
W.6.2	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
W.6.2a	Introduce a topic; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/effect; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.
W.6.2b	Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples.
W.6.2c	Use appropriate transitions to clarify the relationships among ideas and concepts.
W.6.2d	Use precise language and domain-specific vocabulary to inform about or explain the topic.
W.6.2e	Establish and maintain a formal style.
W.6.2f	Provide a concluding statement or section that follows from the information or explanation presented.

Grade 6

W.6.3	Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.
W.6.3a	Engage and orient the reader by establishing a context and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically.
W.6.3b	Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters.
W.6.3c	Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another.
W.6.3d	Use precise words and phrases, relevant descriptive details, and sensory language to convey experiences and events.
W.6.3e	Provide a conclusion that follows from the narrated experiences or events.
Production and Distribution of Writing	
W.6.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
W.6.5	With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 6.)
W.6.6	Use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills.
Research to Build and Present Knowledge	
W.6.7	Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.
W.6.8	Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.
W.6.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.6.9a	Apply grade 6 Reading standards to literary texts (e.g., "Compare and contrast texts in different forms or genres [e.g., stories and poems; historical novels and fantasy stories] in terms of their approaches to similar themes and topics").
W.6.9b	Apply grade 6 Reading standards to literary nonfiction and/or informational texts (e.g., "Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not").

Grade 6

Range of Writing	
W.6.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Grade 6

~~The following standards for Grade 6 offer a focus for instruction in each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

Speaking and Listening	
Comprehension and Collaboration	
SL.6.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly.
SL.6.1a	Come to discussions prepared, having read or studied required material; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.
SL.6.1b	Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.
SL.6.1c	Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion.
SL.6.1d	Review the key ideas expressed and demonstrate understanding of multiple perspectives through reflection and paraphrasing.
SL.6.2	Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.
SL.6.3	Delineate a speaker's argument and specific claims, distinguishing claims that are supported by reasons and evidence from claims that are not.
Presentation of Knowledge and Ideas	
SL.6.4	Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.
SL.6.5	Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.
SL.6.6	Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See grade 6 Language standards 1 and 3 for specific expectations.)

Grade 6

~~The following standards for grades 6–12 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades. Beginning in grade 3, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).~~

Language	
Conventions of Standard English	
L.6.1	Demonstrate command of the conventions of standard English grammar and usage when writing (printing, cursive, or keyboarding) or speaking.
L.6.1a	Ensure that pronouns are in the proper case (subjective, objective, possessive).
L.6.1b	Use intensive pronouns (e.g., myself, ourselves).
L.6.1c	Recognize and correct inappropriate shifts in pronoun number and person.*
L.6.1d	Recognize and correct vague pronouns (i.e., ones with unclear or ambiguous antecedents).*
L.6.1e	Recognize variations from standard English in their own and others' writing and speaking, and identify and use strategies to improve expression in conventional language.*
L.6.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
L.6.2a	Use punctuation (commas, parentheses, dashes) to set off nonrestrictive/parenthetical elements.*
L.6.2b	Spell correctly.
Knowledge of Language	
L.6.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.
L.6.3a	Vary sentence patterns for meaning, reader/listener interest, and style.*
L.6.3b	Maintain consistency in style and tone.*
Vocabulary Acquisition and Use	
L.6.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 6 reading and content, choosing flexibly from a range of strategies.
L.6.4a	Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.

Grade 6

L.6.4b	Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., audience, auditory, audible).
L.6.4c	Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.
L.6.4d	Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
L.6.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
L.6.5a	Interpret figures of speech (e.g., personification) in context.
L.6.5b	Use the relationship between particular words (e.g., cause/effect, part/whole, item/category) to better understand each of the words.
L.6.5c	Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., stingy, scrimping, economical, unwasteful, thrifty).
L.6.6	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

~~Scaffolding Document~~

~~The primary purpose of the 2016 Mississippi College- and Career-Readiness Standards Scaffolding Document is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career-Readiness Standards, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery.~~

~~The Scaffolding Document can be found at http://www.mde.k12.ms.us/ESE/ccr.~~

Grade 7

~~The following standards offer a focus for instruction each year and help ensure that students gain adequate exposure to a range of texts and tasks. Rigor is also infused through the requirement that students read increasingly complex texts through the grades. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

~~The CCR anchor standards and high school grade-specific standards work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.~~

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Beginning in grade 4, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).

The CCR anchor standards and secondary grade-specific standards work in tandem to define college- and career-readiness expectations—the former providing broad standards, the latter providing additional specificity. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at mdek12.org/secondaryeducation/englishlanguage/

Reading Literature	
Key Ideas and Details	
RL.7.1	Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RL.7.2	Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an accurate summary of the text based upon this analysis.

RL.7.3	Analyze how particular elements of a literary text interact (e.g., how setting shapes the characters or plot).
Craft and Structure	
RL.7.4	Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of specific word choice (e.g., alliteration) on meaning and tone.
RL.7.5	Analyze how a ~~drama's or poem's~~ literary text's form or structure (e.g., soliloquy, sonnet) contributes to its meaning.
RL.7.6	Analyze how an author develops and contrasts the points of view of different characters or narrators in a text.
Integration of Knowledge and Ideas	
RL.7.7	Compare and contrast a written story, drama, or poem to its audio, filmed, staged, or multimedia version, analyzing the effects of techniques unique to each medium (e.g., lighting, sound, color, or camera focus and angles in a film).
RL.7.8	Not applicable to literature.
RL.7.9	Compare and contrast a fictional portrayal of a time, place, or character and a historical account of the same period as a means of understanding how authors of fiction use or alter history.
Range of Reading and Level of Text Complexity	
RL.7.10	By the end of the year, read and comprehend literature, including stories, dramas, and poems, in the grades 6–8 text complexity band proficiently, with scaffolding as needed at the high end of the range.

Grade 7

Reading Informational Text	
Key Ideas and Details	
RI.7.1	Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RI.7.2	Determine a central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an accurate summary of the text based upon this analysis.
RI.7.3	Analyze the interactions between individuals, events, and ideas in a text (e.g., how ideas influence individuals or events, or how individuals influence ideas or events).
Craft and Structure	
RI.7.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.
RI.7.5	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to the development of the ideas.
RI.7.6	Determine an author's point of view or purpose in a text and analyze how the author distinguishes his or her position from that of others.
Integration of Knowledge and Ideas	
RI.7.7	Compare and contrast a text to an audio, video, or multimedia version of the text, analyzing each medium's portrayal of the subject (e.g., how the delivery of a speech affects the impact of the words).
RI.7.8	Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims.
RI.7.9	Analyze how two or more authors writing about the same topic shape their presentations of key information by emphasizing different evidence or advancing different interpretations of facts.
Range of Reading and Level of Text Complexity	
RI.7.10	By the end of the year, read and comprehend literary nonfiction in the grades 6–8 text complexity band proficiently, with scaffolding as needed at the high end of the range.

Grade 7

~~The following standards for Grade 7 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

Writing	
Text Types and Purposes	
W.7.1	Write arguments to support claims with clear reasons and relevant evidence.
W.7.1a	Introduce claim(s), acknowledge alternate or opposing claims, and organize the reasons and evidence logically.
W.7.1b	Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.
W.7.1c	Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), reasons, and evidence.
W.7.1d	Establish and maintain a formal style.
W.7.1e	Provide a concluding statement or section that follows from and supports the argument presented.
W.7.2	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
W.7.2a	Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/effect; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.
W.7.2b	Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples.
W.7.2c	Use appropriate transitions to create cohesion and clarify the relationships among ideas and concepts.
W.7.2d	Use precise language and domain-specific vocabulary to inform about or explain the topic.
W.7.2e	Establish and maintain a formal style.
W.7.2f	Provide a concluding statement or section that follows from and supports the information or explanation presented.

Grade 7

W.7.3	Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.
W.7.3a	Engage and orient the reader by establishing a context and point of view and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically.
W.7.3b	Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters.
W.7.3c	Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another.
W.7.3d	Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.
W.7.3e	Provide a conclusion that follows from and reflects on the narrated experiences or events.
Production and Distribution of Writing	
W.7.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
W.7.5	With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 7.)
W.7.6	Use technology, including the Internet, to produce and publish writing and link to and cite sources as well as to interact and collaborate with others, including linking to and citing sources.
Research to Build and Present Knowledge	
W.7.7	Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.
W.7.8	Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
W.7.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.7.9a	Apply grade 7 Reading standards to literary texts (e.g., “Compare and contrast a fictional portrayal of a time, place, or character and a historical account of the same period as a means of understanding how authors of fiction use or alter history”).

Grade 7

W.7.9b	Apply grade 7 Reading standards to literary nonfiction and/or informational texts (e.g. "Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims").
Range of Writing	
W.7.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Grade 7

~~The following standards for Grade 7 offer a focus for instruction in each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

Speaking and Listening	
Comprehension and Collaboration	
SL.7.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.
SL.7.1a	Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.
SL.7.1b	Follow rules for collegial discussions, track progress toward specific goals and deadlines, and define individual roles as needed.
SL.7.1c	Pose questions that elicit elaboration and respond to others' questions and comments with relevant observations and ideas that bring the discussion back on topic as needed.
SL.7.1d	Acknowledge new information expressed by others and, when warranted, modify their own views.
SL.7.2	Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.
SL.7.3	Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence.
Presentation of Knowledge and Ideas	
SL.7.4	Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.
SL.7.5	Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.
SL.7.6	Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See grade 7 Language standards 1 and 3 for specific expectations.)

Grade 7

~~The following standards for Grade 7 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades. Beginning in grade 3, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).~~

Language	
Conventions of Standard English	
L.7.1	Demonstrate command of the conventions of standard English grammar and usage when writing (printing, cursive, or keyboarding) or speaking.
L.7.1a	Explain the function of phrases and clauses in general and their function in specific sentences.
L.7.1b	Choose among simple, compound, complex, and compound-complex sentences to signal differing relationships among ideas.
L.7.1c	Place phrases and clauses within a sentence, recognizing and correcting misplaced and dangling modifiers.*
L.7.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
L.7.2a	Use a comma to separate coordinate adjectives (e.g., It was a fascinating, enjoyable movie but not He wore an old[,] green shirt).
L.7.2b	Spell correctly.
Knowledge of Language	
L.7.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.
L.7.3a	Choose language that expresses ideas precisely and concisely, recognizing and eliminating wordiness and redundancy.*
Vocabulary Acquisition and Use	
L.7.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 7 reading and content, choosing flexibly from a range of strategies.
L.7.4a	Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
L.7.4b	Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., belligerent, bellicose, rebel).

Grade 7

L.7.4c	Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.
L.7.4d	Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
L.7.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
L.7.5a	Interpret figures of speech (e.g., literary, biblical, and mythological allusions) in context.
L.7.5b	Use the relationship between particular words (e.g., synonym/antonym, analogy) to better understand each of the words.
L.7.5c	Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., refined, respectful, polite, diplomatic, condescending).
L.7.6	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

~~**Scaffolding Document**~~

~~The primary purpose of the 2016 Mississippi College- and Career-Readiness Standards Scaffolding Document is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career-Readiness Standards, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery.~~

~~The Scaffolding Document can be found at http://www.mde.k12.ms.us/ESE/ccr.~~

Grade 8

~~The following standards offer a focus for instruction each year and help ensure that students gain adequate exposure to a range of texts and tasks. Rigor is also infused through the requirement that students read increasingly complex texts through the grades. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

~~The CCR anchor standards and high school grade-specific standards work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.~~

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Beginning in grade 4, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).

The CCR anchor standards and secondary grade-specific standards work in tandem to define college- and career-readiness expectations—the former providing broad standards, the latter providing additional specificity. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at mdek12.org/secondaryeducation/englishlanguage/

Reading Literature	
Key Ideas and Details	
RL.8.1	Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.

RL.8.2	Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an accurate summary of the text based upon this analysis.
RL.8.3	Analyze how particular lines of dialogue or incidents in a literary text propel the action, reveal aspects of a character, or provoke a decision.
Craft and Structure	
RL.8.4	Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.
RL.8.5	Compare and contrast the structure of two or more texts and analyze how the differing structure of each text contributes to its meaning and style.
RL.8.6	Analyze how differences in the points of view of the characters and the audience or reader (e.g., created through the use of dramatic irony) create such effects as suspense or humor.
Integration of Knowledge and Ideas	
RL.8.7	~~Analyze the extent to which a filmed or live production of a story or drama stays faithful to or departs from the text or script, evaluating the choices made by the director or actors.~~ Analyze the extent to which an adaptation of a story or drama stays faithful to or departs from the text or script, using non-text content (e.g., images, video, audio) to evaluate the choices made by the director or actors.
RL.8.8	Not applicable to literature.
RL.8.9	Analyze how myths, traditional stories, or religious works such as the Bible influence themes, patterns of events, or character types in a modern work, including how the material is rendered new.
Range of Reading and Level of Text Complexity	
RL.8.10	By the end of the year, read and comprehend literature, including stories, dramas, and poems, at the high end of grades 6–8 text complexity band independently and proficiently.

Grade 8

Reading Informational Text	
Key Ideas and Details	
RI.8.1	Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
RI.8.2	Determine a central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an accurate summary of the text based upon this analysis.
RI.8.3	Analyze how a text makes connections among and distinctions between individuals, ideas, or events (e.g., through comparisons, analogies, or categories).
Craft and Structure	
RI.8.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.
RI.8.5	Analyze the structure of a specific paragraph in a text, including the role of particular sentences in developing and refining a key concept.
RI.8.6	Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.
Integration of Knowledge and Ideas	
RI.8.7	Evaluate the advantages and disadvantages of using different mediums (e.g., print or digital text, video, multimedia) to present a particular topic or idea.
RI.8.8	Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced.
RI.8.9	Analyze a case in which two or more texts provide conflicting information on the same topic and identify where the texts disagree on matters of fact or interpretation.
Range of Reading and Level of Text Complexity	
RI.8.10	By the end of the year, read and comprehend literary nonfiction at the high end of the grades 6–8 text complexity band independently and proficiently.

Grade 8

~~The following standards for Grade 8 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

Writing	
Text Types and Purposes	
W.8.1	Write arguments to support claims with clear reasons and relevant evidence.
W.8.1a	Introduce claim(s), acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.
W.8.1b	Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.
W.8.1c	Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.
W.8.1d	Establish and maintain a formal style.
W.8.1e	Provide a concluding statement or section that follows from and supports the argument presented.
W.8.2	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
W.8.2a	Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.
W.8.2b	Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.
W.8.2c	Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.
W.8.2d	Use precise language and domain-specific vocabulary to inform about or explain the topic.
W.8.2e	Establish and maintain a formal style.
W.8.2f	Provide a concluding statement or section that follows from and supports the information or explanation presented.

Grade 8

W.8.3	Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.
W.8.3a	Engage and orient the reader by establishing a context and point of view and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically.
W.8.3b	Use narrative techniques, such as dialogue, pacing, description, and reflection, to develop experiences, events, and/or characters.
W.8.3c	Use a variety of transition words, phrases, and clauses to convey sequence, signal shifts from one time frame or setting to another, and show the relationships among experiences and events.
W.8.3d	Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.
W.8.3e	Provide a conclusion that follows from and reflects on the narrated experiences or events.
Production and Distribution of Writing	
W.8.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
W.8.5	With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 8.)
W.8.6	Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas efficiently as well as to interact and collaborate with others.
Research to Build and Present Knowledge	
W.8.7	Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
W.8.8	Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
W.8.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.8.9a	Apply grade 8 Reading standards to literature (e.g., “Analyze how a modern work of fiction draws on themes, patterns of events, or character types from myths, traditional stories, or religious works such as the Bible, including describing how the material is rendered new”).

Grade 8

W.8.9b	Apply grade 8 Reading standards to literary nonfiction and/or informational texts (e.g., "Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced").
Range of Writing	
W.8.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Grade 8

~~The following standards for Grade 8 offer a focus for instruction in each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

Speaking and Listening	
Comprehension and Collaboration	
SL.8.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.
SL.8.1a	Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.
SL.8.1b	Follow rules for collegial discussions and decision-making, track progress toward specific goals and deadlines, and define individual roles as needed.
SL.8.1c	Pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence, observations, and ideas.
SL.8.1d	Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.
SL.8.2	Analyze the purpose of information presented in diverse media and formats (e.g., visually, quantitatively, orally) and evaluate the motives (e.g., social, commercial, political) behind its presentation.
SL.8.3	Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and relevance and sufficiency of the evidence and identifying when irrelevant evidence is introduced.
Presentation of Knowledge and Ideas	
SL.8.4	Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.
SL.8.5	Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.
SL.8.6	Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See grade 8 Language standards 1 and 3 for specific expectations.)

Grade 8

~~The following standards for Grade 8 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades. Beginning in grade 3, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).~~

Language	
Conventions of Standard English	
L.8.1	Demonstrate command of the conventions of standard English grammar and usage when writing (printing, cursive, or keyboarding) or speaking.
L.8.1a	Explain the function of verbals (gerunds, participles, infinitives) in general and their function in particular sentences.
L.8.1b	Form and use verbs in the active and passive voice.
L.8.1c	Form and use verbs in the indicative, imperative, interrogative, conditional, and subjunctive mood.
L.8.1d	Recognize and correct inappropriate shifts in verb voice and mood.*
L.8.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
L.8.2a	Use punctuation (comma, ellipsis, dash) to indicate a pause or break.
L.8.2b	Use an ellipsis to indicate an omission.
L.8.2c	Spell correctly.
Knowledge of Language	
L.8.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.
L.8.3a	Use verbs in the active and passive voice and in the conditional and subjunctive mood to achieve particular effects (e.g., emphasizing the actor or the action; expressing uncertainty or describing a state contrary to fact).
Vocabulary Acquisition and Use	
L.8.4	Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on grade 8 reading and content, choosing flexibly from a range of strategies.
L.8.4a	Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
L.8.4b	Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., precede, recede, secede).

Grade 8

L.8.4c	Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.
L.8.4d	Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
L.8.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
L.8.5a	Interpret figures of speech (e.g. verbal irony, puns) in context.
L.8.5b	Use the relationship between particular words to better understand each of the words.
L.8.5c	Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., bullheaded, willful, firm, persistent, resolute).
L.8.6	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

~~**Scaffolding Document**~~

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~~The Scaffolding Document can be found at http://www.mde.k12.ms.us/ESE/ccr.~~

Literacy in History/Social Studies - Grades 6-8

The standards below begin at grade 6; standards for K–5 reading in history/social studies, science, and technical subjects are integrated into the K–5 Reading standards. The CCR anchor standards and high school standards in literacy work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.

Reading History/Social Studies	
Key Ideas and Details	
RH.6-8.1	Cite specific textual evidence to support analysis of primary and secondary sources.
RH.6-8.2	Determine the central ideas or information of a primary or secondary source; provide an accurate summary of the source distinct from prior knowledge or opinions.
RH.6-8.3	Identify key steps in a text's description of a process related to history/social studies (e.g., how a bill becomes law, how interest rates are raised or lowered).
Craft and Structure	
RH.6-8.4	Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies.
RH.6-8.5	Describe how a text presents information (e.g., sequentially, comparatively, causally).
RH.6-8.6	Identify aspects of a text that reveal an author's point of view or purpose (e.g., loaded language, inclusion or avoidance of particular facts).
Integration of Knowledge and Ideas	
RH.6-8.7	Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.
RH.6-8.8	Distinguish among fact, opinion, and reasoned judgment in a text.
RH.6-8.9	Analyze the relationship between a primary and secondary source on the same topic.
Range of Reading and Level of Text Complexity	
RH.6-8.10	By the end of grade 8, read and comprehend history/social studies texts in the grades 6–8 text complexity band independently and proficiently.

Literacy in Science and Technical Subjects - Grades 6-8

~~The standards below begin at grade 6; standards for K–5 reading in history/social studies, science, and technical subjects are integrated into the K–5 Reading standards. The CCR anchor standards and high school standards in literacy work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.~~

Reading Science and Technical Subjects	
Key Ideas and Details	
RST.6-8.1	Cite specific textual evidence to support analysis of science and technical texts.
RST.6-8.2	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
RST.6-8.3	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
Craft and Structure	
RST.6-8.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.
RST.6-8.5	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
RST.6-8.6	Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.
Integration of Knowledge and Ideas	
RST.6-8.7	Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).
RST.6-8.8	Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.
RST.6-8.9	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
Range of Reading and Level of Text Complexity	
RST.6-8.10	By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.

Writing in History/Social Studies, Science, and Technical Subjects - Grades 6-8

~~The standards below begin at grade 6; standards for K–5 writing in history/social studies, science, and technical subjects are integrated into the K–5 Writing standards. The CCR anchor standards and high school standards in literacy work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.~~

Writing	
Text Types and Purposes	
WHST.6-8.1	Write arguments focused on discipline-specific content.
WHST.6-8.1a	Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.
WHST.6-8.1b	Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources.
WHST.6-8.1c	Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.
WHST.6-8.1d	Establish and maintain a formal style.
WHST.6-8.1e	Provide a concluding statement or section that follows from and supports the argument presented.
WHST.6-8.2	Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.
WHST.6-8.2a	Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.
WHST.6-8.2b	Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.
WHST.6-8.2c	Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.
WHST.6-8.2d	Use precise language and domain-specific vocabulary to inform about or explain the topic.
WHST.6-8.2e	Establish and maintain a formal style and objective tone.
WHST.6-8.2f	Provide a concluding statement or section that follows from and supports the information or explanation presented.
WHST.6-8.3	Not Applicable

Writing in History/Social Studies, Science, and Technical Subjects - Grades 6-8

Production and Distribution of Writing	
WHST.6-8.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
WHST.6-8.5	With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.
WHST.6-8.6	Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.
Research to Build and Present Knowledge	
WHST.6-8.7	Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
WHST.6-8.8	Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
WHST.6-8.9	Draw evidence from informational texts to support analysis reflection, and research.
Range of Writing	
WHST.6-8.10	Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Note: Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In history/social studies, students must be able to incorporate narrative accounts into their analyses of individuals or events of historical import. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.

MS CCRS ~~for~~
English Language Arts
Grades 9 - 12

English I

~~The following standards offer a focus for instruction each year and help ensure that students gain adequate exposure to a range of texts and tasks. Rigor is also infused through the requirement that students read increasingly complex texts through the grades. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

~~The CCR anchor standards and high school grade-specific standards work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.~~

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Beginning in grade 4, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).

The CCR anchor standards and secondary grade-specific standards work in tandem to define college- and career-readiness expectations—the former providing broad standards, the latter providing additional specificity. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at mdek12.org/secondaryeducation/englishlanguage/

Reading Literature	
Key Ideas and Details	
RL.9.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

RL.9.2	Determine the theme(s) or central idea(s) of a text and analyze in detail the development over the course of the text, including how details of a text interact and build on one another to shape and refine the theme(s) or central idea(s); provide an accurate summary of the text based upon this analysis.
RL.9.3	Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a literary text, interact with other characters, and advance the plot or develop the theme.
Craft and Structure	
RL.9.4	Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone).
RL.9.5	Analyze how an author's choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise.
RL.9.6	Analyze a particular point of view or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature.
Integration of Knowledge and Ideas	
RL.9.7	Analyze the representation of a subject or a key scene in two different artistic mediums, including what is emphasized or absent in each treatment (e.g., Auden's "Musée des Beaux Arts" and Breughel's Landscape with the Fall of Icarus).
RL.9.8	Not applicable to literature.
RL.9.9	Analyze how an author draws on and transforms source material in a specific work (e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare).
Range of Reading and Level of Text Complexity	
RL.9.10	By the end of grade 9, read and comprehend literature, including stories, dramas, and poems, in the grades 9-10 text complexity band proficiently, with scaffolding as needed at the high end of the range.

English I

Reading Informational Text	
Key Ideas and Details	
RI.9.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RI.9.2	Determine central idea(s) of a text and analyze in detail the development over the course of the text, including how details of a text interact and build on one another to shape and refine the central idea(s); provide an accurate summary of the text based upon this analysis.
RI.9.3	Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.
Craft and Structure	
RI.9.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).
RI.9.5	Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).
RI.9.6	Determine an author's point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.
Integration of Knowledge and Ideas	
RI.9.7	Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account.
RI.9.8	Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.
RI.9.9	Analyze seminal U.S. documents of historical and literary significance (e.g., Washington's Farewell Address, the Gettysburg Address, Roosevelt's Four Freedoms speech, King's "Letter from Birmingham Jail"), including how they address related themes and concepts.
Range of Reading and Level of Text Complexity	
RI.9.10	By the end of grade 9, read and comprehend literacy nonfiction in the grades 9-10 text complexity band proficiently, with scaffolding as needed at the high end of the range.

English I

~~The following standards for Grade 9 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

Writing	
Text Types and Purposes	
W.9.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
W.9.1a	Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence.
W.9.1b	Develop claim(s) and counterclaims fairly, supplying evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level and concerns.
W.9.1c	Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
W.9.1d	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
W.9.1e	Provide a concluding statement or section that follows from and supports the argument presented.
W.9.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
W.9.2a	Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
W.9.2b	Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
W.9.2c	Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.

English I

W.9.2d	Use precise language and domain-specific vocabulary to manage the complexity of the topic.
W.9.2e	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
W.9.2f	Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
W.9.3	Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.
W.9.3a	Engage and orient the reader by setting out a problem, situation, or observation, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.
W.9.3b	Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.
W.9.3c	Use a variety of techniques to sequence events so that they build on one another to create a coherent whole.
W.9.3d	Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.
W.9.3e	Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.
Production and Distribution of Writing	
W.9.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
W.9.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 9–10.)
W.9.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.
Research to Build and Present Knowledge	
W.9.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

English I

W.9.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
W.9.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.9.9a	Apply grades 9–10 Reading standards to literature (e.g., "Analyze how an author draws on and transforms source material in a specific work [e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare]").
W.9.9b	Apply grades 9–10 Reading standards to literary nonfiction and/or informational texts (e.g., "Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning").
Range of Writing	
W.9.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

English I

~~The following standards for Grade 9 offer a focus for instruction in each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

Speaking and Listening	
Comprehension and Collaboration	
SL.9.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
SL.9.1a	Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
SL.9.1b	Work with peers to set rules for collegial discussions and decision-making (e.g., informal consensus, taking votes on key issues, presentation of alternate views), clear goals and deadlines, and individual roles as needed.
SL.9.1c	Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions.
SL.9.1d	Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented.
SL.9.2	Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.
SL.9.3	Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.
Presentation of Knowledge and Ideas	
SL.9.4	Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.
SL.9.5	Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
SL.9.6	Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See grades 9–10 Language standards 1 and 3 for specific expectations.)

English I

~~The following standards for Grade 9 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades. Beginning in grade 3, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).~~

Language	
Conventions of Standard English	
L.9.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
L.9.1a	Use parallel structure.*
L.9.1b	Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.
L.9.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
L.9.2a	Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.
L.9.2b	Use a colon to introduce a list or quotation.
L.9.2c	Spell correctly.
Knowledge of Language	
L.9.3	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.
L.9.3a	Write and edit work so that it conforms to the guidelines in a style manual (e.g., MLA Handbook, Turabian's Manual for Writers) appropriate for the discipline and writing type.
Vocabulary Acquisition and Use	
L.9.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, choosing flexibly from a range of strategies.
L.9.4a	Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
L.9.4b	Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., analyze, analysis, analytical; advocate, advocacy).

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L.9.4c	Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology.
L.9.4d	Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
L.9.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
L.9.5a	Interpret figures of speech (e.g., euphemism, oxymoron) in context and analyze their role in the text.
L.9.5b	Analyze nuances in the meaning of words with similar denotations.
L.9.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

~~Scaffolding Document~~

~~The primary purpose of the 2016 Mississippi College- and Career-Readiness Standards Scaffolding Document is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career-Readiness Standards, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery.~~

~~The Scaffolding Document can be found at http://www.mde.k12.ms.us/ESE/ccr.~~

English II

~~The following standards offer a focus for instruction each year and help ensure that students gain adequate exposure to a range of texts and tasks. Rigor is also infused through the requirement that students read increasingly complex texts through the grades. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

~~The CCR anchor standards and high school grade-specific standards work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.~~

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Beginning in grade 4, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).

The CCR anchor standards and secondary grade-specific standards work in tandem to define college- and career-readiness expectations—the former providing broad standards, the latter providing additional specificity. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at mdek12.org/secondaryeducation/englishlanguage/

Reading Literature	
Key Ideas and Details	
RL.10.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RL.10.2	Determine the theme(s) or central idea(s) of a text and analyze in detail the development over the course of the text, including how details of a text interact and build on one another to shape and refine the theme(s) or central idea(s); provide an accurate summary of the text based upon this analysis.

RL.10.3	Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a literary text, interact with other characters, and advance the plot or develop the theme.
Craft and Structure	
RL.10.4	Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone).
RL.10.5	Analyze how an author's choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise.
RL.10.6	Analyze a particular point of view or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature.
Integration of Knowledge and Ideas	
RL.10.7	Analyze the representation of a subject or a key scene in two different artistic mediums, including what is emphasized or absent in each treatment (e.g., Auden's "Musée des Beaux Arts" and Breughel's Landscape with the Fall of Icarus).
RL.10.8	Not applicable to literature.
RL.10.9	Analyze how an author draws on and transforms source material in a specific work (e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare).
Range of Reading and Level of Text Complexity	
RL.10.10	By the end of grade 10, read and comprehend literature, including stories, dramas, and poems, at the high end of the grades 9–10 text complexity band independently and proficiently.

English II

Reading Informational Text	
Key Ideas and Details	
RI.10.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RI.10.2	Determine the central idea(s) of a text and analyze in detail the development over the course of the text, including how details of a text interact and build on one another to shape and refine the central idea(s); provide an accurate summary of the text based upon this analysis.
RI.10.3	Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.
Craft and Structure	
RI.10.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).
RI.10.5	Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).
RI.10.6	Determine an author's point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.
Integration of Knowledge and Ideas	
RI.10.7	Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account.
RI.10.8	Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.
RI.10.9	Analyze seminal U.S. documents of historical and literary significance (e.g., Washington's Farewell Address, the Gettysburg Address, Roosevelt's Four Freedoms speech, King's "Letter from Birmingham Jail"), including how they address related themes and concepts.
Range of Reading and Level of Text Complexity	
RI.10.10	By the end of grade 10, read and comprehend literary nonfiction at the high end of the grades 9-10 text complexity band independently and proficiently.

English II

~~The following standards for Grade 10 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

Writing	
Text Types and Purposes	
W.10.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
W.10.1a	Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence.
W.10.1b	Develop claim(s) and counterclaims fairly, supplying evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level and concerns.
W.10.1c	Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
W.10.1d	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
W.10.1e	Provide a concluding statement or section that follows from and supports the argument presented.
W.10.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
W.10.2a	Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
W.10.2b	Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.

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W.10.2c	Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
W.10.2d	Use precise language and domain-specific vocabulary to manage the complexity of the topic.
W.10.2e	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
W.10.2f	Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
W.10.3	Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.
W.10.3a	Engage and orient the reader by setting out a problem, situation, or observation, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.
W.10.3b	Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.
W.10.3c	Use a variety of techniques to sequence events so that they build on one another to create a coherent whole.
W.10.3d	Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.
W.10.3e	Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.
Production and Distribution of Writing	
W.10.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
W.10.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 9–10.)
W.10.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.

English II

Research to Build and Present Knowledge	
W.10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.10.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
W.10.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.10.9a	Apply grades 9–10 Reading standards to literature (e.g., "Analyze how an author draws on and transforms source material in a specific work [e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare]").
W.10.9b	Apply grades 9–10 Reading standards to literary nonfiction and/or informational texts (e.g., "Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning").
Range of Writing	
W.10.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

English II

~~The following standards for Grade 10 offer a focus for instruction in each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

Speaking and Listening	
Comprehension and Collaboration	
SL.10.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
SL.10.1a	Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
SL.10.1b	Work with peers to set rules for collegial discussions and decision-making (e.g., informal consensus, taking votes on key issues, presentation of alternate views), clear goals and deadlines, and individual roles as needed.
SL.10.1c	Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions.
SL.10.1d	Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented.
SL.10.2	Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.
SL.10.3	Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.
Presentation of Knowledge and Ideas	
SL.10.4	Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.

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SL.10.5	Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
SL.10.6	Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See grades 9–10 Language standards 1 and 3 for specific expectations.)

English II

~~The following standards for Grade 10 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades. Beginning in grade 3, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).~~

Language	
Conventions of Standard English	
L.10.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
L.10.1a	Use parallel structure.*
L.10.1b	Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.
L.10.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
L.10.2a	Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.
L.10.2b	Use a colon to introduce a list or quotation.
L.10.2c	Spell correctly.
Knowledge of Language	
L.10.3	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.
L.10.3a	Write and edit work so that it conforms to the guidelines in a style manual (e.g., MLA Handbook, Turabian's Manual for Writers) appropriate for the discipline and writing type.
Vocabulary Acquisition and Use	
L.10.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, choosing flexibly from a range of strategies.
L.10.4a	Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
L.10.4b	Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., analyze, analysis, analytical; advocate, advocacy).

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L.10.4c	Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology.
L.10.4d	Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
L.10.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
L.10.5a	Interpret figures of speech (e.g., euphemism, oxymoron) in context and analyze their role in the text.
L.10.5b	Analyze nuances in the meaning of words with similar denotations.
L.10.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

~~**Scaffolding Document**~~

~~The primary purpose of the 2016 Mississippi College- and Career-Readiness Standards Scaffolding Document is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career-Readiness Standards, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery.~~

~~The Scaffolding Document can be found at http://www.mde.k12.ms.us/ESE/ccr.~~

Literacy in History/Social Studies - Grades 9-10

The standards below begin at grade 6; standards for K–5 reading in history/social studies, science, and technical subjects are integrated into the K–5 Reading standards. The CCR anchor standards and high school standards in literacy work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.

Reading in History/Social Studies	
Key Ideas and Details	
RH.9-10.1	Cite specific textual evidence to support analysis of primary and secondary sources, attending to such features as the date and origin of the information.
RH.9-10.2	Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.
RH.9-10.3	Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them.
Craft and Structure	
RH.9-10.4	Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history/social science.
RH.9-10.5	Analyze how a text uses structure to emphasize key points or advance an explanation or analysis.
RH.9-10.6	Compare the point of view of two or more authors for how they treat the same or similar topics, including which details they include and emphasize in their respective accounts.
Integration of Knowledge and Ideas	
RH.9-10.7	Integrate quantitative or technical analysis (e.g., charts, research data) with qualitative analysis in print or digital text.
RH.9-10.8	Assess the extent to which the reasoning and evidence in a text support the author's claims.
RH.9-10.9	Compare and contrast treatments of the same topic in several primary and secondary sources.
Range of Reading and Level of Text Complexity	
RH.9-10.10	By the end of grade 10, read and comprehend history/social studies texts in the grades 9–10 text complexity band independently and proficiently.

Literacy in Science and Technical Subjects - Grades 9-10

~~The standards below begin at grade 6; standards for K–5 reading in history/social studies, science, and technical subjects are integrated into the K–5 Reading standards. The CCR anchor standards and high school standards in literacy work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.~~

Reading in Science and Technical Subjects	
Key Ideas and Details	
RST.9-10.1	Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.
RST.9-10.2	Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.
RST.9-10.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.
Craft and Structure	
RST.9-10.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.
RST.9-10.5	Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).
RST.9-10.6	Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address.
Integration of Knowledge and Ideas	
RST.9-10.7	Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.
RST.9-10.8	Assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem.
RST.9-10.9	Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.
Range of Reading and Level of Text Complexity	
RST.9-10.10	By the end of grade 10, read and comprehend science/technical texts in the grades 9–10 text complexity band independently and proficiently.

Writing in History/SS, Science, and Technical Subjects - Grades 9-10

~~The standards below begin at grade 6; standards for K–5 writing in history/social studies, science, and technical subjects are integrated into the K–5 Writing standards. The CCR anchor standards and high school standards in literacy work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.~~

Writing	
Text Types and Purposes	
WHST.9-10.1	Write arguments focused on discipline-specific content.
WHST.9-10.1a	Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.
WHST.9-10.1b	Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns.
WHST.9-10.1c	Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
WHST.9-10.1d	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
WHST.9-10.1e	Provide a concluding statement or section that follows from or supports the argument presented.
WHST.9-10.2	Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.
WHST.9-10.2a	Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
WHST.9-10.2b	Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.

Writing in History/SS, Science, and Technical Subjects - Grades 9-10

WHST.9-10.2c	Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.
WHST.9-10.2d	Use precise language and domain-specific vocabulary to manage the complexity of the topic and convey a style appropriate to the discipline and context as well as to the expertise of likely readers.
WHST.9-10.2e	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
WHST.9-10.2f	Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
WHST.9-10.3	Not Applicable
Production and Distribution of Writing	
WHST.9-10.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
WHST.9-10.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
WHST.9-10.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.
Research to Build and Present Knowledge	
WHST.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
WHST.9-10.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
WHST.9-10.9	Draw evidence from informational texts to support analysis, reflection, and research.

Writing in History/SS, Science, and Technical Subjects - Grades 9-10:

Range of Writing	
WHST.9-10.10	Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Note: Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In history/social studies, students must be able to incorporate narrative accounts into their analyses of individuals or events of historical import. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.

English III

~~The following standards offer a focus for instruction each year and help ensure that students gain adequate exposure to a range of texts and tasks. Rigor is also infused through the requirement that students read increasingly complex texts through the grades. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

~~The CCR anchor standards and high school grade-specific standards work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.~~

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Beginning in grade 4, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).

The CCR anchor standards and secondary grade-specific standards work in tandem to define college- and career-readiness expectations—the former providing broad standards, the latter providing additional specificity. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at mdek12.org/secondaryeducation/englishlanguage/

Reading Literature	
Key Ideas and Details	
RL.11.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.

RL.11.2	Determine themes or central ideas of a text and analyze in detail their development over the course of the text, including how details of a text interact and build on one another to produce a complex account; provide an accurate summary of the text based upon this analysis.
RL.11.3	Analyze the impact of the author's choices regarding how to develop and relate elements of a literary text (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed).
Craft and Structure	
RL.11.4	Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful. (Include Shakespeare as well as other authors.)
RL.11.5	Analyze how an author's choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact.
RL.11.6	Analyze a case in which grasping a point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement).
Integration of Knowledge and Ideas	
RL.11.7	Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play or recorded novel or poetry), evaluating how each version interprets the source text. (Include at least one play by Shakespeare and one play by an American dramatist.)

RL.11.8	Not applicable to literature.
RL.11.9	Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics.
Range of Reading and Level of Text Complexity	
RL.11.10	By the end of grade 11, read and comprehend literature, including stories, dramas, and poems, in the grades 11-CCR text complexity band proficiently, with scaffolding as needed at the high end of the range.

English III

Reading Informational Text	
Key Ideas and Details	
RI.11.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
RI.11.2	Determine central ideas of a text and analyze in detail their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an accurate summary of the text based upon this analysis.
RI.11.3	Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.
Craft and Structure	
RI.11.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).
RI.11.5	Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.
RI.11.6	Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness or beauty of the text.
Integration of Knowledge and Ideas	
RI.11.7	Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
RI.11.8	Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g., The Federalist, presidential addresses).[4]
RI.11.9	Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance for their themes, purposes, and rhetorical features. Such documents might include The Declaration of Independence, the Preamble to the Constitution, the Bill of Rights, and Lincoln's Second Inaugural Address.
Range of Reading and Level of Text Complexity	
RI.11.10	By the end of grade 11, read and comprehend literary nonfiction in the grades 11-CCR text complexity band proficiently, with scaffolding as needed at the high

[4] The discussion of U.S. historical documents can be applied in context to a more global perspective.

	end of the range.

English III

The following standards for Grade 11 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

Writing	
Text Types and Purposes	
W.11.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
W.11.1a	Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence.
W.11.1b	Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases.
W.11.1c	Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
W.11.1d	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
W.11.1e	Provide a concluding statement or section that follows from and supports the argument presented.
W.11.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
W.11.2a	Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

English III

W.11.2b	Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
W.11.2c	Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
W.11.2d	Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.
W.11.2e	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
W.11.2f	Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
W.11.3	Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.
W.11.3a	Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.
W.11.3b	Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.
W.11.3c	Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution).
W.11.3d	Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.
W.11.3e	Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.
Production and Distribution of Writing	
W.11.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)

English III

W.11.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 11–12.)
W.11.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
Research to Build and Present Knowledge	
W.11.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.11.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
W.11.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.11.9a	Apply grades 11–12 Reading standards to literature (e.g., "Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics").
W.11.9b	Apply grades 11–12 Reading standards to literary nonfiction and/or informational texts (e.g., "Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., The Federalist, presidential addresses]").
Range of Writing	
W.11.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

English III

~~The following standards for Grade 11 offer a focus for instruction in each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

Speaking and Listening	
Comprehension and Collaboration	
SL.11.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11–12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
SL.11.1a	Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
SL.11.1b	Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.
SL.11.1c	Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives.
SL.11.1d	Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.
SL.11.2	Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
SL.11.3	Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.
Presentation of Knowledge and Ideas	
SL.11.4	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.

English III

SL.11.5	Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
SL.11.6	Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate. (See grades 11–12 Language standards 1 and 3 for specific expectations.)

English III

~~The following standards for Grade 12 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades. Beginning in grade 3, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).~~

Language	
Conventions of Standard English	
L.11.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
L.11.1a	Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested.
L.11.1b	Resolve issues of complex or contested usage, consulting references (e.g., Merriam-Webster's Dictionary of English Usage, Garner's Modern American Usage) as needed.
L.11.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
L.11.2a	Observe hyphenation conventions.
L.11.2b	Spell correctly.
Knowledge of Language	
L.11.3	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.
L.11.3a	Vary syntax for effect, consulting references (e.g., Tufte's Artful Sentences) for guidance as needed; when analyzing complex texts, demonstrate an understanding of how syntax contributes to the purpose or meaning of the text.
Vocabulary Acquisition and Use	
L.11.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 11–12 reading and content, choosing flexibly from a range of strategies.
L.11.4a	Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
L.11.4b	Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., conceive, conception, conceivable).

English III

L.11.4c	Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its standard usage.
L.11.4d	Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
L.11.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
L.11.5a	Interpret figures of speech (e.g., hyperbole, paradox) in context and analyze their role in the text.
L.11.5b	Analyze nuances in the meaning of words with similar denotations.
L.11.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

~~Scaffolding Document~~

~~The primary purpose of the 2016 Mississippi College- and Career-Readiness Standards Scaffolding Document is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career-Readiness Standards, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery.~~

~~The Scaffolding Document can be found at http://www.mde.k12.ms.us/ESE/ccr.~~

English IV

~~The following standards offer a focus for instruction each year and help ensure that students gain adequate exposure to a range of texts and tasks. Rigor is also infused through the requirement that students read increasingly complex texts through the grades. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

~~The CCR anchor standards and high school grade-specific standards work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.~~

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Beginning in grade 4, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).

The CCR anchor standards and secondary grade-specific standards work in tandem to define college- and career-readiness expectations—the former providing broad standards, the latter providing additional specificity. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at mdek12.org/secondaryeducation/englishlanguage/

Reading Literature	
Key Ideas and Details	
RL.12.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.

RL.12.2	Determine themes or central ideas of a text and analyze in detail their development over the course of the text, including how details of a text interact and build on one another to produce a complex account; provide an accurate summary of the text based upon this analysis.
RL.12.3	Analyze the impact of the author's choices regarding how to develop and relate elements of a literary text (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed).
Craft and Structure	
RL.12.4	Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful. (Include Shakespeare as well as other authors.)
RL.12.5	Analyze how an author's choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact.
RL.12.6	Analyze a case in which grasping a point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement).
Integration of Knowledge and Ideas	
RL.12.7	Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play or recorded novel or poetry), evaluating how each version interprets the source text. (Include at least one play by Shakespeare and one play by an American dramatist.)
RL.12.8	Not applicable to literature.
RL.12.9	Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics.[5]
Range of Reading and Level of Text Complexity	
RL.12.10	By the end of grade 12, read and comprehend literature, including stories, dramas, and poems, at the high end of the grades 12–CCR text complexity band independently and proficiently.

[5] In English IV, this study may be expanded to include the literature of other cultures during the same time period.

English IV

Reading Informational Text	
Key Ideas and Details	
RI.12.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
RI.12.2	Determine two or more central ideas of a text and analyze in detail their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an accurate summary of the text based upon this analysis.
RI.12.3	Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.
Craft and Structure	
RI.12.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).
RI.12.5	Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.
RI.12.6	Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness or beauty of the text.
Integration of Knowledge and Ideas	
RI.12.7	Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
RI.12.8	Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g., The Federalist, presidential addresses).[6]
RI.12.9	Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance for their themes, purposes, and rhetorical features. Such documents might include The Declaration of Independence, the Preamble to the Constitution, the Bill of Rights, and Lincoln's Second Inaugural Address.
Range of Reading and Level of Text Complexity	
RI.12.10	By the end of grade 12, read and comprehend literary nonfiction at the high end of the grades 12-CCR text complexity band independently and proficiently.

[6] The discussion of U.S. historical documents can be applied in context to a more global perspective.

English IV

~~The following standards for Grade 12 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

Writing	
Text Types and Purposes	
W.12.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
W.12.1a	Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence.
W.12.1b	Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases.
W.12.1c	Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
W.12.1d	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
W.12.1e	Provide a concluding statement or section that follows from and supports the argument presented.
W.12.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
W.12.2a	Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

English IV

W.12.2b	Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
W.12.2c	Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
W.12.2d	Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.
W.12.2e	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
W.12.2f	Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
W.12.3	Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.
W.12.3a	Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.
W.12.3b	Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.
W.12.3c	Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution).
W.12.3d	Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.
W.12.3e	Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.
Production and Distribution of Writing	
W.12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)

English IV

W.12.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 11–12.)
W.12.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
Research to Build and Present Knowledge	
W.12.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
W.12.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.12.9a	Apply grades 11–12 Reading standards to literature (e.g., "Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics").
W.12.9b	Apply grades 11–12 Reading standards to literary nonfiction and/or informational texts (e.g., "Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., The Federalist, presidential addresses]").
Range of Writing	
W.12.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

English IV

~~The following standards for Grade 12 offer a focus for instruction in each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.~~

Speaking and Listening	
Comprehension and Collaboration	
SL.12.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11–12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
SL.12.1a	Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
SL.12.1b	Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.
SL.12.1c	Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives.
SL.12.1d	Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.
SL.12.2	Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
SL.12.3	Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.
Presentation of Knowledge and Ideas	
SL.12.4	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.

English IV

SL.12.5	Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
SL.12.6	Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate. (See grades 11–12 Language standards 1 and 3 for specific expectations.)

English IV

~~The following standards for Grade 12 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades. Beginning in grade 3, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).~~

Language	
Conventions of Standard English	
L.12.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
L.12.1a	Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested.
L.12.1b	Resolve issues of complex or contested usage, consulting references (e.g., Merriam-Webster's Dictionary of English Usage, Garner's Modern American Usage) as needed.
L.12.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
L.12.2a	Observe hyphenation conventions.
L.12.2b	Spell correctly.
Knowledge of Language	
L.12.3	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.
L.12.3a	Vary syntax for effect, consulting references (e.g., Tufte's Artful Sentences) for guidance as needed; when analyzing complex texts, demonstrate an understanding of how syntax contributes to the purpose or meaning of the text.
Vocabulary Acquisition and Use	
L.12.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 11–12 reading and content, choosing flexibly from a range of strategies.
L.12.4a	Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
L.12.4b	Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., conceive, conception, conceivable).

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L.12.4c	Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its standard usage.
L.12.4d	Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
L.12.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
L.12.5a	Interpret figures of speech (e.g., hyperbole, paradox) in context and analyze their role in the text.
L.12.5b	Analyze nuances in the meaning of words with similar denotations.
L.12.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

~~Scaffolding Document~~

~~The primary purpose of the 2016 Mississippi College- and Career-Readiness Standards Scaffolding Document is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career-Readiness Standards, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery.~~

~~The Scaffolding Document can be found at http://www.mde.k12.ms.us/ESE/ccr.~~

Literacy in History/Social Studies - Grades 11-12

The standards below begin at grade 6; standards for K–5 reading in history/social studies, science, and technical subjects are integrated into the K–5 Reading standards. The CCR anchor standards and high school standards in literacy work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.

Reading in History/Social Studies	
Key Ideas and Details	
RH.11-12.1	Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
RH.11-12.2	Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
RH.11-12.3	Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
Craft and Structure	
RH.11-12.4	Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines faction in Federalist No. 10).
RH.11-12.5	Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs, and larger portions of the text contribute to the whole.
RH.11-12.6	Evaluate authors' differing points of view on the same historical event or issue by assessing the authors' claims, reasoning, and evidence.
Integration of Knowledge and Ideas	
RH.11-12.7	Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.
RH.11-12.8	Evaluate an author's premises, claims, and evidence by corroborating or challenging them with other information.
RH.-11-12.9	Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.
Range of Reading and Level of Text Complexity	
RH.11-12.10	By the end of grade 12, read and comprehend history/social studies texts in the grades 12–CCR text complexity band independently and proficiently.

Literacy in Science and Technical Subjects - Grades 11-12

~~The standards below begin at grade 6; standards for K–5 reading in history/social studies, science, and technical subjects are integrated into the K–5 Reading standards. The CCR anchor standards and high school standards in literacy work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.~~

Reading in Science and Technical Subjects	
Key Ideas and Details	
RST.11-12.1	Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.
RST.11-12.2	Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
RST.11-12.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
Craft and Structure	
RST.11-12.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.
RST.11-12.5	Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.
RST.11-12.6	Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.
Integration of Knowledge and Ideas	
RST.11-12.7	Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
RST.11-12.8	Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.
RST.-11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
Range of Reading and Level of Text Complexity	
RST.11-12.10	By the end of grade 12, read and comprehend science/technical texts in the grades 12–CCR text complexity band independently and proficiently.

Writing in History/Social Studies, Science and Technical Subjects - Grades 11-12

~~The standards below begin at grade 6; standards for K–5 writing in history/social studies, science, and technical subjects are integrated into the K–5 Writing standards. The CCR anchor standards and high school standards in literacy work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.~~

Writing	
Text Types and Purposes	
WHST.11-12.1	Write arguments focused on discipline-specific content.
WHST.11-12.1a	Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.
WHST.11-12.1b	Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases.
WHST.11-12.1c	Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
WHST.11-12.1d	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
WHST.11-12.1e	Provide a concluding statement or section that follows from or supports the argument presented.
WHST.11-12.2	Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.
WHST.11-12.2a	Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

Writing in History/Social Studies, Science and Technical Subjects - Grades 11-12

WHST.11-12.2b	Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
WHST.11-12.2c	Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
WHST.11-12.2d	Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.
WHST.11-12.2e	Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic).
WHST.11-12.3	Not Applicable
Production and Distribution of Writing	
WHST.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
WHST.11-12.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
WHST.11-12.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
Research to Build and Present Knowledge	
WHST.11-12.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
WHST.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
WHST.11-12.9	Draw evidence from informational texts to support analysis, reflection, and research.

Writing in History/Social Studies, Science and Technical Subjects - Grades 11-12

Range of Writing	
WHST.11-12.10	Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Note: Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In history/social studies, students must be able to incorporate narrative accounts into their analyses of individuals or events of historical import. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.

~~Mississippi College- and Career-Readiness Standards for English Language Arts~~

~~High School English Electives~~

2025 MS CCRS

English Language Arts

Secondary Electives &

Supplemental Courses

Creative Writing

Grades 9-12
1 English Credit

The Creative Writing course will provide the student practices in the processes of composing poems, personal descriptive and narrative essays, and short fiction. If time allows, the writing of drama may be pursued. The course affords an opportunity for self- expression, promotes critical thinking, expands the imagination, and develops the use of figurative and literal language. The student will pursue an independent project in creative writing. The student will become a critical reader and editor of his/her own work and of the work of his/her classmates. The student will be encouraged to submit works for publication.

Writing	
W.11-12.3	Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.
W.11-12.3a	Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.
W.11-12.3b	Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.
W.11-12.3c	Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution).
W.11-12.3d	Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.
W.11-12.3e	Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.
W.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
W.11-12.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 11–12.)
W.11-12.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
W.11-12.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden

	the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
W.11-12.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.11-12.9a	Apply grades 11–12 Reading standards to literature (e.g., “Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics”).
W.11-12.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.
Language	
L.11-12.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
L.11-12.1a	Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested.
L.11-12.1b	Resolve issues of complex or contested usage, consulting references (e.g., Merriam-Webster’s Dictionary of English Usage, Garner’s Modern American Usage) as needed.
L.11-12.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
L.11-12.2a	Observe hyphenation conventions.
L.11-12.2b	Spell correctly.
L.11-12.3	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.
L.11-12.3a	Vary syntax for effect, consulting references (e.g., Tufte’s Artful Sentences) for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.
L.11-12.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 11–12 reading and content, choosing flexibly from a range of strategies.
L.11-12.4a	Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word’s position or function in a sentence) as a clue to the meaning of a word or phrase.
L.11-12.4b	Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., conceive, conception, conceivable).

L.11-12.4c	Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its standard usage.
L.11-12.4d	Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
L.11-12.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
L.11-12.5a	Interpret figures of speech (e.g., hyperbole, paradox) in context and analyze their role in the text.
L.11-12.5b	Analyze nuances in the meaning of words with similar denotations.
L.11-12.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Debate

Grades 9-12
.5 or 1 English Credit

This course provides instruction in how to acquire, analyze, and evaluate information in order to organize effective arguments, and it provides practice in making those arguments. Skill in debate helps the individual to think logically, clearly, and quickly, and it helps a student to identify flawed reasoning and argue persuasively.

Writing	
W.11-12.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
W.11-12.1a	Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence.
W.11-12.1b	Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases.
W.11-12.1c	Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
W.11-12.1d	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
W.11-12.1e	Provide a concluding statement or section that follows from and supports the argument presented.
W.11-12.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
W.11-12.2a	Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
W.11-12.2b	Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.

W.11-12.2c	Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
W.11-12.2d	Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.
W.11-12.2e	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
W.11-12.2f	Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
W.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
W.11-12.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 11–12.)
W.11-12.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
W.11-12.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
W.11-12.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.11-12.9b	Apply grades 11–12 Reading standards to literary nonfiction (e.g., "Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., The Federalist, presidential addresses]").
W.11-12.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

Speaking and Listening	
SL.11-12.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11–12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
SL.11-12.1a	Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
SL.11-12.1b	Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.
SL.11-12.1c	Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives.
SL.11-12.1d	Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.
SL.11-12.2	Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
SL.11-12.3	Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.
SL.11-12.4	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
SL.11-12.5	Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
SL.11-12.6	Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate. (See grades 11–12 Language standards 1 and 3 here for specific expectations.)
Language	
L.11-12.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
L.11-12.1a	Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested.

L.11-12.1b	Resolve issues of complex or contested usage, consulting references (e.g., Merriam-Webster's Dictionary of English Usage, Garner's Modern American Usage) as needed.
L.11-12.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
L.11-12.2a	Observe hyphenation conventions.
L.11-12.2b	Spell correctly.
L.11-12.3	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.
L.11-12.3a	Vary syntax for effect, consulting references (e.g., Tufte's Artful Sentences) for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.
L.11-12.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 11–12 reading and content, choosing flexibly from a range of strategies.
L.11-12.4a	Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
L.11-12.4b	Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., conceive, conception, conceivable).
L.11-12.4c	Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its standard usage.
L.11-12.4d	Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
L.11-12.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
L.11-12.5a	Interpret figures of speech (e.g., hyperbole, paradox) in context and analyze their role in the text.
L.11-12.5b	Analyze nuances in the meaning of words with similar denotations.
L.11-12.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Foundations of Journalism

Grades 9-12
.5 or 1 English Credit

Foundations of Journalism is an English course for one Carnegie unit credit. It's intended as a general course to enhance students' communication and media literacy skills. It is a prerequisite for subsequent journalism courses. This course is designed to help students produce a factual, journalistically-sound piece of writing from interviews they conducted. By the end of this course, students should be able to produce a factual, journalistically-sound piece of writing from interviews they conducted. Students should also be able to create at least one accompanying visual element (photo/video) and publish their work (story + visual) to the web.

1. Develop an awareness of the history and role of journalism in Mississippi and in American society.	
1.a	Understand the relationship of a free press to a democratic society.
1.b	Trace the historical development of media through American history, including but not limited to the following events/periods: • 1st newspaper in America • The Civil War and the rise of the telegraph • Yellow Journalism • Orson Welles and the power of radio • Kennedy/Nixon debate and the power of television • Cable Network News (CNN) starts 24-hour news cycle • Newspapers start websites and the rise of bloggers • Facebook, Twitter and the social media revolution
1.c	Identify famous Mississippi journalists/newspapers and their historical significance.
1.d	Identify careers related to the field of journalism and new media.
2. Develop skills in gathering and evaluating information.	
2.a	Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text. (RL.9-10.2)
2.b	Determine two or more themes or central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to produce a complex account; provide an objective summary of the text. (RL.11-12.2)
2.c	Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text. (RI.9-10.2)

2.d	Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account. (RI.9-10.7)
2.e	Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning. (RI.9-10.8)
2.f	Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem. (RI.11-12.7)
2.g	Develop techniques in interviewing and note-taking, and interview sources from a list of developed questions.
2.h	Develop techniques in researching and gathering background information for written reports.
3. Develop journalistic writing skills.	
3.a	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. (W.9-10.1)
3.b	Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence. (W.9-10.1a)
3.c	Develop claim(s) and counterclaims fairly, supplying evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level and concerns. (W.9-10.1b)
3.d	Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. (W.9-10.1c)
3.e	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. (W.9-10.1d)
3.f	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. (W.9-10.2)
3.g	Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. (W.9-10.2a)
3.h	Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. (W.9-10.2b)
3.i	Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. (W.9-10.2c)
3.j	Use precise language and domain-specific vocabulary to manage the complexity of the topic. (W.9-10.12d)
3.k	Establish and maintain a formal style and objective tone while attending to the

	norms and conventions of the discipline in which they are writing. (W.9-10.2e)
3.l	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation. (W.9-10.8)
3.m	Identify news, elements of news and news sources.
3.n	Present facts without editorializing.
3.o	Write stories with effective leads.
3.p	Write stories that answer who, what, when, where, why and how of a topic, using the basic inverted-pyramid structure of a news story.
3.q	Recognize and develop categories of specialized writing including opinion, features, sports, blog posts, captions, broadcast reports, headlines, and yearbook.
3.r	Use copy symbols and stylebook to proofread/copyedit writing for errors in content, organization, grammar, and accuracy.
4. Identify the legal and ethical principles associated with practicing media.	
4.a	Examine the Society of Professional Journalists' Code of Ethics.
4.b	Identify court decisions and understand how they are relevant to student media, including but not limited to *Tinker vs. Des Moines School District (1969)* and *Hazelwood School District vs. Kuhlmeier (1988)*.
4.c	Understand the legal parameters of libel, slander and copyright law.
5. Demonstrate use of video, photography, and design in media.	
5.a	Understand basic rules of layout and page design, including typography.
5.b	Develop skills in photo journalism.
5.c	Explore the basics of filming and video editing for journalism.
6. Demonstrate digital publishing and linking.	
6.a	Examine the ways that online content differs from print content.
6.b	Publish stories in a digital format, such as blog.
6.c	Insert links into online stories that add context or depth to coverage.
7. Demonstrate the role of advertising.	
7.a	Understand the role of advertising in the communications media.
7.b	Understand professional techniques in writing and designing advertisements.
7.c	Produce sample advertisements for local businesses.

Broadcast Journalism

Grades 9-12
.5 or 1 English Credit

The Broadcast Journalism course provides students with quality academic instruction in television, radio, and video production by providing training in operating equipment, reporting and scriptwriting, as well as planning, directing, and producing video projects. This course is designed to help students produce a broadcast news show that includes anchor segments, field reports and feature segments. Students should select all content, write all scripts, and film and edit all video. Show(s) should be published to the web and available to the public. Foundations of Journalism is a prerequisite for this class.

1. Work individually and as a member of a team to produce original video/radio shows for school/community.	
1.a	Establish production parameters/vision and organize a plan for deadlines, division of labor, etc.
1.b	Understand concepts of basic set design for a small studio news show.
1.c	Assume a given role, such as reporter/writer, videographer, director/editor, producer, etc.
1.d	Brainstorm ideas for coverage based on news value and assign projects accordingly.
1.e	Deliver news show to students/community.
2. Plan and produce factual and informative audio/video packages for broadcast.	
2.a	Brainstorm, research and storyboard packages before filming/writing.
2.b	Film on-camera interviews and B-roll that capture all angles of a story.
2.c	Use a combination of standard camera shots (close-up, medium, wide, establishing, cut-in, cut-away, etc.)
2.d	Edit raw footage and audio into a meaningful sequence of events that complements a spoken, non-biased narration.
2.e	Compose graphics and special effects that enhance (not distract from) reporting.
3. Write quality, informative scripts for broadcasts and packages.	
3.a	Distinguish between newspaper/magazine writing and broadcast writing (writing to be read vs. writing to be heard).
3.b	Focus scriptwriting on informing an audience. Eliminate generalities and unnecessary words. Use short, simple, conversational narration that employs proper usage of Standard English.
3.c	Identify people by title and full name on first reference. Use only last names in subsequent mentions.
3.d	Speak coherently (verbally and non-verbally) and in harmony with the tone of the report, and continually refine presentation skills (voice quality, articulation,

	body language and stage presence).
4. Operate basic video/audio production equipment.	
4.a	Explain the function of each type of production equipment.
4.b	Operate and exhibit the correct use of cameras, tripods, hand-held/lavaliere microphones, audio mixers, graphics generators and video editing software.
4.c	Execute basic camera movements using a tripod.
4.d	Use the basic structure of small studio lighting.
4.e	Use relevant broadcasting terminology and establish it as the common language of studio.
4.f	Demonstrate the concepts of headroom, nose room, lead room and the Rule of Thirds.
5. Use industry-standard marketing techniques to sell advertisements and advance the publication's brand.	
5.a	Work with local groups and businesses to design advertisements based on the customer's needs.
5.b	Develop a marketing campaign for publication (with both digital and print elements).
6. Engage audience through the web, social media.	
6.a	Publish work to the web via streaming sites such as Vimeo, TeacherTube or YouTube, via podcast or on the school web site.
6.b	Engage audience through social media, including but not limited to links to student content, breaking news reports, polls and requests for feedback.
7. Evaluate broadcasts to determine areas for growth and improvement.	
7.a	Critique works of other students.
7.b	Encourage other students, community members and industry professionals to submit feedback.

Print Journalism

Grades 9-12
.5 or 1 English Credit

The Print Journalism course provides students with quality academic instruction in newspaper/yearbook/news-site production by providing training in reporting, writing, photography, design and equipment operation, as well as in leadership and management skills (necessary to plan and execute the publication process). This course is designed to help students produce a newspaper, news magazine, news website or yearbook that informs a defined audience of school and community news in a timely manner. Students should select all content, write all copy, photograph/design visual elements and manage their own website/social media accounts. Works should be published in some form (print or digital) and available to the public, either for free or for purchase.

1. Work individually and as a member of a team to produce original student-run publications for the school/community.	
1.a	Establish publication parameters/vision and organize a plan for deadlines, division of labor, etc.
1.b	Assume a given role, such as reporter/writer, photographer, editor, etc.
1.c	Identify ideas for coverage based on news value and assign work accordingly.
1.d	Operate within parameters of standard legal and ethical practices
2. Identify local topics of student interest/concern and gather information that informs/educates the audience.	
2.a	Gather background information via books, reports, the web, etc.
2.b	Formulate a list of big-idea questions that need answering and seek out human sources that can answer them.
2.c	Interview sources using a list of pre-prepared questions; eliminating items, adding others and asking follow-up/clarifying questions as needed.
3. Demonstrate journalistic writing and editing skills through factual, non-biased coverage of events relevant to students.	
3.a	Structure stories as an inverted pyramid, with the major facts at the top of the story. Leads should be succinct and engaging.
3.b	Focus writing on informing an audience. Eliminate generalities and unnecessary words. Use short, simple, conversational writing that employs proper usage of Standard English.
3.c	Properly attribute quotes (direct and indirect) from outside sources.

3.d	Demonstrate ability to clearly articulate opinions in staff editorials, columns & reviews. These stories should be clearly marked as opinion/commentary.
3.e	Use copy symbols and stylebook to proofread/copyedit writing for errors in content, organization, grammar and accuracy.
4. Produce quality, consistent visual elements that advance the overall readability of the story, publication.	
4.a	Take quality photographs that capture the action and/or emotion of the event/topic. All photographs should be accompanied by an identifying caption.
4.b	Develop a consistent layout/design that reflects the identity/theme of the online/print publication. This includes typography, artwork, modules and copy.
5. Use industry-standard marketing techniques to sell advertisements and the publication's brand.	
5.a	Work with local groups and businesses to design advertisements that meet the customer's needs.
5.b	Develop a marketing campaign for a publication (with both digital and print elements).
6. Engage audience through the web, social media.	
6.a	Publish work to the web via an independent staff site (recommended) or on the school web site.
6.b	Engage audience through social media, including but not limited to links to student content, breaking news reports, polls and requests for feedback.
7. Evaluate publications to identify areas for growth and improvement.	
7.a	Critique the work of other students.
7.b	Encourage other students, community members and industry professionals to submit feedback.

Mississippi Writers

Grades 9-12
.5 or 1 English Credit

The Mississippi Writers course focuses on the state's rich literary heritage through the study of poetry, fiction, nonfiction, and drama. The course identifies major sources and themes of twentieth century and contemporary Mississippi writing. The student will recognize the contribution of Mississippi writers, such as William Faulkner, Eudora Welty, Richard Wright, Willie Morris, Anne Moody, etc., to twentieth century American writing and recognize that Mississippi writing is an expression of a particular place that achieves universality.

Reading Literature	
RL.11-12.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
RL.11-12.2	Determine two or more themes or central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to produce a complex account; provide an objective summary of the text.
RL.11-12.3	Analyze the impact of the author's choices regarding how to develop and relate elements of a story or drama (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed).
RL.11-12.4	Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful.
RL.11-12.5	Analyze how an author's choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact.
RL.11-12.6	Analyze a case in which grasping a point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement).
RL.11-12.7	Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play or recorded novel or poetry), evaluating how each version interprets the source text.
RL.11-12.9	Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics.
RL.11-12.10	By the end of grade 12, read and comprehend literature, including stories, dramas, and poems, at the high end of the grades 11–CCR text complexity band independently and proficiently.

Reading Informational Text	
RI.11-12.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
RI.11-12.2	Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.
RI.11-12.3	Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.
RI.11-12.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text.
RI.11-12.5	Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.
RI.11-12.6	Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness or beauty of the text.
RI.11-12.7	Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
RI.11-12.8	Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal and the premises, purposes, and arguments in works of public advocacy.
RI.12.9	Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance for their themes, purposes, and rhetorical features.
RI.11-12.10	By the end of grade 12, read and comprehend literary nonfiction at the high end of the grades 11-CCR text complexity band independently and proficiently.
Writing	
W.11-12.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
W.11-12.1a	Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence.
W.11-12.1b	Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases.
W.11-12.1c	Use words, phrases, and clauses as well as varied syntax to link the major

	sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
W.11-12.1d	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
W.11-12.1e	Provide a concluding statement or section that follows from and supports the argument presented.
W.11-12.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
W.11-12.2a	Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
W.11-12.2b	Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
W.11-12.2c	Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
W.11-12.2d	Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.
W.11-12.2e	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
W.11-12.2f	Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
W.11-12.3	Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.
W.11-12.3a	Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.
W.11-12.3b	Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.
W.11-12.3c	Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution).
W.11-12.3d	Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.
W.11-12.3e	Provide a conclusion that follows from and reflects on what is

	experienced, observed, or resolved over the course of the narrative.
W.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
W.11-12.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 11–12.)
W.11-12.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
W.11-12.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
W.11-12.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.11-12.9a	Apply grades 11–12 Reading standards to literature (e.g., “Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics”).
W.11-12.9b	Apply grades 11–12 Reading standards to literary nonfiction (e.g., “Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy).
W.11-12.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

Oral Communication

Grades 9-12
.5 or 1 English Credit

This course includes instruction in how to acquire, analyze, and evaluate information in order to make decisions and establish satisfying relationships. Skill in oral communication helps the student to think logically, clearly, and creatively.

Writing	
W.11-12.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
W.11-12.1a	Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence.
W.11-12.1b	Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases.
W.11-12.1c	Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
W.11-12.1d	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
W.11-12.1e	Provide a concluding statement or section that follows from and supports the argument presented.
W.11-12.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
W.11-12.2a	Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
W.11-12.2b	Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
W.11-12.2c	Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
W.11-12.2d	Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.

W.11-12.2e	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
W.11-12.2f	Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
W.11-12.3	Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.
W.11-12.3a	Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.
W.11-12.3b	Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.
W.11-12.3c	Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution).
W.11-12.3d	Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.
W.11-12.3e	Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.
W.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
W.11-12.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 11–12.)
W.11-12.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
W.11-12.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
W.11-12.9	Draw evidence from literary or informational texts to support analysis,

	reflection, and research.
W.11-12.9a	Apply grades 11–12 Reading standards to literature (e.g., "Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics").
W.11-12.9b	Apply grades 11–12 Reading standards to literary nonfiction (e.g., "Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., The Federalist, presidential addresses]").
W.11-12.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.
Speaking and Listening	
SL.11-12.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11–12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
SL.11-12.1a	Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
SL.11-12.1b	Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.
SL.11-12.1c	Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives.
SL.11-12.1d	Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.
SL.11-12.2	Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
SL.11-12.3	Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.
SL.11-12.4	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization,

	development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
SL.11-12.5	Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
SL.11-12.6	Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate. (See grades 11–12 Language standards 1 and 3 here for specific expectations.)

~~SREB Literacy Ready Course~~

~~Grade 12~~
~~1 English Credit~~

~~In 2011, SREB began forming a regional partnership of states and experts to develop a readiness course in disciplinary literacy. The courses were designed to help college-bound students reach their state's college and career-readiness benchmarks before high school graduation.~~

~~The Readiness Courses is designed to assist students who are preparing for postsecondary education—meaning they do not reach the state's college- and career-readiness benchmarks on either the ACT, SAT, or other assessment—to become prepared and reach those benchmarks.~~

~~This course is best suited for the middle range of students, not those who can succeed in Advanced Placement courses or who are severely behind. The course is built with rigor, innovative instructional strategies, and a concentration on contextual learning that departs from procedural memorization and focuses on engaging the students in a real-world context. The course provides literacy strategies that allow students to read and comprehend all manner of texts and genres in every core discipline. In short, this course targets students with weaknesses and college-ready skill gaps and re-educate them in new ways to ensure they are prepared for postsecondary-level pursuits.~~

~~The course is available free of charge to any district, school or teacher who wishes to download it from the SREB website, after a simple registration process. The full course and additional resources, including informational publications, policy briefs, state information and slide presentations, is also available on the website at SREB.org/Ready.~~

~~The SREB Readiness Course titled Literacy Ready is an innovative, dynamic course built to help students master the literacy skills needed for three core subject areas — English, social science and science. Literacy Ready consists of six units: two in history, two in English and two in science. Content of the discipline is at the forefront of the curriculum; while the disciplinary literacy skills are emphasized through reading and writing assignments based on the content. Units are focused on truly understanding how to read and interpret texts in the discipline on a college level. They are designed to be used as steppingstones, with the first module in each subject less rigorous and demanding than the last.~~

~~English (Supplemental Fourth-Year or Senior English)~~

~~Both units are designed to address the following essential question: "How is the exponential increase of information that we process in all forms of media affecting the way we live?"~~

~~**Unit 1: Informational**~~

~~The first unit engages students in reading informational text from Nicholas Carr's *The Shallows: What the Internet is Doing to Our Brains*, as well as a number of related supplemental texts. Students practice the following reading skills with an English disciplinary focus: literary epistemology; reading for argument, claim and evidence; reading for rhetorical strategies and patterns; and reading for internal and external connections. The unit conclusion engages students in collecting evidence for a stance-based synthesis presentation on a topic drawn from the central text. Students use feedback received from peers and from the teacher to revise their syntheses and submit a synthesis essay.~~

~~**Unit 2: Literary**~~

~~The second unit moves into literary study, using *Ubik* by Philip K. Dick as the central text. In this unit, students read the central text and a variety of related supplemental texts. They practice the following reading skills with an English disciplinary focus: literary epistemology, close reading; inference, interpretation of rhetorical strategies and patterns; and reading for internal and external connections. The unit conclusion involves students in collecting and presenting evidence for a literary argument essay on one of three topics related to the central text. With a draft of the literary argument in hand, students participate in a debate related to a common question drawn from the theme of the novel.~~

~~**Science (Biology)**~~

~~Each unit has a different theme associated with science. The first unit evaluates science claims in health and nutrition, while the second requires students to dig further to understand DNA structure and the future of biotechnology.~~

~~**Unit 1: Nutrition**~~

~~In this unit, students are introduced to disciplinary literacy in the sciences. Students learn strategies for reading multiple types of text, including science textbooks, research articles and news articles. They also learn a variety of ways to write about science—from personal reflection to public consumption—and to comprehend science information in multiple representations, including animations, diagrams, charts and tables.~~

~~**Unit 2: DNA and Biotechnology**~~

~~In this unit, students extend their understanding of reading and writing in the sciences as they read research articles and textbook material, take notes from lecture videos and make predictions using scientific models. The text material in this second science unit is more complex in both content and composition than the material in the first unit. Additionally, students are asked to write in more depth as they prepare and present an evidence-based scientific poster in a research symposium.~~

~~Social Science (U.S. History or Government)~~

~~Units are unified by the topic "concepts of liberty and freedom."~~

~~Unit 1: Civil Rights Movement~~

~~The first unit focuses on the Civil Rights Movement and the changes that took place over the period of the 1960s. Students draw information from a textbook chapter, a film, a lecture, and a number of primary source documents as they learn to read history, to recognize implicit and explicit claims and evidence, to write a historical account and to form arguments.~~

~~Unit 2: U.S. Foreign Affairs~~

~~The second unit focuses on U.S. involvement in foreign affairs: the Cuban Missile Crisis and the Vietnam War. In this unit, students read multiple texts as well, but more emphasis is placed on writing historical arguments based on their reading. The texts and sources in this unit are more complex than in the first.~~

Survey of African American Writing

Grades 9-12
.5 or 1 English Credit

The Survey of African American Writing course is a survey course that draws upon a compilation of genres, themes, styles, and language used by various writers of African-American descent. The student will recognize and appreciate contributions of selected authors through reading, speaking, and viewing selected works and by researching and writing.

Reading Literature	
RL.11-12.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
RL.11-12.2	Determine two or more themes or central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to produce a complex account; provide an objective summary of the text.
RL.11-12.3	Analyze the impact of the author's choices regarding how to develop and relate elements of a story or drama (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed).
RL.11-12.4	Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful. (Include Shakespeare as well as other authors.)
RL.11-12.5	Analyze how an author's choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact.
RL.11-12.6	Analyze a case in which grasping a point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement).
RL.11-12.7	Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play or recorded novel or poetry), evaluating how each version interprets the source text.
RL.11-12.9	Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics.
RL.11-12.10	By the end of grade 12, read and comprehend literature, including stories, dramas, and poems, at the high end of the grades 11–CCR text complexity band independently and proficiently.

Reading Informational Text	
RI.11-12.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
RI.11-12.2	Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.
RI.11-12.3	Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.
RI.11-12.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).
RI.11-12.5	Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.
RI.11-12.6	Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness or beauty of the text.
RI.11-12.7	Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
RI.11-12.8	Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy.
RI.11-12.9	Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance for their themes, purposes, and rhetorical features.
RI.11-12.10	By the end of grade 12, read and comprehend literary nonfiction at the high end of the grades 11-CCR text complexity band independently and proficiently.
Writing	
W.11-12.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
W.11-12.1a	Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence.

W.11-12.1b	Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases.
W.11-12.1c	Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
W.11-12.1d	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
W.11-12.1e	Provide a concluding statement or section that follows from and supports the argument presented.
W.11-12.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
W.11-12.2a	Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
W.11-12.2b	Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
W.11-12.2c	Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
W.11-12.2d	Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.
W.11-12.2e	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
W.11-12.2f	Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
W.11-12.3	Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.
W.11-12.3a	Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.
W.11-12.3b	Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.
W.11-12.3c	Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and

	outcome (e.g., a sense of mystery, suspense, growth, or resolution).
W.11-12.3d	Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.
W.11-12.3e	Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.
W.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
W.11-12.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 11–12.)
W.11-12.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
W.11-12.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
W.11-12.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.11-12.9a	Apply grades 11–12 Reading standards to literature (e.g., “Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics”).
W.11-12.9b	Apply grades 11–12 Reading standards to literary nonfiction (e.g., “Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy).
W.11-12.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

Survey of Twentieth Century Writing

Grades 9-12
.5 or 1 English Credit

The Survey of Twentieth Century Writing course covers major writers and themes in the Americas and Western Europe for the period from World War I to the present time. The student will recognize major themes present in twentieth century writing and will draw parallels to history and present day concerns. As a result of this course, students will have a greater awareness of events and writings that have shaped and been part of the ideas and culture of the twentieth century.

Reading Literature	
RL.11-12.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
RL.11-12.2	Determine two or more themes or central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to produce a complex account; provide an objective summary of the text.
RL.11-12.3	Analyze the impact of the author's choices regarding how to develop and relate elements of a story or drama (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed).
RL.11-12.4	Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful. (Include Shakespeare as well as other authors.)
RL.11-12.5	Analyze how an author's choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact.
RL.11-12.6	Analyze a case in which grasping a point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement).
RL.11-12.7	Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play or recorded novel or poetry), evaluating how each version interprets the source text. (Include at least one play by Shakespeare and one play by an American dramatist.)
RL.11-12.9	Demonstrate knowledge of twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics.

RL.11-12.10	By the end of grade 12, read and comprehend literature, including stories, dramas, and poems, at the high end of the grades 11–CCR text complexity band independently and proficiently.
Reading Informational Text	
RI.11-12.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
RI.11-12.2	Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.
RI.11-12.3	Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.
RI.11-12.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text.
RI.11-12.5	Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.
RI.11-12.6	Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness or beauty of the text.
RI.11-12.7	Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
RI.11-12.8	Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy.
RI.12.10	By the end of grade 12, read and comprehend literary nonfiction at the high end of the grades 11-CCR text complexity band independently and proficiently.
Writing	
W.11-12.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
W.11-12.1a	Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence.
W.11-12.1b	Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases.

W.11-12.1c	Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
W.11-12.1d	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
W.11-12.1e	Provide a concluding statement or section that follows from and supports the argument presented.
W.11-12.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
W.11-12.2a	Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
W.11-12.2b	Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
W.11-12.2c	Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
W.11-12.2d	Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.
W.11-12.2e	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
W.11-12.2f	Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
W.11-12.3	Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.
W.11-12.3a	Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.
W.11-12.3b	Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.
W.11-12.3c	Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution).
W.11-12.3d	Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.

W.11-12.3e	Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.
W.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
W.11-12.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 11–12.)
W.11-12.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
W.11-12.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
W.11-12.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.11-12.9a	Apply grades 11–12 Reading standards to literature (e.g., "Demonstrate knowledge of twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics").
W.11-12.9b	Apply grades 11–12 Reading standards to literary nonfiction (e.g., "Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy).
W.11-12.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

Technical and Workplace Writing

Grades 9-12
.5 or 1 English Credit

The Technical and Workplace Writing course focuses on the various kinds of written communication currently occurring in a variety of workplaces and careers. In this course, students examine actual examples of written materials produced to communicate within the workplace as well as outside the workplace for the customer and general public. Through reviewing examples and through instruction, students will gain a sense of general principles of communication, learn how audience and purpose shape the form and content of the written piece, and discern how organization, wording, accuracy and specificity of details, typography, visuals, design, grammar, usage, and mechanics contribute to effective communication.

Students will apply what they have learned by creating a variety of kinds of written communication. Since conveying information is at the heart of much of workplace and technical writing, students will practice gathering information through research as well as communicate information through various kinds of writing.

The course should be taught so that it offers challenge. Writings should include pieces requiring more sophistication or complexity: delivering or justifying news or a stance, persuading or manipulating the reader's opinions or emotions, and explaining complex processes. Students will produce individual pieces as well as participate in group review of their writings. Through these experiences of working with others, they will practice the language skills of explaining, persuading, and negotiating, and learn the importance and effect of their words.

Reading Informational Text	
RI.11-12.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
RI.11-12.2	Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.
RI.11-12.3	Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.
RI.11-12.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).
RI.11-12.5	Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.

RI.11-12.6	Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness or beauty of the text.
RI.11-12.7	Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
RI.11-12.8	Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g., The Federalist, presidential addresses).
RI.11-12.9	Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance (including The Declaration of Independence, the Preamble to the Constitution, the Bill of Rights, and Lincoln's Second Inaugural Address) for their themes, purposes, and rhetorical features.
RI.11-12.10	By the end of grade 12, read and comprehend literary nonfiction at the high end of the grades 11-CCR text complexity band independently and proficiently.
Writing	
W.11-12.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
W.11-12.1a	Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence.
W.11-12.1b	Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases.
W.11-12.1c	Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
W.11-12.1d	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
W.11-12.1e	Provide a concluding statement or section that follows from and supports the argument presented.
W.11-12.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
W.11-12.2a	Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
W.11-12.2b	Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.

W.11-12.2c	Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
W.11-12.2d	Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.
W.11-12.2e	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
W.11-12.2f	Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
W.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
W.11-12.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
W.11-12.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
W.11-12.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.11-12.9b	Apply grades 11–12 Reading standards to literary nonfiction (e.g., "Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., The Federalist, presidential addresses]").
W.11-12.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.
W.11-12.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 11–12.)
Language	
L.11-12.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

L.11-12.1a	Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested.
L.11-12.1b	Resolve issues of complex or contested usage, consulting references (e.g., Merriam-Webster's Dictionary of English Usage, Garner's Modern American Usage) as needed.
L.11-12.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
L.11-12.2a	Observe hyphenation conventions.
L.11-12.2b	Spell correctly.
L.11-12.3	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.
L.11-12.3a	Vary syntax for effect, consulting references (e.g., Tufte's Artful Sentences) for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.
L.11-12.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 11–12 reading and content, choosing flexibly from a range of strategies.
L.11-12.4a	Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
L.11-12.4b	Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., conceive, conception, conceivable).
L.11-12.4c	Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its standard usage.
L.11-12.4d	Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
L.11-12.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
L.11-12.5a	Interpret figures of speech (e.g., hyperbole, paradox) in context and analyze their role in the text.
L.11-12.5b	Analyze nuances in the meaning of words with similar denotations.
L.11-12.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

World Literature

Grades 9-12
.5 or 1 English Credit

The World Literature course is an examination of literary works that have contributed significantly to the thinking of humankind and have contributed greatly to various cultures. In this course, students will read a variety of masterpieces and influential literary works. The course may be organized by theme, genre, or chronology. The one-semester World Literature course may focus mainly on one time period or span centuries to show the range of literary heritage, whereas the one-year course will require reading of literature from the ancient classical period to the twentieth century. In either case, the teacher will need to determine whether the course will include mainly one or two genres or cover many genres, such as plays, poetry, novels, and short stories. The teacher also has the freedom to determine the particular countries and cultures that the works will represent. In the one-semester course, however, at least one work should be chosen to represent the literature of each: (a) Classical Greece or Rome, (b) Great Britain, (c) Europe, (d) the Americas, and (e) either Asia or Africa.

Reading Literature	
RL.9-10.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RL.9-10.2	Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.
RL.9-10.3	Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme.
RL.9-10.4	Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone).
RL.9-10.5	Analyze how an author's choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise.
RL.9-10.6	Analyze a particular point of view or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature.
RL.9-10.7	Analyze the representation of a subject or a key scene in two different artistic mediums, including what is emphasized or absent in each treatment (e.g., Auden's "Musée des Beaux Arts" and Breughel's Landscape with the Fall of Icarus).
RL.9-10.8	Not applicable to literature.
RL.9-10.9	Analyze how an author draws on and transforms source material in a specific

	work (e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare).
RL.9-10.10	By the end of grade 9, read and comprehend literature, including stories, dramas, and poems, in the grades 9-10 text complexity band proficiently, with scaffolding as needed at the high end of the range.
Writing	
W.9-10.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
W.9-10.1a	Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence.
W.9-10.1b	Develop claim(s) and counterclaims fairly, supplying evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level and concerns.
W.9-10.1c	Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
W.9-10.1d	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
W.9-10.1e	Provide a concluding statement or section that follows from and supports the argument presented.
W.9-10.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
W.9-10.2a	Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
W.9-10.2b	Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
W.9-10.2c	Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
W.9-10.2d	Use precise language and domain-specific vocabulary to manage the complexity of the topic.
W.9-10.2e	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
W.9-10.2f	Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
W.9-10.3	Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.

W.9-10.3a	Engage and orient the reader by setting out a problem, situation, or observation, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.
W.9-10.3b	Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.
W.9-10.3c	Use a variety of techniques to sequence events so that they build on one another to create a coherent whole.
W.9-10.3d	Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.
W.9-10.3e	Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.
W.9-10.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
W.9-10.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 9–10.)
W.9-10.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.
W.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.9-10.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
W.9-10.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.9-10.9a	Apply grades 9–10 Reading standards to literature (e.g., "Analyze how an author draws on and transforms source material in a specific work [e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare]").
W.9-10.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

~~Mississippi College- and Career- Readiness Standards for English Language Arts~~

~~Advanced Placement~~

SREB Courses

SREB ESSENTIALS FOR COLLEGE LITERACY

Grade 12

1 English Credit

The Southern Region Education Board (SREB) Essentials for College Literacy Course is a one-credit course for students classified as seniors, with an ACT sub-score of **15-18** in English or Reading. An exception may be made for students classified as juniors who are planning to graduate prior to the spring of their senior year.

The Readiness Courses are designed to assist students who are preparing for postsecondary education—meaning they do not reach the state's college- and career-readiness benchmarks on either the ACT, SAT, or other assessment—to become prepared and reach those benchmarks.

This course is best suited for the middle range of students, not those who can succeed in Advanced Placement courses or who are severely behind. The course is built with rigor, innovative instructional strategies, and a concentration on contextual learning that departs from procedural memorization and focuses on engaging the students in a real-world context. The course provides literacy strategies that allow students to read and comprehend all manner of texts and genres in every core discipline. In short, this course targets students with weaknesses and college-ready skill gaps and re-educate them in new ways to ensure they are prepared for postsecondary-level pursuits.

The course is available free of charge to any district, school or teacher who wishes to download it from the SREB website, after a simple registration process. The full course and additional resources, including informational publications, policy briefs, state information and slide presentations, is also available on the website at SREB.org/Ready.

For additional information pertaining specifically to this course, see the *Essentials for College Math and Essentials for College Literacy Requirements MS State Board Policy Manual*: Rule 28.6, *and the Mississippi Institutions for Higher Learning Policy* 608.

SREB LITERACY READY

Grade 12

1 English Credit

The Southern Region Education Board (SREB) Literacy Ready Course is a one-credit course for students classified as seniors, with an ACT sub-score **below 15** in English or Reading. An exception may be made for students classified as juniors who are planning to graduate prior to the spring of their senior year.

The Readiness Courses are designed to assist students who are preparing for postsecondary education—meaning they do not reach the state's college- and career-readiness benchmarks on either the ACT, SAT, or other assessment—to become prepared and reach those benchmarks.

This course is best suited for students who are severely behind. The course is built with rigor, innovative instructional strategies, and a concentration on contextual learning that departs from procedural memorization and focuses on engaging the students in a real-world context. The course provides literacy strategies that allow students to read and comprehend all manner of texts and genres in every core discipline. In short, this course targets students with weaknesses and college-ready skill gaps and re-educate them in new ways to ensure they are prepared for postsecondary-level pursuits.

The course is available free of charge to any district, school or teacher who wishes to download it from the SREB website, after a simple registration process. The full course and additional resources, including informational publications, policy briefs, state information and slide presentations, is also available on the website at https://SREB.org/Ready .

SREB READY FOR HIGH SCHOOL LITERACY

Grades 8-9

1 English Credit

The Southern Region Education Board (SREB) Ready for High School Literacy Course is a one-credit course for students classified as eighth or ninth graders,

The Ready for High School Literacy Course is designed to strengthen underprepared students as they enter high school, setting them on the path to success and increasing their prospects for graduation.

This course utilizes a disciplinary literacy approach that teaches students strategies for reading and understanding complex texts in different subject areas. Students learn to develop and defend ideas, both orally and in writing, in high school-level subjects such as English, history, and science. The unit structure conforms to the framework of the Literacy Design Collaborative, which addresses college- and career-readiness standards.

The course is available free of charge to any district, school or teacher who wishes to download it from the SREB website, after a simple registration process. The full course and additional resources, including informational publications, policy briefs, state information and slide presentations, is also available on the website at https://SREB.org/Ready .

~~Advanced Placement: English Language and Composition~~

~~Grades 9-12~~
~~1 English Credit~~

~~The College Board, a national organization, sponsors this course, through which college credit may be earned if the student chooses to take and passes the AP examination and if the college in question accepts the credit. To teach this course for the first time or for information, teachers should contact their principal, guidance counselor, or AP coordinator at their school. If further assistance or an order form for the teacher's guide and other helpful materials is needed, contact:~~

~~The College Board~~
~~45 Columbus Avenue~~
~~New York, NY 10023~~
~~Phone: (212) 713-8000~~

~~An AP course in English Language and Composition engages students in becoming skilled readers of prose written in a variety of rhetorical contexts, and in becoming skilled writers who compose for a variety of purposes. Both their writing and their reading should make students aware of the interactions among a writer's purposes, audience expectations, and subjects, as well as the way genre conventions and the resources of language contribute to effectiveness in writing.~~[7]

~~According to the College Board, the goals of an AP English Language and Composition course are diverse because the college composition course is one of the most varied in the curriculum. Although the college course provides students with opportunities to write about a variety of subjects from a variety of disciplines and to demonstrate an awareness of audience and purpose, the overarching objective in most first-year writing courses is to enable students to write effectively and confidently in their college courses across the curriculum and in their professional and personal lives. Most composition courses emphasize the expository, analytical and argumentative writing that forms the basis of academic and professional communication, as well as the personal and reflective writing that fosters the development of writing facility in any context. In addition, most composition courses teach students that the expository, analytical and argumentative writing they must do in college is based on reading as well as on personal experience and observation. Composition courses, therefore, teach students to read primary and secondary sources carefully, to synthesize material from these texts in their own compositions, and to cite sources using conventions recommended by professional organizations such as the Modern Language Association (MLA), the University of Chicago Press (The Chicago Manual of Style), the American Psychological Association (APA) and the Council of Biology Editors (CBE).~~
~~As in the college course, the purpose of the AP English Language and Composition course is to enable students to read complex texts with understanding and to write prose of sufficient~~

[7] ~~This description is taken from the Advanced Placement Course Description.~~

~~richness and complexity to communicate effectively with mature readers. An AP English Language and Composition course should help students move beyond such programmatic responses as the five-paragraph essay that provides an introduction with a thesis and three reasons, body paragraphs on each reason, and a conclusion that restates the thesis. Although such formulaic approaches may provide minimal organization, they often encourage unnecessary repetition and fail to engage the reader. Students should be encouraged to place their emphasis on content, purpose and audience and to allow this focus to guide the organization of their writing.~~

~~College writing programs recognize that skill in writing proceeds from students' awareness of their own composing processes: the way they explore ideas and draft and revise their work. This experience of the process of composing is the essence of the first-year writing course, and the AP English Language and Composition course should emphasize this process, asking students to write essays that proceed through several stages or drafts, with revision aided by teacher and peers. Although these extended, revised essays are not part of the AP Exam, the experience of writing them will help make students more self-aware and flexible writers and thus may help their performance on the exam itself. The various AP English Language Released Exams and AP Central® (www.apcentral.collegeboard.com) provide sample student essay responses to exercises that can be useful as timed writing assignments and as the basis for extended writing projects.~~

~~An AP English Language and Composition course may be organized in a variety of ways. It might be organized thematically around a group of ideas or issues, using a variety of works and examining rhetorical strategies and stylistic choices. A course focusing on the theme of liberty, for example, might use such writers as John Stuart Mill, Frederick Douglass, Toni Morrison, Susan B. Anthony, Joseph Sobran, Elie Wiesel, Emile Zola and Mary Wollstonecraft to examine the wealth of approaches to subject and audience that these writers display. Another possibility is to organize a course around sequences of assignments devoted to writing in particular forms (argumentative, narrative, expository) or to group readings and writing assignments by form, theme or voice, asking students to identify writers' strategies and then practice them themselves. Still another alternative is to use genre as an organizing principle for a course, studying how the novel, compared to the autobiography, offers different possibilities for writers, and how classical debate or argument influences us in ways that are not the same as those used in consensus building. The study of language itself — differences between oral and written discourse, formal and informal language, historical changes in speech and writing — is often a productive organizing strategy for teachers.~~

~~Whatever form the course takes, students write in both informal and formal contexts to gain authority and learn to take risks in writing. Imitation exercises, journal keeping, collaborative writing and in-class responses are all good ways of helping students become increasingly aware of themselves as writers and of the techniques employed by the writers they read. As well as engaging in varied writing tasks, students become acquainted with a wide variety of prose styles from many disciplines and historical periods and gain understanding of the connections between writing and interpretive skill in reading (see the AP English Language and Composition Teacher's Guide for ideas on readings and sample curricula). Concurrently, to reflect the~~

~~increasing importance of graphics and visual images in texts published in print and electronic media, students are asked to analyze how such images both relate to written texts and serve as alternative forms of text themselves. In addition, the informed use of research materials and the ability to synthesize varied sources (to evaluate, use and cite sources) are integral parts of the AP English Language and Composition course. Students move past assignments that allow for the uncritical citation of sources and, instead, take up projects that call on them to evaluate the legitimacy and purpose of sources used. One way to help students synthesize and evaluate their sources in this way is the researched argument paper.~~

~~Research helps students to formulate varied, informed arguments. Unlike the traditional research paper, in which works are often summarized but not evaluated or used to support the writer's own ideas, the researched argument requires students to consider each source as a text that was itself written for a particular audience and purpose. Researched argument papers remind students that they must sort through disparate interpretations to analyze, reflect upon, and write about a topic. When students are asked to bring the experience and opinions of others into their essays in this way, they enter into conversations with other writers and thinkers. The results of such conversations are essays that use citations for substance rather than show, for dialogue rather than diatribe.~~

~~While the AP English Language and Composition course assumes that students already understand and use Standard English grammar, it also reflects the practice of reinforcing writing conventions at every level. Therefore, occasionally the exam may contain multiple-choice questions on usage to reflect the link between grammar and style. The intense concentration on language use in the course enhances students' ability to use grammatical conventions appropriately and to develop stylistic maturity in their prose. Stylistic development is nurtured by emphasizing the following:~~

- ~~a wide-ranging vocabulary used appropriately and effectively;~~
- ~~a variety of sentence structures, including appropriate use of subordination and coordination;~~
- ~~logical organization, enhanced by specific techniques to increase coherence, such as repetition, transitions and emphasis;~~
- ~~a balance of generalization and specific illustrative detail; and~~
- ~~an effective use of rhetoric, including controlling tone, establishing and maintaining voice, and achieving appropriate emphasis through diction and sentence structure.~~

~~When students read, they should become aware of how stylistic effects are achieved by writers' linguistic choices. Since imaginative literature often highlights such stylistic decisions, fiction and poetry clearly can have a place in the AP English Language and Composition course. The main purpose of including such literature is to aid students in understanding rhetorical and linguistic choices, rather than to study literary conventions.~~

~~Because the AP course depends on the development of interpretive skills as students learn to write and read with increasing complexity and sophistication, it is intended to be a full-year course. Teachers at schools that offer only a single semester block for AP are encouraged to advise their AP English Language and Composition students to take an additional semester of advanced English in which they continue to practice the kind of writing and reading emphasized in the AP class. Upon completing the AP English Language and Composition course, then, students should be able to:~~

- ~~analyze and interpret samples of good writing, identifying and explaining an author's use of rhetorical strategies and techniques;~~
- ~~apply effective strategies and techniques in their own writing;~~
- ~~create and sustain arguments based on readings, research and/or personal experience;~~
- ~~write for a variety of purposes;~~
- ~~produce expository, analytical and argumentative compositions that introduce a complex central idea and develop it with appropriate evidence drawn from primary and/or secondary sources, cogent explanations and clear transitions;~~
- ~~demonstrate understanding and mastery of standard written English as well as stylistic maturity in their own writings;~~
- ~~demonstrate understanding of the conventions of citing primary and secondary sources;~~
- ~~move effectively through the stages of the writing process, with careful attention to inquiry and research, drafting, revising, editing and review;~~
- ~~write thoughtfully about their own process of composition;~~
- ~~revise a work to make it suitable for a different audience;~~
- ~~analyze image as text; and~~
- ~~evaluate and incorporate reference documents into researched papers.~~

~~Advanced Placement: English Literature and Composition~~

~~Grades 9-12~~
~~1 English Credit~~

~~The College Board, a national organization, sponsors this course, through which college credit may be earned if the student chooses to take and passes the AP examination and if the college in question accepts the credit. To teach this course for the first time or for information, teachers should contact their principal, guidance counselor, or AP coordinator at their school. If further assistance or an order form for the teacher's guide and other helpful materials is needed, contact~~

~~The College Board~~
~~45 Columbus Avenue~~
~~New York, NY 10023~~
~~Phone: (212) 713-8000~~

~~An AP English Literature and Composition course engages students in the careful reading and critical analysis of imaginative literature. Through the close reading of selected texts, students deepen their understanding of the ways writers use language to provide both meaning and pleasure for their readers. As they read, students consider a work's structure, style and themes, as well as such smaller-scale elements as the use of figurative language, imagery, symbolism and tone.[8]~~

~~The course includes intensive study of representative works from various genres and periods, concentrating on works of recognized literary merit such as those by the authors listed on pages 52–53. The pieces chosen invite and reward rereading and do not, like ephemeral works in such popular genres as detective or romance fiction, yield all (or nearly all) of their pleasures of thought and feeling the first time through. The AP English Literature and Composition Development Committee agrees with Henry David Thoreau that it is wisest to read the best books first; the committee also believes that such reading should be accompanied by thoughtful discussion and writing about those books in the company of one's fellow students.~~

~~Reading~~

~~Reading in an AP course is both wide and deep. This reading necessarily builds upon and complements the reading done in previous English courses so that by the time students complete their AP course, they will have read works from several genres and periods — from the 16th to the 21st century. More importantly, they will have gotten to know a few works well. In the course, they read deliberately and thoroughly, taking time to understand a work's complexity, to absorb its richness of meaning, and to analyze how that meaning is embodied in literary form. In addition to considering a work's literary artistry, students reflect on the social and historical values it reflects and embodies. Careful attention to both textual detail and~~

[8] ~~This description is taken from the Advanced Placement Course Description.~~

~~historical context provides a foundation for interpretation, whatever critical perspectives are brought to bear on the literary works studied.~~

~~A generic method for the approach to such close reading involves the following elements: the experience of literature, the interpretation of literature and the evaluation of literature. By experience, we mean the subjective dimension of reading and responding to literary works, including precritical impressions and emotional responses. By interpretation, we mean the analysis of literary works through close reading to arrive at an understanding of their multiple meanings. By evaluation, we mean both an assessment of the quality and artistic achievement of literary works and a consideration of their social and cultural values. All three of these aspects of reading are important for an AP English Literature and Composition course.~~

~~Moreover, each corresponds to an approach to writing about literary works. Writing to understand a literary work may involve writing response and reaction papers, along with annotation, freewriting and keeping some form of a reading journal. Writing to explain a literary work involves analysis and interpretation and may include writing brief focused analyses on aspects of language and structure. Writing to evaluate a literary work involves making and explaining judgments about its artistry and exploring its underlying social and cultural values through analysis, interpretation and argument.~~

~~In short, students in an AP English Literature and Composition course read actively. The works taught in the course require careful, deliberative reading. And the approach to analyzing and interpreting the material involves students in learning how to make careful observations of textual detail, establish connections among their observations, and draw from those connections a series of inferences leading to an interpretive conclusion about the meaning and value of a piece of writing.~~

~~Most of the works studied in the course were written originally in English, including pieces by African, Australian, Canadian, Indian and West Indian authors. Some works in translation may also be included (e.g., Greek tragedies, Russian or Latin American fiction). The actual choice is the responsibility of the AP teacher, who should consider previous courses in the school's curriculum. In addition, the AP teacher should ensure that AP students will have studied, at some point in their high school years, literature from both British and American writers, as well as works written from the 16th century to contemporary times. In addition to British and American literature, teachers are encouraged to include in their curricula other literature in English. (See the AP English Literature and Composition Teacher's Guide for sample curricula.) In an ongoing effort to recognize the widening cultural horizons of literary works written in English, the AP English Literature Development Committee will consider and include diverse authors in the representative reading lists. Issues that might, from a specific cultural viewpoint, be considered controversial, including references to ethnicities, nationalities, religions, races, dialects, gender or class, are often represented artistically in works of literature. The Development Committee is committed to careful review of such potentially controversial material. Still, recognizing the universal value of literary art that probes difficult and harsh life experiences and so deepens understanding, the committee emphasizes that fair representation~~

~~of issues and peoples may occasionally include controversial material. Since AP students have chosen a program that directly involves them in college-level work, the AP English Literature and Composition Exam depends on a level of maturity consistent with the age of 12th-grade students who have engaged in thoughtful analysis of literary texts. The best response to a controversial detail or idea in a literary work might well be a question about the larger meaning, purpose or overall effect of the detail or idea in context. AP students should have the maturity, the skill and the will to seek the larger meaning through thoughtful research. Such thoughtfulness is both fair and owed to the art and to the author.~~

~~Although neither linguistic nor literary history is the principal focus in the AP course, students gain awareness that the English language that writers use has changed dramatically through history, and that today it exists in many national and local varieties. They also become aware of literary tradition and the complex ways in which imaginative literature builds upon the ideas, works and authors of earlier times. Because the Bible and Greek and Roman mythology are central to much Western literature, students should have some familiarity with them. These religious concepts and stories have influenced and informed Western literary creation since the Middle Ages, and they continue to provide material for modern writers in their attempts to give literary form to human experience. Additionally, the growing body of works written in English reflecting non-Western cultures may require students to have some familiarity with other traditions.~~

~~Writing~~

~~Writing is an integral part of the AP English Literature and Composition course and exam. Writing assignments focus on the critical analysis of literature and include expository, analytical and argumentative essays. Although critical analysis makes up the bulk of student writing for the course, well-constructed creative writing assignments may help students see from the inside how literature is written. Such experiences sharpen their understanding of what writers have accomplished and deepen their appreciation of literary artistry. The goal of both types of writing assignments is to increase students' ability to explain clearly, cogently, even elegantly, what they understand about literary works and why they interpret them as they do.~~
~~To that end, writing instruction includes attention to developing and organizing ideas in clear, coherent and persuasive language. It includes study of the elements of style. And it attends to matters of precision and correctness as necessary. Throughout the course, emphasis is placed on helping students develop stylistic maturity, which, for AP English, is characterized by the following:~~

- ~~a wide-ranging vocabulary used with denotative accuracy and connotative resourcefulness;~~
- ~~a variety of sentence structures, including appropriate use of subordinate and coordinate constructions;~~
- ~~a logical organization, enhanced by specific techniques of coherence such as repetition, transitions and emphasis;~~

- ~~a balance of generalization with specific illustrative detail; and~~
- ~~an effective use of rhetoric, including controlling tone, maintaining a consistent voice, and achieving emphasis through parallelism and antithesis.~~

~~The writing required in an AP English Literature and Composition course is thus more than a mere adjunct to the study of literature. The writing that students produce in the course reinforces their reading. Since reading and writing stimulate and support one another, they are taught together in order to underscore both their common and their distinctive elements.~~

~~It is important to distinguish among the different kinds of writing produced in an AP English Literature and Composition course. Any college- level course in which serious literature is read and studied includes numerous opportunities for students to write and rewrite. Some of this writing is informal and exploratory, allowing students to discover what they think in the process of writing about their reading. Some of the writing involves research, perhaps negotiating differing critical perspectives. Much writing involves extended discourse in which students develop an argument or present an analysis at length. In addition, some writing assignments should encourage students to write effectively under the time constraints they encounter on essay exams in college courses in many disciplines, including English.~~

~~The various AP English Literature and Composition Released Exams and AP Central provide sample student essay responses written under exam conditions —with an average time of 40 minutes for students to write an essay response. These essays were written in response to two different types of questions: (1) an analysis of a passage or poem in which students are required to discuss how particular literary elements or features contribute to meaning; and (2) an "open'' question in which students are asked to select a literary work and discuss its relevant features in relation to the question provided. Students can be prepared for these free-response questions through exercises analyzing short prose passages and poems and through practicing with "open'' analytical questions. Such exercises need not always be timed; instead, they can form the basis for extended writing projects.~~
~~Because the AP course depends on the development of interpretive skills as students learn to write and read with increasing complexity and sophistication, the AP English Literature and Composition course is intended to be a full-year course. Teachers at schools that offer only a single semester block for AP are encouraged to advise their AP English Literature and Composition students to take an additional semester of advanced English in which they continue to practice the kind of writing and reading emphasized in their AP class.~~

Advanced Placement

AP: ENGLISH LANGUAGE AND COMPOSITION

Grades 10-12

1 English Credit

The College Board, a national organization, sponsors this course, through which college credit may be earned if the student chooses to take and passes the AP examination and if the college in question accepts the credit.

The AP English Language and Composition course will satisfy requirements for English III.

An AP Course in English Language and Composition engages students in becoming skilled readers of prose written in a variety of rhetorical contexts, and in becoming skilled writers who compose for a variety of purposes. Both their writing and their reading should make students aware of the interactions among a writer's purposes, audience expectations, and subjects, as well as the way genre conventions and the resources of language contribute to effectiveness in writing.

To teach this course for the first time or for information, teachers should contact their principal, guidance counselor, or AP coordinator at their school.

For more information on this course, visit https://apcentral.collegeboard.org/courses/ap-english-language-and-composition.

AP: ENGLISH LITERATURE AND COMPOSITION

Grades 10-12

1 English Credit

The College Board, a national organization, sponsors this course, through which college credit may be earned if the student chooses to take and passes the AP examination and if the college in question accepts the credit.

The AP English Language and Composition course will satisfy requirements for English IV.

An AP Course in English Language and Composition engages students in the careful reading and critical analysis of imaginative literature. Through the close reading of selected texts, students deepened their understanding of the ways writers use language to provide both meaning and pleasure for their readers. As they read, students consider a work's structure, style and themes, as well as such smaller-scale elements as the use of figurative language, imagery, symbolism, and tone.

To teach this course for the first time or for information, teachers should contact their principal, guidance counselor, or AP coordinator at their school.

For more information on this course, visit https://apcentral.collegeboard.org/courses/ap-english-literature-and-composition.

~~Mississippi College- and Career- Readiness Standards for English Language Arts~~

~~Compensatory English~~

Dual Credit

DUAL CREDIT COURSES

Grades 11-12

1 English Credit

The purpose of the Dual Enrollment and Dual Credit Program is to offer structured opportunities for qualified high school students to simultaneously enroll in college courses at Mississippi (public) Institutions of Higher Learning (IHLs) or Mississippi Community or Junior Colleges (CJCs) that provide pathways leading to academic or career and technical postsecondary credit.
(see *Mississippi Code Title* 37, *§ 37-15-38*)

A student enrolled in a community college or state institution of higher learning while enrolled in high school, a "dual credit student", receives both high school and postsecondary credit for coursework regardless of the course location (high school campus, postsecondary campus, or online). One three-hour postsecondary course is equal to one high school Carnegie unit.

Dual credit courses must be credit-bearing courses at both the high school and postsecondary institution with a minimum of three (3) semester hours credit and shall be limited to the list of articulated courses found in Appendix V of the current *Procedures Manual of the State of Mississippi Dual Enrollment and Accelerated Programs* document.

For the most current guidelines for student and program eligibility for Dual Enrollment and Dual Credit programs, visit:

https://mdek12.org/secondaryeducation/accelerated-programs/

http://www.mississippi.edu/cjc/dual_enrollment.asp

Procedures Manual for the State of Mississippi Dual Enrollment and Accelerated Programs

English Language Arts Dual Credit Course Options

The following ELA courses are identified in the list of articulated courses in Appendix V of the *Procedures Manual of the State of Mississippi Dual Enrollment and Accelerated Programs (2024-2025)*. Additional courses may be available, based on local offerings. For specifics on Dual Credit and Dual Enrollment options, contact the local partnering postsecondary institution for detailed student learning outcomes and course syllabus information.

ENG 1113 – English Composition I

ENG 1113 – English Composition II

ENG 2223 – American Literature I

ENG 2233 – American Literature II

ENG 2323 – British Literature I

ENG 2333 – British Literature II

ENG 2423 – World Literature I

ENG 2433 – World Literature II

ENG 2523 – African American Literature I

SPT 1113 – Speech

~~Compensatory English I~~

~~.5 or 1 Elective Credit~~

~~Students in English I in need of instructional support, intervention, or remediation may be enrolled in the Compensatory English I course under the following stipulations:~~

~~The Compensatory course:~~

1. ~~must be taken in concert with MS CCRS English I;~~
2. ~~includes content supportive of the accompanying English I course, and;~~
3. ~~may be taken as an elective, but will not satisfy the number of Carnegie units in English required for graduation.~~

~~Compensatory English II~~

~~.5 or 1 Elective Credit~~

~~Students in English II in need of instructional support, intervention, or remediation may be enrolled in the Compensatory English II course under the following stipulations:~~

~~The Compensatory course:~~

1. ~~must be taken in concert with MS CCRS English II;~~
2. ~~includes content supportive of the accompanying English II course, and;~~
3. ~~may be taken as an elective, but will not satisfy the number of Carnegie units in English required for graduation.~~

~~Compensatory English III~~

~~.5 or 1 Elective Credit~~

~~Students in English III in need of instructional support, intervention, or remediation may be enrolled in the Compensatory English III course under the following stipulations:~~

~~The Compensatory course:~~

1. ~~must be taken in concert with MS CCRS English III;~~
2. ~~includes content supportive of the accompanying English III or other credit bearing English course, and;~~
3. ~~may be taken as an elective, but will not satisfy the number of Carnegie units in English required for graduation.~~

~~Compensatory English IV~~

~~.5 or 1 Elective Credit~~

~~Students in English IV in need of instructional support, intervention, or remediation may be enrolled in the Compensatory English IV course under the following stipulations:~~

~~The Compensatory course:~~

1. ~~must be taken in concert with MS CCRS English IV;~~
2. ~~includes content supportive of the accompanying English IV or other credit bearing English course, and;~~
3. ~~may be taken as an elective, but will not satisfy the number of Carnegie units in English required for graduation.~~

~~Source: *Miss. Code Ann.* § 37-177-1, et seq., (Act)~~

Supplemental English

SUPPLEMENTAL ENGLISH I

.5 or 1 English Credit

This course, previously known as Compensatory English I, is for students in need of instructional support, intervention, or remediation. Students may be enrolled in the Supplemental English I course under the following stipulations:

The Supplemental course:

1. Must be taken in concert with MS CCRS English I;
2. Includes content supportive of the accompanying English I course, and;
3. May be taken as an elective, but will not satisfy the number of Carnegie units in English required for graduation.

SUPPLEMENTAL ENGLISH II

.5 or 1 English Credit

This course, previously known as Compensatory English II, is for students in need of instructional support, intervention, or remediation. Students may be enrolled in the Supplemental English I course under the following stipulations:

The Supplemental course:

1. Must be taken in concert with MS CCRS English II;
2. Includes content supportive of the accompanying English II course, and;
3. May be taken as an elective, but will not satisfy the number of Carnegie units in English required for graduation.

SUPPLEMENTAL ENGLISH III

.5 or 1 English Credit

This course, previously known as Compensatory English III, is for students in need of instructional support, intervention, or remediation. Students may be enrolled in the Supplemental English I course under the following stipulations:

The Supplemental course:

1. Must be taken in concert with MS CCRS English III;
2. Includes content supportive of the accompanying English I course or other credit bearing English course, and;
3. May be taken as an elective, but will not satisfy the number of Carnegie units in English required for graduation.

SUPPLEMENTAL ENGLISH IV

.5 or 1 English Credit

This course, previously known as Compensatory English IV, is for students in need of instructional support, intervention, or remediation. Students may be enrolled in the Supplemental English I course under the following stipulations:

The Supplemental course:

1. Must be taken in concert with MS CCRS English IV;
2. Includes content supportive of the accompanying English IV or other credit bearing English course, and;
3. May be taken as an elective, but will not satisfy the number of Carnegie units in English required for graduation.

APPENDIX

Appendix A: GLOSSARY

Absolute phrase: A noun phrase with one modifier, often a participial phrase, following the noun headword. An absolute phrase can explain a cause or condition. Ex: The temperature having dropped suddenly, we decided to build a fire in the fireplace, or it can add a detail or a point of focus, Ex: The children rushed out the schoolhouse door, their voices filling the playground with shouts of freedom.

Adages/proverbs: Short sayings that describe what is perceived to be an important fact or familiar wisdom.

Adjectival: Any structure (word, phrase, or clause) that fills the role of an adjective and functions as an adjective normally does, modifying a noun. Ex: <u>The</u> <u>house on the corner</u> is new.

Adverbial: Any structure (word, phrase, or clause) that functions as a modifier of a verb and fills the role of an adverb. Ex: We drove <u>to the airport to pick up Uncle</u> <u>Louie</u>. *To the airport* is an adverbial prepositional phrase and *to pick up Uncle Louie* is an adverbial infinitive phrase, both modifying the verb *drove*.

Affix: A morpheme or a meaningful part of a word that is attached before or after a root to modify its meaning; a category that includes prefixes, suffixes, and infixes.

Alliteration: The repetition of initial consonant sounds in words such as *Peter Piper picked*.

Allusion: Reference to a mythological, literary, or historical person, place, or thing.

Alternate claim: A statement that supports the same overall concept as the original claim but with a different goal.

Analogy: Comparison of two things to illustrate common aspects.

Anecdote: A short and interesting story or an amusing event delivered to demonstrate a point and make readers or listeners laugh.

Aphorism: A statement of some general principle expressed memorably by condensing a large amount of wisdom into very few words. Ex: "Give a man a mask and he will tell you the truth" (Wilde).

Argument: A logical way of presenting a belief, conclusion, or stance. Effective arguments are supported by reasoning and evidence.

Audience: A writer's targeted reader or readers.

Author's purpose: An author's main reason for writing. A writer's purpose may be to entertain, to inform, to persuade, to teach a moral lesson, or to reflect on an experience. An author may have more than one purpose for writing.

Autobiography: A written account of an author's own life.

Biography: An account of a person's life written by another person.

Blending: Combining parts of a spoken word into a whole representation of the word. For example, /p/ /oo/ /l/ can be blended together to form the word pool.

Cause and effect: Text structure in which the author presents one or more causes and then describes the resulting effects.

Central message (central idea): The main idea of a fictional text; the central message may be directly stated or implied.

Chronology: Text structure in which the author uses numerical or chronological order to present items or events.

Claim: An arguable statement that a writer asks a reader to accept.

Clause: A word group consisting of a subject and predicate.

Coherence: Continuity of meaning that enables others to make sense of a text.

Collaborative conversations: Opportunities for students to interact with a wide range of their peers to reflect on their own ideas, to reflect on the ideas of others, and to practice using academic language.

Comparative adjectives and adverbs: Adjectives or adverbs used to compare one person, thing, or group with another person, thing, or group.

Comparison and contrast: Text structure in which the author compares and contrasts two or more similar events, topics, or objects.

Concrete words and phrases: Words or phrases used to describe characteristics and/or qualities that can be perceived through the senses.

Conflict: A struggle or clash between opposing characters, forces, or emotions.

Conjunctive adverb: A conjunction with an adverbial emphasis that connects two clauses. Common conjunctive adverbs are *however, therefore, nevertheless, and moreover*. Ex: Chocolate is delicious; however, I try my best to stay away from it.

Connotation: Implicit rather than explicit meaning of a word. It consists of the suggestions, associations, and emotional overtones attached to a word.

Consonant-Vowel-Consonant (CVC) words: An example of a continuum of word type classified according to the level of decoding difficulty. CVC words are easily decodable. Ex: bat, mat, dog, pig.

Context: The language that surrounds a given word or phrase (linguistic context) or the field of meaningful associations that surround a given word or phrase (experiential context).

Conventions: The surface features of writing, including mechanics, usage, and sentence formation.

Coordinating conjunction: Used to show a relationship between words, phrases, or clauses. Ex: 1) The flag was red, white, and blue; 2) Small but strong, Jamie won first place.

Correlative conjunction: Conjunction used to join words, phrases, or clauses. Ex: Either Mary or Tori will cook dinner.

Decoding: Using knowledge of the conventions of spelling-sound relationships and knowledge about pronunciation of irregular words to derive a pronunciation of written words.

Demonstratives: Demonstrative pronouns and demonstrative adjectives modify nouns. Demonstrative adjectives indicate exactly which noun the speaker is referencing and where it is relative to the position of the speaker. Ex: These shoes are uncomfortable. Demonstrative pronouns take the place of a noun phrase. Ex: The bread you are eating is made from wheat. →That is made from wheat.

Denotation: Exact, literal definition of a word independent of any emotional association or secondary meaning.

Dependent clause: A clause that fills a role in a sentence (such as adverbial, adjectival, or nominal) and that cannot stand independently as a sentence. Ex: *He climbed until he was exhausted* (adverbial clause); *I wonder where I put my keys* (nominal clause functioning as a direct object).

Derivational suffix: A type of bound morpheme; a suffix, such as –ity, -ive, and – ly, that can change the part of speech of the root or base word to which it is added.

Description: Text structure that presents a topic, along with the attributes, specifics, or setting information that describes that topic.

Detail: Fact revealed by the author or speaker that supports the attitude or tone in a piece of poetry or prose. In informational texts, details provide information to support the author's main point.

Determiner: A structure-class word that marks or signals a noun; appears as the first word in a noun phrase before the noun and before any modifiers in the phrase. Ex: The telephone is a necessary invention.

Dialect: A distinctive variety of a language spoken by members of an identifiable regional group, nation, etc.

Dialogue: Spoken exchanges between characters in a dramatic or literary work, usually between two or more speakers.

Dictating: The process of writing down what someone else has said; a way for a parent or teacher to record a child's ideas when the writing demands surpass the child's writing skills.

Domain specific vocabulary: Words that are specific to a domain or field of study and key to understanding a new concept within a text. These words are often referred to as Tier Three words.

Drama: The general term for performances in which actors impersonate the actions and speech of fictional or historical characters (or non-human entities) for the entertainment of an audience, either on a stage or by means of a broadcast.

Emergent literacy and emergent reader texts: The skills, knowledge, and attitudes that are developmental precursors to conventional forms of reading and writing; emergent reader texts support the acquisition of these skills.

Euphemism: A mild or indirect word or expression substituted for one considered to be too harsh or blunt when referring to something unpleasant or embarrassing.

Evidence: Supporting information a writer or speaker uses to prove a claim.

Explicit textual evidence: Information that is directly stated in a text.

Exposition: One of the classifications of discourse whose function is to inform, to instruct, or to present ideas and general truths. Exposition presents information, provides explanations and definitions, and compares and contrasts.

Fable: Brief story that teaches a moral or practical lesson about life.

Fantasy: Story employing imaginary characters living in fictional settings where the rules of the real world are altered for effect.

Fiction: Imaginative literary works representing invented rather than actual persons, places, and/or events.

Figurative language: An expression that departs from the accepted literal sense or from the normal order of words; an extension of this definition includes the use of sound for emphasis, including onomatopoeia, alliteration, assonance, and consonance.

Firsthand account: An event or topic based on an author's personal experience. Examples include diaries, autobiographies, and letters.

Firsthand narration: Narration in which the narrator is either involved in or witnesses the events in a story.

Flashback: Scene that interrupts the action of a work to show a previous event.

Fluency: In reading, fluency refers to the ability to read with sufficient speed to support understanding.

Folktale: Short story from the oral tradition that reflects the mores and beliefs of a particular culture.

Formal English: A writing or speaking style characterized by traditional grammatical structure and conservative vocabulary.

Genre: Category used to classify literary and other works by form, technique, or content.

Grammar: The system and structure of a language.

Grapheme: A letter or letter combination that spells a phoneme; can be one, two, three, or four letters in English. (Ex: e, ei, igh, eigh).

Graphic: Pictorial representation of data or ideas using columns, matrices, or other formats.

High frequency words: A small group of words (300-500) that account for a large percentage of the words in print and can be regular or irregular words (i.e., Dolch or Fry). Often, they are referred to as "sight words" since automatic recognition of these words is required for fluent reading.

Idiom: a phrase or expression that differs from the literal meaning of the words. Ex: It's time to let the cat out of the bag.

Imagery: Multiple words or a continuous phrase that a writer uses to represent persons, objects, actions, feelings, and ideas descriptively by appealing to the senses.

Independent clause: A clause that can stand by itself as a simple sentence, can be combined with one or more independent clauses in a compound sentence, and can serve as the main clause in a complex sentence**.**

> **Ex:**
>
> **The roof leaks.**
>
> **The roof leaks, and the floor sags. Whenever it rains, the roof leaks.**

Inflection: A type of bound morpheme; a grammatical ending that does not change the part of speech of a word but marks its tense, number, or degree in English (e.g., -s, -ed, -ing).

Inference: Act or process of deriving logical conclusions from premises known or assumed to be true; the conclusions drawn from this process.

Informal discourse: Language characterized by non-technical vocabulary, simple sentence structure, and less formal language.

Informational texts: Nonfiction texts that contain facts and information; also referred to as expository texts.

Introductory elements: Clauses, phrases, and words that appear before the main clause in a sentence.

Irony: Tension that arises from the discrepancy, either between what one says and what one means (verbal irony), between what a character believes and what a reader knows (dramatic irony), or between what occurs and what one expects to occur (situational irony).

Irregular verb: A verb that does not form its past tense and past participle by adding –ed, -d, or –t, as regular verbs do. Ex: sing, sang, sung; go, went, gone.

Literary heritage: Works by authors whose writing influenced and continues to influence the public language, thinking, history, literary culture, and politics of a nation. These works comprise the literary and intellectual capital drawn on by later writers.

Letter sound correspondence (also sound symbol correspondences): The rules and patterns by which letters and letter combinations represent speech sounds.

Literary nonfiction: Text that conveys factual information. The text may or may not employ a narrative structure and characteristics such as dialogue.
Additionally, literary nonfiction may also persuade, inform, explain, describe, or amuse.

Main idea: The central thought of a nonfiction text.

Memoir: Type of autobiography that usually focuses on a single time period or historical event.

Metaphor: A thing, idea, or action referred to by a word or expression normally reserved for another thing, idea, or action to suggest a common quality shared between the two. Ex: “All the world’s a stage…”

Meter: The measured pattern of rhythmic accents in poems.

Modal auxiliary verb: A verb that combines with another verb to indicate mood or tense. Ex: I <u>will</u> go to the doctor next week.

Mood (a): The form of a verb that indicates the writer's attitude toward a statement as it is made. Ex: I wish I <u>could go</u>.

Mood (b): Atmosphere or predominant emotion in a literary work.

Morphology: The study of the meaningful units in a language and how they are combined in word formation.

Motivation: Circumstance or set of circumstances that prompt a character to act a certain way or that determine the outcome of a situation.

Multi-syllabic words: Words with more than one syllable. The average number of syllables in the words students read should increase steadily throughout the grades.

Myth: Traditional story accepted as history, which serves to explain the worldview of a people, usually in supernatural or imaginative terms.

Mythology: A body of related myths most often regarded as fictional stories containing deeper truths.

Narration: The process of relating a sequence of events.

Narrative: A story about fictional or real events.

Narrator: One who tells, or is assumed to be telling, the story in a given narrative.

Nuance: A subtle difference in meaning, expression, or sound.

Onset-rime: The natural division of a syllable into two parts, the onset coming before the vowel and the rime including the vowel and what follows it (e.g., pl-an, shr-ill).

Opinion piece: Writing in which a personal opinion is expressed about a topic. As grade levels progress, the writer must support a point of view with reasons and/or information.

Opposing claim: A statement that is the opposite of an original claim.

Oxymoron: A figure of speech that combines two usually contradictory terms in a compressed paradox, as in the word *bittersweet* or the phrase *living death*.

Pace: The speed and rhythm at which the events unfold in a story or scene. A variety of devices, such as structure and word choice, are used to control the speed and rhythm of a story or scene, and how quickly the story unfolds depends upon the needs of the story. A story unfolds more quickly during more intense scenes and within short stories or adventure stories**.**

Paradox: A statement or expression so surprisingly self-contradictory as to provoke the reader into seeking another sense or context in which it would be true. Wordsworth's line "the Child is the father of the Man" and Shakespeare's "the truest poetry is the most feigning" are literary examples.

Parallel plots: Correspondences between larger elements of dramatic or narrative works, such as the relation of a subplot, usually involving characters of lesser importance (and often of lower social status), to the main plot.

Parallel structure/Parallelism: Two or more of the same grammatical structures that are coordinated and given equal weight.

Paraphrase: A reader's own version of a writer's essential information.

Participial: A present or past participle together with its subject or complements and/or modifiers. Ex: *Still clutching their pizza in their hands, the kids left the room.*

Participle: The verb forms that appear in verb phrases after the auxiliary verbs *to be*, as in *I was eating* (present participle), and *to have*, as in *I have eaten* (past participle). Participle is also the term used to refer to the present or past participle in its role as an adjectival, as a modifier in a noun phrase. *The band members, wearing their snazzy new uniforms, proudly marched onto the field*.

Personification: Metaphor that gives inanimate objects or abstract ideas human characteristics.

Perspective: Position, stance, or viewpoint from which something is considered or evaluated.

Persuasion (persuasive writing): Form of discourse whose function is to convince an audience or to prove or refute a point of view of an issue.

Phoneme: A speech sound that combines with others in a language system to make words; English has 40 to 44 phonemes, according to various linguists.

Phoneme isolation: Recognizing individual sounds in a word (e.g., /p/ is the first sound in the word *pan*).

Phonemic awareness: The ability to notice, think about, or manipulate the individual phonemes (sounds) in words. It is the ability to understand that sounds in spoken language work together to make words. This term is used to refer to the highest level of phonological awareness: awareness of individual phonemes in words.

Phonetic spelling: The process of listening for each sound in a word and representing each sound with a letter or combination of letters.

Phonics: The study of the relationships between letters and the sounds they represent; the term is also used as a descriptor for code-based instruction in reading.

Phonological awareness: One's sensitivity to, or explicit awareness of, the phonological structure of words in one's language. This is an "umbrella" term that is used to refer to a student's sensitivity to any aspect of phonological structure in language. It encompasses awareness of individual words in sentences, syllables, and onset-rime segments as well as awareness of individual phonemes.

Plagiarism: The theft of ideas (such as the plots of narrative or dramatic works) or of written passages or works, where these are passed off as one's own work without acknowledgement of their true origin. Plagiarism is not easily separable from imitation, adaptation, or pastiche, but is usually distinguished by its dishonest intention.

Plot: Sequence of events or actions in a short story, novel, or narrative poem.

Point of View: Perspective or vantage point from which a literary work is told or the way in which the author reveals characters, actions, and ideas.

Precise language: Vivid, descriptive words that describe a topic.

Prefix: A morpheme that precedes a root and that contributes to or modifies the meaning of a word.

Problem/Solution: Text structure in which the main ideas are organized into two parts: a problem and a subsequent solution that responds to the problem, or a question and an answer that responds to the question.

Procedural text: Text that conveys information in the form of directions for accomplishing a task. A distinguishing characteristic of this text type is that it is composed of discrete steps to be performed in a strict sequence with an implicit end product or goal.

Progressive verb form: A verb form that indicates a continuing action or one that was in progress when something else occurred; consists of some form of the auxiliary verb *be* followed by a verb with *ing* on the end.

Prompting: Questions posed during reading to check for understanding.

Prose: A form of language that has no formal metrical structure. It applies a natural flow of speech rather than rhythmic structure.

Pronoun-antecedent agreement: Correspondence in gender and number between a pronoun and the word or word group to which a pronoun refers.

Purpose: Specific reason or reasons for writing. Purpose conveys what the readers have to gain by reading the selection; it is also the objective or the goal that the writer wishes to establish.

Rate: The speed at which a person reads.

Reason: The logical support behind an argument.

Relative adverbs: Adverbs that introduce relative clauses. The most common relative adverbs are where, when, and why.

Relative clause: A dependent clause that provides more information about a noun.

Relative pronouns: Pronouns that introduce relative clauses. The most common relative pronouns are who, whom, whose, which, and that.

Regular verb: A verb that forms its past tense and participle by the addition of –d or –ed to the present tense form.

Retelling: Recalling the content of what was read or heard.

Repetition: Deliberate use of any element of language more than once: sound, word, phrase, sentence, grammatical pattern, or rhythmical pattern.

Rhetoric: The art of using words to persuade in writing or speaking. Writers frequently use three modes of persuasion: **ethos** (persuasive appeal based on the character and credibility of the writer or speaker) **pathos** (persuasion by an appeal to emotion), and **logos** (persuasion by an appeal to logic).

Rhetorical devices and features: Techniques used by a writer to persuade an audience.

Rhyme: Repetition of sounds in two or more words or phrases that appear close to each other in a poem. *End rhyme* occurs at the end of lines; *internal rhyme* occurs within a line; *Slant rhyme* is approximate rhyme; a *rhyme scheme* is the pattern of end rhymes.

Rhyming words: Sharing identical or at least similar medial and final phonemes in the last syllable. Because English has a writing system with a deep orthography, words can rhyme without sharing similar orthography (e.g. *suite* and *meet*).

Rhythm: Regular recurrence and speed of sound and stresses in a poem or work of prose.

Root: A bound morpheme, usually of Latin origin, that cannot stand alone but is used to form a family of words with related meanings.

Register: A variety of language used in specified kinds of formal and informal situations.

Sarcasm: The use of verbal irony in which a person appears to be praising something but is actually insulting it.

Satire: Prose in which witty language is used to convey insults or scorn.

Scaffolding: Refers to the support that is given to students in order for them to arrive at the correct answer. Scaffolding may be embedded in the features of the instructional design such as starting with simpler skills and building progressively to more difficult skills. The ultimate goal of scaffolding is to lead students to greater independence.

Scene: In a drama, scenes represent actions happening in one place at one time. In narrative works, the term applies to a dramatic method of narration that presents events at roughly the same pace at which they are supposed to occur.

Secondhand account: An event or topic based on an author's research rather than on personal experience.

Segmentation: Breaking down a spoken word into word parts by inserting a pause between each part. Words can be segmented at the word level (in the case of compound words), at the syllable level, at the onset-rime level, and at the phoneme level.

Sensory details: Words or phrases that can be recognized or described through sight, sound, touch, smell, or taste.

Setting: The time and place in which events in a short story, novel, or narrative poem take place.

Sequence: Text structure in which ideas are grouped on the basis of order or time.

Shades of meaning: Small differences in meaning between words that are similar.

Simile: An explicit comparison between two different things, actions, or feelings using the words like or as. Ex: He was as quiet as a mouse.

Soliloquy: A dramatic speech uttered by one character speaking aloud while alone (or under the impression of being alone). The speaker reveals his or her inner thoughts to the audience through either direct address or self-communication.

Sonnet: Fourteen-line lyric poem, usually written in iambic pentameter.

Spatial words: Signal words that emphasize location.

Spelling patterns and generalizations: The generalizing principles and recognizable patterns that aid in learning to spell.

Stage directions: Words in a dramatic script that define an actor's actions, movements, and attitudes.

Standard English: The most widely accepted and understood form of expression in English in the United States.

Stanza: A division of a poem that is composed of two or more lines.

Style: A writer's characteristic manner of employing language.

Subordinating conjunction: A word or phrase used to introduce a subordinate clause.

Suffix: A derivational morpheme (added to a root or base word) that often changes the word's part of speech and modifies its meaning.

Summary: A condensed version of a larger reading in which a writer uses his or her own words to express the main idea and relevant details of the text.

Superlative adjectives or adverbs: Adjectives or adverbs used to compare one person, thing, or group with all others in its class.

Syllable: The unit of pronunciation that is organized around a vowel; it may or may not have consonants before or after the word.

Symbol: Object, person, place, or action that has both a meaning in itself and that stands for something larger than itself, such as a quality, attitude, belief, or value.

Syntax: Arrangement of words and order of grammatical elements in a sentence.

Technical meaning: Words or groups of words that relate to a specific process or activity.

Temporal words and phrases: Signal words or phrases used to refer to time or sequence of events.

Tension: The feeling or experience of the reader or audience as a story unfolds, especially the closer the reader or audience approaches the climax of a story. The feelings and experience can include increased involvement or interest, dread, anticipation, thrill, or uncertainty. An author may create tension through pacing, foreshadowing, actions, word choice, sentence or text structure, dramatic irony, and other techniques and devices.

Text complexity band: Readability levels assigned to determine text difficulty after using a formula to calculate factors such as sentence and word length and frequency of unfamiliar words.

Text features: Additional information about a text, including headings, captions, illustrations, boldface words, graphs, diagrams, and glossaries that help readers comprehend a text.

Textual evidence: Support lifted directly from a text to support inferences, claims, and assertions. Using textual evidence demands that readers engage with the text and share the specific aspects of the text that influence their thinking.

Theme: Central meaning of a literary work. A literary work can have more than one theme.

Third person narration: Narration in which the narrator stands outside the events in a story.

Tone: A writer's or speaker's attitude toward a subject, character, or audience conveyed through the author's choice of words and detail. Tone can be serious, humorous, sarcastic, objective, etc.

Traditional literature: The songs, stories, myths, and proverbs of a people handed down orally before they were written.

Transitional words and phrases: Words and phrases used to create logical links between ideas expressed in writing.

Trait: Distinguishing feature, as of a person's character.

Understatement: A kind of irony that deliberately represents something as being much less that it really is; the opposite of hyperbole or overstatement.

Verse: Any single, long line of a poetry composition. Verse can, however, also refer to a stanza or any other part of a poem.

Voice: Distinctive style or manner of expression of an author or of a character.

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Source: *Miss. Code Ann. §37-1-3 (Revised 1/2016)*

Appendix B

MS CCRS 2016 & 2025 COMPARISON GUIDE

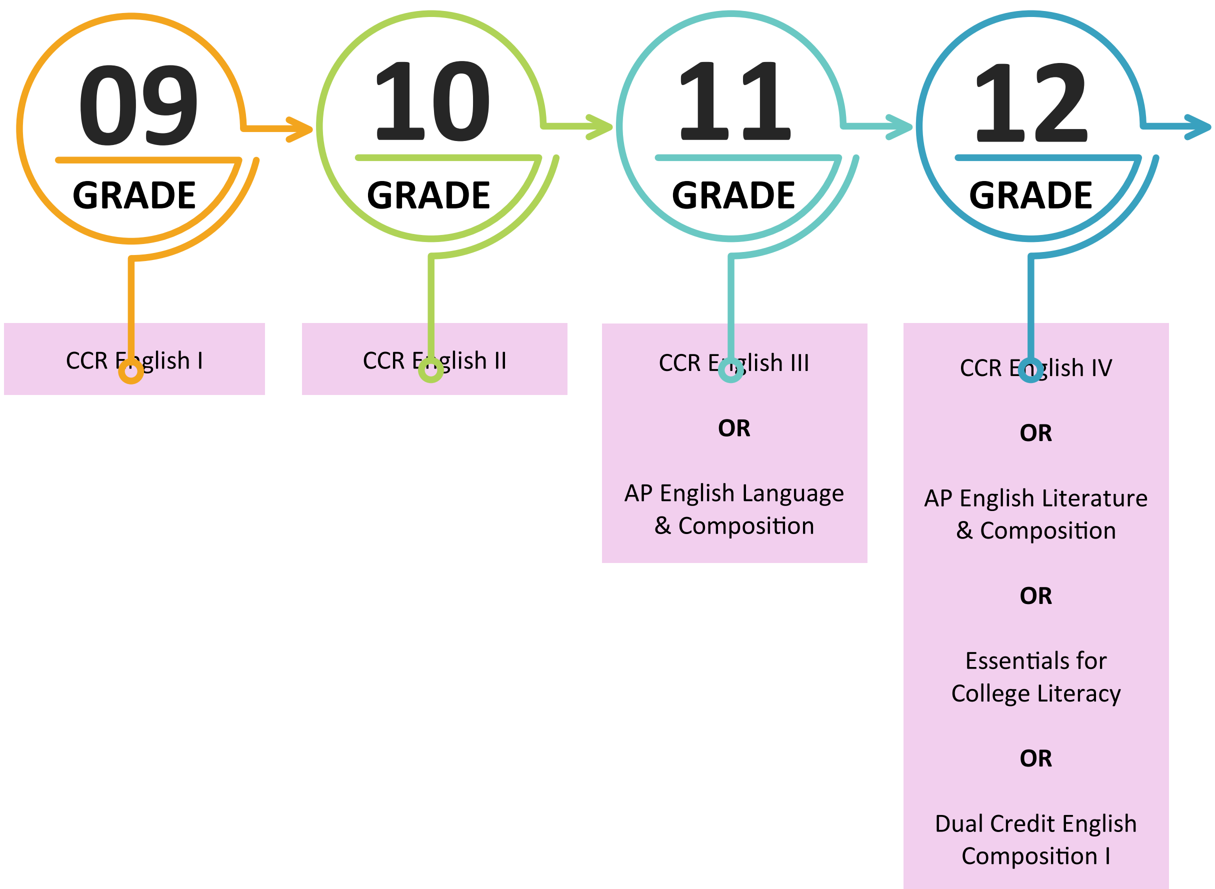
STANDARD	2016 MS CCRS	2025 MS CCRS
KINDERGARTEN		
RF.K.3a	Demonstrate basic knowledge of one-to-one letter-sound correspondences by producing the primary sound or many of the most frequent sounds for each consonant.	Demonstrate basic knowledge of one-to-one letter sound correspondences by producing the primary sound for each consonant.
L.K.1a	Print many upper- and lowercase letters.	Print all upper- and lowercase letters
L.K.2c	Write a letter or letters for most consonant and short-vowel sounds (phonemes).	Write the letter or letters that correspond to the correct consonant and short-vowel sounds (phonemes).
GRADE 1		
RF.1.3g	Recognize and read grade-appropriate irregularly spelled words.	Apply letter-sound knowledge to recognize and read irregularly spelled words.
GRADE 7		
RL.7.5	Analyze how a drama's or poem's form or structure (e.g., soliloquy, sonnet) contributes to its meaning.	Analyze how a literary text's form or structure (e.g. soliloquy, sonnet) contributes to its meaning.
GRADE 8		
RL.8.7	Analyze the extent to which a filmed or live production of a story or drama stays faithful to or departs from the text or script, evaluating the choices made by the director or actors.	Analyze the extent to which an adaptation of a story or drama stays faithful to or departs from the text or script, using non-text content (e.g., images, video, audio) to evaluate the choices made by the director or actors.

Appendix C

SUGGESTIONS FOR COURSE SEQUENCING

To help students meet College- and Career-Readiness ACT/SAT benchmarks in their junior year, the following course sequencing is recommended for English Language Arts.

CCR English I and CCR English II are required courses for all students. Two additional ELA credits are required, but these courses may be chosen based on students' selected diploma endorsements and/or postsecondary plans.



SECONDARY COURSE SEQUENCE OPTIONS

The options listed below are the most commonly used courses for secondary level students.

For additional English Language Arts course offerings, please refer to the *MSIS Course Codes Search Portal*.

LEVEL ▼	OPTION 1 ▼	OPTION 2 ▼	OPTION 3 ▼
GRADE 9	CCR English I	CCR English I	CCR English I
GRADE 10	CCR English II	CCR English II	CCR English II
GRADE 11	CCR English III	AP English Language & Composition or Approved Dual Credit/Dual Enrollment English Language Arts Course	**This sequence is not recommended for postsecondary enrollment.** Creative Writing Debate Foundations of Journalism Broadcast Journalism Print Journalism Mississippi Writers Oral Communication Survey of African American Writing Survey of Twentieth Century Writing Technical and Workplace Writing World Literature
GRADE 12	CCR English IV or SREB Essentials for College Literacy	AP English Literature & Composition or Approved Dual Credit/Dual Enrollment English Language Arts Course	**This sequence is not recommended for postsecondary enrollment.** Creative Writing Debate Foundations of Journalism Broadcast Journalism Print Journalism Mississippi Writers Oral Communication Survey of African American Writing Survey of Twentieth Century Writing Technical and Workplace Writing World Literature SREB Literacy Ready

Appendix D

MS CCRS NAVIGATOR

Comprehensive Support for Instructional Preparation

The primary purpose of the 2025 Mississippi College- and Career-Readiness Standards Navigators (MS CCRS Navigators, formerly known as the MS CCRS Scaffolding Documents) is to equip teachers with a deeper understanding of the Standards, enabling them to effectively prepare for classroom instruction. Grounded in the 2025 Mississippi College- and Career-Readiness Standards for English Language Arts, these documents provide a detailed analysis of what is required for student mastery in an effort to help teachers prepare to deliver high-quality, intentional instruction that aligns with the rigor of the Standards.

Organization of the 2025 MS CCRS Navigator

The 2025 MS CCRS Navigator is divided by grade level. Within each grade level, the Navigator is separated into the four strands identified in the MS CCR Standards for ELA: Reading, Writing, Speaking and Listening, and Language. Each standard is broken down into three categories to guide instructional preparation:

- **Prerequisite Knowledge** – This column lists the skills that students should have previously mastered to engage with and work towards mastery of the grade-specific standard. It details what students need to **KNOW** to build a strong foundation for learning.
- **Conceptual Understanding** – This column explains the deeper understanding of concepts – not just actions or skills – required for mastery. It details what students need to **UNDERSTAND** to fully grasp the grade-specific standard.
- **Evidence of Knowledge** – This column describes how student mastery is demonstrated, including the work students produce to exhibit understanding. It specifies what students need to **DO** to show that they have achieved mastery of the standard.

The document also notes key academic vocabulary related to each standard, which include the ideas, concepts, and verbs that are necessary for mastery of the standard. The MS CCRS Navigators for ELA and Mathematics for all grades may be accessed at https://mdek12.org/secondaryeducation/ccr/.

2025
MISSISSIPPI
College- and Career-Readiness Standards

▶ English Language Arts

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The Mississippi Department of Education gratefully acknowledges the hard work of the following individuals for their involvement and feedback in the readoption process of the 2025 Mississippi College- and Career-Readiness Standards for English Language Arts.

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MISSION STATEMENT

The Mississippi Department of Education is dedicated to student success, including the improvement of student achievement in English Language Arts in order to produce citizens who are capable of making complex decisions, solving complex problems, and communicating fluently in a global society. The Mississippi College- and Career-Readiness Standards provide a consistent, clear understanding of what students are expected to know and be able to do by the end of each grade level or course. The standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills that students need for success in college and careers and to compete in the global economy.

PURPOSE

The primary purpose of the 2025 Mississippi College- and Career-Readiness Standards (MS CCRS) is to provide a basis for curriculum development for Grades K-12 English Language Arts teachers in Mississippi. This document provides an outline of what students should know and be able to do by the end of each grade level in preparation for college and career. Mississippi-specific courses that were revised to align with the Mississippi College- and Career-Readiness Standards include Survey of African American Writing, Creative Writing, Debate, Foundations of Journalism, Broadcast Journalism, Print Journalism, Mississippi Writers, Oral Communication, Technical and Workplace Writing, Survey of Twentieth Century Writing, and World Literature. The Southern Regional Education Board (SREB) Literacy Readiness courses are included as transitions to high school and college English courses.

IMPLEMENTATION

The required year for the *2025 Mississippi College- and Career-Readiness Standards for English Language Arts* is school year 2025-2026.

OVERVIEW

The Mississippi College- and Career-Readiness Standards (MS CCRS) for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects (“the Standards”) are the culmination of an extended, broad-based effort to fulfill the charge to create next generation K–12 standards in order to help ensure that all students are college and career ready in literacy no later than the end of high school.

The Standards set requirements not only for English language arts (ELA) but also for literacy in history/social studies, science, and technical subjects. Just as students must learn to read, write, speak, listen, and use language effectively in a variety of content areas, so too must the Standards specify the literacy skills and understandings required for college and career readiness in multiple disciplines. Literacy standards for grade 6 and above are predicated on teachers of ELA, history/social studies, science, and technical subjects using their content area expertise to help students meet the particular challenges of reading, writing, speaking, listening, and language in their respective fields. It is important to note that the 6–12 literacy standards in history/social studies, science, and technical subjects are not meant to replace content standards in those areas but rather to supplement them.

As a natural outgrowth of meeting the charge to define college and career readiness, the Standards also lay out a vision of what it means to be a literate person in the twenty-first century. Indeed, the skills and understandings students are expected to demonstrate have wide applicability outside the classroom or workplace. Students who meet the Standards readily undertake the close, attentive reading that is at the heart of understanding and enjoying complex works of literature. They habitually perform the critical reading necessary to pick carefully through the staggering amount of information available today in print and digitally. They actively seek wide, deep, and thoughtful engagement with high-quality literary and informational texts that builds knowledge, enlarges experience, and broadens worldviews. They reflexively demonstrate the cogent reasoning and use of evidence that is essential to both private deliberation and responsible citizenship in a democratic republic. In short, students who meet the Standards develop the skills in reading, writing, speaking, and listening that are the foundation for any creative and purposeful expression in language.

THE READOPTION PROCESS

The 2016 Mississippi College- and Career-Readiness Standards (MS CCRS) were reviewed after a statewide stakeholder survey, as a full-scale revision was not warranted. The survey aimed to validate the standards or to identify specific areas for review, to ensure continued relevance and alignment with educational goals.

The survey included three sections:

- Demographics: collected data on respondents' congressional district, grade levels taught, teaching experience, role, highest degree attained, and notable achievements
- Standards Rating: used a Likert scale to evaluate perceptions of the MS CCRS, assessing clarity, grade-level progression, relevance to real-world skills, and alignment with workplace competencies such as problem-solving and collaboration
- Standards Review (Optional): allowed respondents to submit specific standards for review, focusing on clarity, grade-level appropriateness, learning progression, and content accuracy, accompanied by actionable feedback

The survey yielded 418 total responses and 97 comments regarding standards, with 20 comments pertaining to K-12 English Language Arts standards. A diverse group of veteran educators representing each congressional districts and all grade bands met in the summer and fall of 2024 to review the feedback and make recommendations.

For a full list of edits made to the standards, refer to the 2016 and 2025 Mississippi College- and Career-Readiness Standards Comparison Guide in Appendix B.

KEY DESIGN CONSIDERATIONS

Mississippi College- and Career-Readiness Grade-Specific Standards

The Mississippi College- and Career-Readiness (MS CCRS) standards anchor the document and define general, cross-disciplinary literacy expectations that must be met for students to be prepared to enter college and workforce training programs ready to succeed. The K–12 grade- specific standards define end-of-year expectations and a cumulative progression designed to enable students to meet college and career readiness expectations no later than the end of high school. The MS CCRS and high school (grades 9–12) standards work in tandem to define the college and career readiness line—the former providing broad standards, the latter providing additional specificity. Hence, both should be considered when developing college and career readiness assessments.

Students advancing through the grades are expected to meet each year's grade specific standards, retain, or further develop skills and understandings mastered in preceding grades, and work steadily toward meeting the more general expectations described by the MS CCRS standards.

Grade Levels for K-8; Grade Bands for 9-10 and 11-12

The Standards use individual grade levels in Kindergarten through Grade 8 to provide useful specificity; the Standards use two-year bands in Grades 9-12 to allow flexibility in high school course design.

A Focus on Results Rather than Means

By emphasizing required achievements, the Standards leave room for school districts to determine how those goals should be reached and what additional topics should be addressed. Thus, the Standards do not mandate such things as a particular writing process or the full range of metacognitive strategies that students may need to monitor and direct their thinking and learning. Teachers are thus free to provide students with whatever tools and knowledge their professional judgment and experience identify as most helpful for meeting the goals set out in the Standards.

An Integrated Model of Literacy

Although the Standards are divided into Reading, Writing, Speaking and Listening, and Language strands for conceptual clarity, the processes of communication are closely connected, as reflected throughout this document. For example, Writing standard 9 requires that students be able to write about what they read. Likewise, Speaking and Listening standard 4 sets the expectation that students will share findings from their research.

Research and Media Skills Blended into the Standards as a Whole

To be ready for college, workforce training, and life in a technological society, students need the ability to gather, comprehend, evaluate, synthesize, and report on information and ideas, to conduct original research in order to answer questions or solve problems, and to analyze and create a high volume and extensive range of print and non-print texts in media forms old and new. Research, media skills, and understandings are embedded throughout the Standards rather than treated in a separate section.

Shared Responsibility for Students' Literacy Development

The Standards insist that instruction in reading, writing, speaking, listening, and language be a shared responsibility within the school. The K–5 standards include expectations for reading, writing, speaking, listening, and language applicable to a range of subjects, including but not limited to ELA. The grades 6–12 standards are divided into two sections, one for ELA and the other for history/social studies, science, and technical subjects. This division reflects the unique, time-honored place of ELA teachers in developing students' literacy skills while at the same time recognizing that teachers in other areas must have a role in this development as well.

Part of the motivation behind the interdisciplinary approach to literacy promulgated by the Standards is extensive research establishing the need for college and career ready students to be proficient in reading complex informational text independently in a variety of content areas. Most of the required reading in college and workforce training programs is informational in structure and challenging in content; postsecondary education programs typically provide students with both a higher volume of such reading than is generally required in K–12 schools and comparatively little scaffolding.

The Standards are not alone in calling for a special emphasis on informational text. The 2022 reading framework of the National Assessment of Educational Progress (NAEP) requires a high and increasing proportion of informational text on its assessment as students advance through the grades.

Strategies for Content Area Reading

Though strategies utilized in reading and language arts classes provide the framework that students need to comprehend content-specific texts, students must also be equipped with transferable skills and strategies that can be used across grade levels and curricula. The following suggestions for content area reading can be incorporated into all classrooms:

- Establish goals and purposes for reading.
- Plan pre-reading activities that allow students to develop prerequisite knowledge and vocabulary about content-specific topics. Activities may include reading materials, videos, websites, and field trips.
- Plan post-reading activities that allow students to demonstrate mastery of skills and concepts through visual, kinesthetic, oral, and/or written products. Comprehension is often aided when linked to the creation of a product.
- Create mental or visual images associated with technical vocabulary words.
- Link new vocabulary with background knowledge.
- Focus on the semantic relationships of new and familiar words.
- Use synonyms, antonyms, and dictionary definitions to understand the meaning of specialized and technical vocabulary.
- Analyze the structure of new words (affixes, compound words, etc.) to determine word meaning.
- Maintain word banks and word walls for new words (**Note**: Word banks and word walls should be interactive; students must regularly interact with words banks and word walls to fully expand their vocabulary and analyze how words and concepts aid in reading comprehension).
- Use semantic gradients (vocabulary continuums) to illustrate a continuum of words by degree. Semantic gradients often feature antonyms or opposites on each end of the continuum. This strategy broadens students' knowledge of related and opposite words.
- Develop activities that allow students to work collaboratively to figure out the meaning of new words.
- Encourage students to generate and ask questions of texts.
- Design activities that allow students to make inferences, predict, summarize, and visualize concepts.
- Examine physical features of texts, such as different kinds of text features, including typeface, headings, and subheadings.

Many of the suggested strategies (e.g., prediction, summarizing, analyzing text features) must be directly taught (explicit instruction) and practiced, while other strategies (e.g., creating visual or mental images) can be components of incidental (implicit) instruction.

Additionally, students must engage in reading, writing, speaking, and listening activities that are authentic and content specific. Textbooks and discipline-specific texts, such as primary and secondary source documents, articles, tables, and graphs, must be cornerstones in social studies, science, and technical subjects to aid students in using reading strategies that are discipline-specific.

(Adapted from *Research-Based Content Area Reading Instruction*, Texas Reading Initiative, *Guidance for Literacy in the Content Areas*, Engage NY, and *Vocabulary Filters: A Framework for Choosing Which Words to Teach)*

Distribution of Literary and Informational Passages by Grade in the 2022 and 2024 NAEP Reading Framework

Grade	Literary	Informational
4	50%	50%
8	45%	55%
12	30%	70%

Source: National Assessment Governing Board. (2022). *Reading framework for the 2022 and 2024 National Assessment of Educational Progress.* Washington, DC: U.S. Government Printing Office.

The Standards aim to align instruction with this framework so that many more students than at present can meet the requirements of college and career readiness. In K–5, the Standards follow NAEP's lead in balancing the reading of literature with the reading of informational texts, including texts in history/social studies, science, and technical subjects. In accord with NAEP's growing emphasis on informational texts in the higher grades, the Standards demand that a significant amount of reading of informational texts take place in and outside the ELA classroom. Fulfilling the Standards for 6–12 ELA requires much greater attention to a specific category of informational text—literary nonfiction—than has been traditional.

Because the ELA classroom must focus on literature (stories, drama, and poetry) as well as literary nonfiction, a great deal of informational reading in grades 6–12 must take place in other classes if the NAEP assessment framework is to be matched instructionally. **The percentages on the table reflect the sum of student reading, not just reading in ELA settings.** Teachers of senior English classes, for example, are not required to devote 70 percent of reading to informational texts. Rather, 70 percent of student reading across the grade should be informational. To measure students' growth toward college and career readiness, assessments aligned with the Standards should adhere to the distribution of texts across grades cited in the NAEP framework.

Distribution of Communicative Purposes by Grade in the 2017 NAEP Writing Framework

Grade	To Persuade	To Explain	To Convey Experience
4	30%	35%	35%
8	35%	35%	30%
12	40%	40%	20%

Source: National Assessment Governing Board. (2017). *Writing framework for the 2017 National Assessment of Educational Progress.* Washington, DC: U.S. Government Printing Office.

NAEP likewise outlines a distribution across the grades of the core purposes and types of student writing. The 2017 NAEP framework, like the Standards, cultivates the development of three mutually reinforcing writing capacities: writing to persuade, to explain, and to convey real or imagined experience. Evidence concerning the demands of college and career readiness gathered during development of the Standards concurs with NAEP's shifting emphases: standards for grades 9–12 describe writing in all three forms, but, consistent with NAEP, the overwhelming focus of writing throughout high school should be on arguments and informative/explanatory texts.

As with reading, the percentages in the table reflect the sum of student writing, not just writing in ELA settings. It follows that writing assessments aligned with the Standards should adhere to the distribution of writing purposes across grades outlined by NAEP.

Focus and Coherence in Instruction and Assessment

While the Standards delineate specific expectations in reading, writing, speaking, listening, and language, each standard need not be a separate focus for instruction and assessment. Often, several standards can be addressed by a single rich task. For example, when editing writing, students address Writing standard 5 ("Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach") as well as Language standards 1–3 (which deal with conventions of Standard English and knowledge of language). When drawing evidence from literary and informational texts per Writing Standard 9, students are also demonstrating their comprehension skill in relation to specific standards in Reading. When discussing something they have read or written, students are also demonstrating their speaking and listening skills. The CCR anchor standards themselves provide another source of focus and coherence.

The same ten CCR anchor standards for Reading apply to both literary and informational texts, including texts in history/social studies, science, and technical subjects. The ten CCR anchor standards for Writing cover numerous text types and subject areas. This means that students can develop mutually reinforcing skills and exhibit mastery.

COLLEGE- AND CAREER-READY STUDENTS

The descriptions that follow are not standards themselves but instead offer a portrait of students who meet the standards set out in this document. As students advance through the grades and master the standards in reading, writing, speaking, listening, and language, they are able to exhibit with increasing fullness and regularity these capacities of the literate individual.

They demonstrate independence.

Students can, without significant scaffolding, comprehend and evaluate complex texts across a range of types and disciplines, and they can construct effective arguments and convey intricate or multifaceted information. Likewise, students are able independently to discern a speaker's key points, request clarification, and ask relevant questions. They build on others' ideas, articulate their own ideas, and confirm they have been understood. Without prompting, they demonstrate command of Standard English and acquire and use a wide-ranging vocabulary. More broadly, they become self-directed learners, effectively seeking out and using resources to assist them, including teachers, peers, and print and digital reference materials.

They build strong content knowledge.

Students establish a base of knowledge across a wide range of subject matter by engaging with works of quality and substance. They become proficient in new areas through research and study. They read purposefully and listen attentively to gain both general knowledge and discipline-specific expertise. They refine and share their knowledge through writing and speaking.

They respond to the varying demands of audience, task, purpose, and discipline.

Students adapt their communication in relation to audience, task, purpose, and discipline. They set and adjust purpose for reading, writing, speaking, listening, and language use as warranted by the task. They appreciate nuances, such as how the composition of an audience should affect tone when speaking and how the connotations of words affect meaning. They also know that different disciplines call for different types of evidence (e.g., documentary evidence in history, experimental evidence in science).

They comprehend as well as critique.

Students are engaged and open-minded—but discerning—readers and listeners. They work diligently to understand precisely what an author or speaker is saying, but they also question an author's or speaker's assumptions and premises and assess the veracity of claims and the soundness of reasoning.

They value evidence.

Students cite specific evidence when offering an oral or written interpretation of a text. They use relevant evidence when supporting their own points in writing and speaking, making their reasoning clear to the reader or listener, and they constructively evaluate others' use of evidence.

They use technology and digital media strategically and capably.

Students employ technology thoughtfully to enhance their reading, writing, speaking, listening, and language use. They tailor their searches online to acquire useful information efficiently, and they integrate what they learn using technology with what they learn offline. They are familiar with the strengths and limitations of various technological tools and mediums and can select and use those best suited to their communication goals.

They come to understand other perspectives and cultures.

Students appreciate that the twenty-first-century classroom and workplace are settings in which people from often widely divergent cultures and who represent diverse experiences and perspectives must learn and work together. Students actively seek to understand other perspectives and cultures through reading and listening, and they are able to communicate effectively with people of varied backgrounds. They evaluate other points of view critically and constructively. Through reading great classic and contemporary works of literature representative of a variety of periods, cultures, and worldviews, students can vicariously inhabit worlds and have experiences much different than their own.

ORGANIZATION OF THE STANDARDS

The 2025 Mississippi College- and Career-Readiness Standards for English Language Arts are divided into five sections. The first section consists of an introduction to the document and an overview of the document. The second section outlines the MS CCRS Anchor Standards for ELA. The third section includes the MS CCRS for ELA for kindergarten through fifth grade. The fourth section contains the MS CCRS for secondary ELA, including standards for Literacy and Writing in Social Studies, Science, and Technical Subjects. The final section includes the Mississippi Specific High School ELA electives, Advanced Placement courses, and the SREB Literacy Readiness bridge courses.

The K-5 and 6-12 ELA Standards are divided into four strands: Reading, Writing, Speaking and Listening, and Language. Each strand is headed by a strand-specific set of College- and Career-Readiness Anchor Standards that is identical across all grades and content areas.

Standards for each grade within K–8 and for grades 9–10 and 11–12 follow the CCR anchor standards in each strand. Each grade-specific standard (as these standards are collectively referred to) corresponds to the same-numbered CCR anchor standard. Put another way, each CCR anchor standard has an accompanying grade-specific standard translating the broader MS CCRS statement into grade-appropriate end-of-year expectations.

Individual CCR anchor standards can be identified by their strand, CCR status, and number (R.CCR.6, for example). Individual grade-specific standards can be identified by their strand, grade, and number (or number and letter, where applicable), so that RI.4.3, for example, stands for Reading, Informational Text, grade 4, standard 3 and W.5.1a stands for Writing, grade 5, standard 1a. Strand designations can be found in brackets alongside the full strand title.

Who is responsible for which portion of the Standards?

A single K–5 section lists standards for reading, writing, speaking and listening, and language across the curriculum. Grades 6-8 and 9-12 are covered in two content area-specific sections, the first for the English language arts teacher and the second for teachers of history/social studies, science, and technical subjects. Each section uses the same CCR anchor standards but also includes grade-specific standards tuned to the literacy requirements of the particular discipline(s).

Key Features of the Standards

Reading: Text Complexity and the Growth of Comprehension

The Reading standards place equal emphasis on the sophistication of what students read and the skill with which they read. Standard 10 defines a grade-by grade “staircase” of increasing text complexity that rises from beginning reading to the college and career readiness level. Whatever they are reading, students must also show a steadily growing ability to discern more from and make fuller use of text, including making an increasing number of connections among ideas and between texts, considering a wider range of textual evidence, and becoming more sensitive to inconsistencies, ambiguities, and poor reasoning in texts.

Link: *Qualitative Rubrics for Measuring Text Complexity of Literary and Informational Texts*

Writing: Text Types, Responding to Reading, and Research

The Standards acknowledge the fact that whereas some writing skills, such as the ability to plan, revise, edit, and publish, are applicable to many types of writing, other skills are more properly defined in terms of specific writing types: arguments, informative/explanatory texts, and narratives. Standard 9 stresses the importance of the writing-reading connection by requiring students to draw upon and write about evidence from literary and informational texts. Because of the centrality of writing to most forms of inquiry, research standards are prominently included in this strand, though skills important to research are infused throughout the document.

Speaking and Listening: Flexible Communication and Collaboration

Including but not limited to skills necessary for formal presentations, the Speaking and Listening standards require students to develop a range of broadly useful oral communication and interpersonal skills. Students must learn to work together, express and listen carefully to ideas, integrate information from oral, visual, quantitative, and media sources, evaluate what they hear, use media and visual displays strategically to help achieve communicative purposes, and adapt speech to context and task.

Language: Conventions, Effective Use, and Vocabulary

The Language standards include the essential “rules” of standard written and spoken English, but they also approach language as a matter of craft and informed choice among alternatives. The vocabulary standards focus on understanding words and phrases, their relationships, and their nuances and on acquiring new vocabulary, particularly general academic and domain-specific words and phrases.

ANCHOR STANDARDS

The K–12 standards define what students should understand and be able to do by the end of each grade. The standards correspond to the College- and Career-Readiness (CCR) anchor standards below by number. The MS CCRS and grade-specific standards are necessary complements—the former providing broad standards, the latter providing additional specificity—that together define the skills and understandings that all students must demonstrate.

COLLEGE- AND CAREER-READINESS STANDARDS: READING (R)	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
CCR.R.1	Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
CCR.R.2	Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.
CCR.R.3	Analyze how and why individuals, events, or ideas develop and interact over the course of a text.
CRAFT AND STRUCTURE	
CCR.R.4	Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.
CCR.R.5	Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.
CCR.R.6	Assess how point of view or purpose shapes the content and style of a text.
INTEGRATION OF KNOWLEDGE AND IDEAS	
CCR.R.7	Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
CCR.R.8	Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.
CCR.R.9	Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
CCR.R.10	Read and comprehend complex literary and informational texts independently and proficiently.

Note on range and content of student reading:

To build a foundation for college and career readiness, students must read widely and deeply from among a broad range of high-quality, increasingly challenging literary and informational texts. Through extensive reading of stories, dramas, poems, and myths from diverse cultures and different time periods, students gain literary and cultural knowledge as well as familiarity with various text structures and elements. By reading texts in history/social studies, science, and other disciplines, students build a foundation of knowledge in these fields that will also give them the background to be better readers in all content areas. Students also acquire the habits of reading independently and closely, which are essential to their future success.

COLLEGE- AND CAREER-READINESS STANDARDS: WRITING (W)	
IDENTIFIER ▼	STANDARD ▼
TEXT TYPES AND PURPOSES	
CCR.W.1	Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.
CCR.W.2	Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.
CCR.W.3	Write narratives to develop real or imagined experiences of events using effective technique, well-chosen details, and well-structured event sequences.
PRODUCTION AND DISTRIBUTION OF WRITING	
CCR.W.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
CCR.W.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
CCR.W.6	Use technology, including the internet, to produce and publish writing and to interact and collaborate with others.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
CCR.W.7	Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.
CCR.W.8	Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information the information while avoiding plagiarism.
CCR.W.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
RANGE OF WRITING	
CCR.W.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

Note on range and content of student writing:

To build a foundation for college and career readiness, students need to learn to use writing as a way of offering and supporting opinions, demonstrating understanding of the subjects they are studying, and conveying real and imagined experiences and events. They learn to appreciate that a key purpose of writing is to communicate clearly to an external, sometimes unfamiliar audience, and they begin to adapt the form and content of their writing to accomplish a particular task and purpose. They develop the capacity to build knowledge on a subject through research projects and to respond analytically to literary and informational sources. To meet these goals, students must devote significant time and effort to writing, producing numerous pieces over short and extended time frames throughout the year.

COLLEGE- AND CAREER-READINESS STANDARDS: SPEAKING AND LISTENING (SL)	
IDENTIFIER	STANDARD
COMPREHENSION AND COLLABORATION	
CCR.SL.1	Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
CCR.SL.2	Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.
CCR.SL.3	Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.
PRESENTATION OF KNOWLEDGE AND IDEAS	
CCR.SL.4	Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.
CCR.SL.5	Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.
CCR.SL.6	Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

Note on range and content of student speaking and listening:

To build a foundation for college and career readiness, students must have ample opportunities to take part in a variety of rich, structured conversations—as part of a whole class, in small groups, and with a partner. Being productive members of these conversations requires that students contribute accurate, relevant information; respond to and develop what others have said; make comparisons and contrasts; and analyze and synthesize a multitude of ideas in various domains.

New technologies have broadened and expanded the role that speaking and listening play in acquiring and sharing knowledge and have tightened their link to other forms of communication. Digital texts confront students with the potential for continually updated content and dynamically changing combinations of words, graphics, images, hyperlinks, and embedded video and audio.

COLLEGE- AND CAREER-READINESS STANDARDS: LANGUAGE (L)	
IDENTIFIER	STANDARD
CONVENTIONS OF STANDARD ENGLISH	
CCR.L.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
CCR.L.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing
KNOWLEDGE OF LANGUAGE	
CCR.L.3	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.
VOCABULARY ACQUISITION AND USE	
CCR.L.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.
CCR.L.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
CCR.L.6	Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college- and career-readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.

Note on range and content of student language usage:

To build a foundation for college and career readiness in language, students must gain control over many conventions of Standard English grammar, usage, and mechanics as well as learn other ways to use language to convey meaning effectively. They must also be able to determine or clarify the meaning of grade-appropriate words encountered through listening, reading, and media use; come to appreciate that words have nonliteral meanings, shadings of meaning, and relationships to other words; and expand their vocabulary in the course of studying content. The inclusion of Language standards in their own strand should not be taken as an indication that skills related to conventions, effective language use, and vocabulary are unimportant to reading, writing, speaking, and listening; indeed, they are inseparable from such contexts.

2025

MS CCRS

ENGLISH LANGUAGE ARTS

▶ GRADES K-5

KINDERGARTEN

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

These standards are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system. These foundational skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines. Instruction should be differentiated: good readers will need much less practice with these concepts that struggling readers will. The point is to teach students what they need to learn and not what they already know—to discern when particular children or activities warrant more or less attention.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources.

Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at *mdek12.org/secondaryeducation/englishlanguage/*

READING LITERATURE	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RL.K.1	With prompting and support, ask and answer questions about key details in a text.
RL.K.2	With prompting and support, retell familiar stories, including key details.
RL.K.3	With prompting and support, identify characters, settings, and major events in a story.
CRAFT AND STRUCTURE	
RL.K.4	Ask and answer questions about unknown words in a text.
RL.K.5	Recognize common types of texts (e.g., storybooks, poems).
RL.K.6	With prompting and support, name the author and illustrator of a story and define the role of each in telling the story.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RL.K.7	With prompting and support, describe the relationship between illustrations and the story in which they appear (e.g., what moment in a story an illustration depicts).
RL.K.8	Not applicable to literature
RL.K.9	With prompting and support, compare and contrast the adventures and experiences of characters in familiar stories.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RL.K.10	Actively engage in group reading activities with purpose and understanding.

READING INFORMATIONAL TEXT

IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RI.K.1	With prompting and support, ask and answer questions about key details in a text.
RI.K.2	With prompting and support, identify the main topic and retell key details of a text.
RI.K.3	With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text.
CRAFT AND STRUCTURE	
RI.K.4	With prompting and support, ask and answer questions about unknown words in a text.
RI.K.5	Identify the front cover, back cover, and title page of a book.
RI.K.6	Name the author and illustrator of a text and define the role of each in presenting the ideas or information in the text.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RI.K.7	With prompting and support, describe the relationship between illustrations and the text in which they appear (e.g., what person, place, thing, or idea in the text an illustration depicts).
RI.K.8	With prompting and support, identify the reasons an author gives to support points in a text.
RI.K.9	With prompting and support, identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RI.K.10	Actively engage in group reading activities with purpose and understanding.

READING FOUNDATIONAL SKILLS	
IDENTIFIER	STANDARD
PRINT CONCEPTS	
RF.K.1	Demonstrate understanding of the organization and basic features of print. a. Follow words from left to right, top to bottom, and page by page. b. Recognize that spoken words are represented in written language by specific sequences of letters. c. Understand that words are separated by spaces in print. d. Recognize and name all upper- and lowercase letters of the alphabet.
PHONOLOGICAL AWARENESS	
RF.K.2	Demonstrate understanding of spoken words, syllables, and sounds (phonemes). a. Recognize and produce rhyming words. b. Count, pronounce, blend, and segment syllables in spoken words. c. Blend and segment onsets and rimes of single-syllable spoken words. d. Isolate and pronounce the initial, medial vowel, and final sounds (phonemes) in three-phoneme (consonant-vowel-consonant, or CVC) words. (This does not include CVCs ending with /l/, /r/, or /s/.) e. Add or substitute individual sounds (phonemes) in simple, one-syllable words to make new words.
PHONICS AND WORD RECOGNITION	
RF.K.3	Know and apply grade-level phonics and word analysis skills in decoding words. a. Demonstrate basic knowledge of one-to-one letter-sound correspondences by producing the primary sound for each consonant. b. Associate the long and short sounds with the common spellings (graphemes) for the five major vowels. c. Read common high-frequency words by sight (e.g., *the, of, to, you, she, my, is, are, do, does*). d. Distinguish between similarly spelled words by identifying the sounds of the letters that differ.
FLUENCY	
RF.K.4	Read emergent-reader texts with purpose and understanding.

WRITING	
IDENTIFIER	STANDARD
TEXT TYPES AND PURPOSES	
W.K.1	Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book (e.g., *My favorite book is…*).
W.K.2	Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.
W.K.3	Use a combination of drawing, dictating, and writing to narrate a single event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened.
PRODUCTION AND DISTRIBUTION OF WRITING	
W.K.4	Begins in Grade 3
W.K.5	With guidance and support from adults, respond to questions and suggestions from peers and add details to strengthen writing as needed.
W.K.6	With guidance and support from adults, explore a variety of digital tools to produce and publish writing, including in collaboration with peers.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
W.K.7	Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them).
W.K.8	With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
W.K.9	Begins in Grade 4
RANGE OF WRITING	
W.K.10	Begins in Grade 3

SPEAKING AND LISTENING	
IDENTIFIER	STANDARD
COMPREHENSION AND COLLABORATION	
SL.K.1	Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups. a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion). b. Continue a conversation through multiple exchanges.
SL.K.2	Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.
SL.K.3	Ask and answer questions in order to seek help, get information, or clarify something that is not understood.
PRESENTATION OF KNOWLEDGE AND IDEAS	
SL.K.4	Describe familiar people, places, things, and events and, with prompting and support, provide additional detail.
SL.K.5	Add drawings or other visual displays to descriptions as desired to provide additional detail.
SL.K.6	Speak audibly and express thoughts, feelings, and ideas clearly.

LANGUAGE

IDENTIFIER	STANDARD
CONVENTIONS OF STANDARD ENGLISH	
L.K.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Print all upper- and lowercase letters. b. Use frequently occurring nouns and verbs. c. Form regular plural nouns orally by adding /s/ or /es/ (e.g., *dog, dogs; wish, wishes*). d. Understand and use question words (interrogatives) (e.g., *who, what, where, when, why, how*). e. Use the most frequently occurring prepositions (e.g., *to, from, in, out, on, off, for, of, by, with*). f. Produce and expand complete sentences in shared language activities.
L.K.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Capitalize the first word in a sentence and the pronoun *I*. b. Recognize and name end punctuation. c. Write the letter or letters that correspond to the correct consonant and short-vowel sounds (phonemes). d. Spell simple words phonetically, drawing on knowledge of sound-letter relationships.
KNOWLEDGE OF LANGUAGE	
L.K.3	Begins in Grade 2
VOCABULARY ACQUISITION AND USE	
L.K.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on kindergarten reading and content. a. Identify new meanings for familiar words and apply them accurately (e.g., knowing *duck* is a bird and learning the verb to *duck*). b. Use the most frequently occurring inflections and affixes (e.g., -ed, -s, re-, un-, pre-, -ful, -less) as a clue to the meaning of an unknown word.
L.K.5	With guidance and support from adults, explore word relationships and nuances in word meanings. a. Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent. b. Demonstrate understanding of frequently occurring verbs and adjectives by relating them to their opposites (antonyms). c. Identify real-life connections between words and their use (e.g., note places at school that are colorful). d. Distinguish shades of meaning among verbs describing the same general action (e.g., *walk, march, strut, prance*) by acting out the meanings.

L.K.6	Use words and phrases acquired through conversations, reading and being read to, and responding to texts.

GRADE 1

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

These standards are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system. These foundational skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines. Instruction should be differentiated: good readers will need much less practice with these concepts that struggling readers will. The point is to teach students what they need to learn and not what they already know—to discern when particular children or activities warrant more or less attention.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources.

Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at *mdek12.org/secondaryeducation/englishlanguage/*

READING LITERATURE

IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RL.1.1	Ask and answer questions about key details in a text.
RL.1.2	Retell stories, including key details, and demonstrate understanding of their central message or lesson.
RL.1.3	Describe characters, settings, and major events in a story, using key details.
CRAFT AND STRUCTURE	
RL.1.4	Identify words and phrases in stories or poems that suggest feelings or appeal to the senses.
RL.1.5	Explain major differences between books that tell stories and books that give information, drawing on a wide reading of a range of text types.
RL.1.6	Identify who is telling the story at various points in a text.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RL.1.7	Use illustrations and details in a story to describe its characters, setting, or events.
RL.1.8	Not applicable to literature
RL.1.9	Compare and contrast the adventures and experiences of characters in stories.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RL.1.10	With prompting and support, read prose and poetry of appropriate complexity for Grade 1.

READING INFORMATIONAL TEXT

IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RI.1.1	Ask and answer questions about key details in a text.
RI.1.2	Identify the main topic and retell key details of a text.
RI.1.3	Describe the connection between two individuals, events, ideas, or pieces of information in a text.
CRAFT AND STRUCTURE	
RI.1.4	Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.
RI.1.5	Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.
RI.1.6	Distinguish between information provided by pictures or other illustrations and information provided by the words in a text.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RI.1.7	Use the illustrations and details in a text to describe its key ideas.
RI.1.8	Identify the reasons an author gives to support points in a text.
RI.1.9	Identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RI.1.10	With prompting and support, read information texts appropriately complex for Grade 1.

READING FOUNDATIONAL SKILLS

IDENTIFIER	STANDARD
PRINT CONCEPTS	
RF.1.1	Demonstrate understanding of the organization and basic features of print. a. Recognize the distinguishing features of a sentence (e.g., first word, capitalization, ending punctuation).
PHONOLOGICAL AWARENESS	
RF.1.2	Demonstrate understanding of spoken words, syllables, and sounds (phonemes). a. Distinguish long from short vowel sounds in spoken single-syllable words. b. Orally produce single-syllable words by blending sounds (phonemes), including consonant blends. c. Isolate and pronounce initial, medial vowel, and final sounds (phonemes) in spoken single-syllable words. d. Segment spoken single-syllable words into their complete sequence of individual sounds (phonemes).
PHONICS AND WORD RECOGNITION	
RF.1.3	Know and apply grade-level phonics and word analysis skills in decoding words. a. Know the spelling-sound correspondences for common consonant digraphs. b. Decode regularly spelled one-syllable words. c. Know final -e and common vowel team conventions for representing long vowel sounds. d. Use knowledge that every syllable must have a vowel sound to determine the number of syllables in a printed word. e. Decode two-syllable words following basic patterns by breaking the words into syllables. f. Read words with inflectional endings. g. Apply letter-sound knowledge to recognize and read irregularly spelled words.
FLUENCY	
RF.1.4	Read with sufficient accuracy and fluency to support comprehension. a. Read grade-level text with purpose and understanding. b. Read grade-level text orally with accuracy, appropriate rate, and expression on successive readings. c. Use context to confirm or self-correct words recognition and understanding, rereading as necessary.

WRITING

IDENTIFIER	STANDARD
TEXT TYPES AND PURPOSES	
W.1.1	Write opinion pieces in which they introduce the topic or name the book they are writing about, state an opinion, supply a reason for the opinion, and provide some sense of closure.
W.1.2	Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure.
W.1.3	Write narratives in which they recount two or more appropriately sequenced events, include some details regarding what happened, use temporal words to signal event order, and provide some sense of closure.
PRODUCTION AND DISTRIBUTION OF WRITING	
W.1.4	Begins in Grade 3
W.1.5	With guidance and support from adults, focus on a topic, respond to questions and suggestions from peers, and add details to strengthen writing as needed.
W.1.6	With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
W.1.7	Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions).
W.1.8	With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
W.1.9	Begins in Grade 4
RANGE OF WRITING	
W.1.10	Begins in Grade 3

SPEAKING AND LISTENING

IDENTIFIER	STANDARD
COMPREHENSION AND COLLABORATION	
SL.1.1	Participate in collaborative conversations with diverse partners about Grade 1 topics and texts with peers and adults in small and larger groups. a. Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion). b. Build on others' talk in conversations by responding to the comments of others through multiple exchanges. c. Ask questions to clear up any confusion about the topics and texts under discussion.
SL.1.2	Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
SL.1.3	Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
PRESENTATION OF KNOWLEDGE AND IDEAS	
SL.1.4	Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.
SL.1.5	Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.
SL.1.6	Produce complete sentences when appropriate to task and situation.

LANGUAGE	
IDENTIFIER	STANDARD
CONVENTIONS OF STANDARD ENGLISH	
L.1.1	Demonstrate command of the conventions of standard English grammar and usage when writing (printing or keyboarding) or speaking. a. Print all upper- and lowercase letters. b. Use common, proper, and possessive nouns. c. Use singular and plural nouns with matching verbs in basic sentences (e.g., He hops; We hop). d. Use personal, possessive, and indefinite pronouns (e.g., I, me, my; they, them, their, anyone, everything). e. Use verbs to convey a sense of past, present, and future (e.g., Yesterday I walked home; Today I walk home; Tomorrow I will walk home). f. Use frequently occurring adjectives. g. Use frequently occurring conjunctions (e.g., *and, but, or, so, because*). h. Use determiners (e.g., articles, demonstratives). i. Use frequently occurring prepositions (e.g., *during, beyond, toward*). j. Produce and expand complete simple and compound declarative, interrogative, imperative, and exclamatory sentences in response to prompts.
L.1.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Captitalize dates and names of people. b. Use end punctuation for sentences. c. Use commas in dates and to separate single words in a series. d. Use conventional spelling for words with common spelling patterns and for frequently occurring irregular words. e. Spell untaught words phonetically, drawing on phonemic awareness and spelling conventions.
KNOWLEDGE OF LANGUAGE	
L.1.3	Begins in Grade 2
VOCABULARY ACQUISITION AND USE	
L.1.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on Grade 1 reading and content, choosing flexibly from an array of strategies. a. Use sentence-level context as a clue to the meaning of a word or phrase. b. Use frequently occurring affixes as a clue to the meaning of a word. c. Identify feqently occurring root words (e.g., *look*) and their inflectional forms (e.g., *looks, looked, looking*).

L.1.5	With guidance and support from adults, demonstrate understanding of word relationships and nuances in word meanings. a. Sort words into categories (e.g., colors, clothing) to gain a sense of the concepts the categories represent. b. Define words by category and by one or more key attributes (e.g., a *duck* is a bird that swims; a *tiger* is a large cat with stripes). c. Identify real-life connections between words and their use (e.g., note places at home that are *cozy*). d. Distinguish shades of meaning among verbs differing in manner (e.g., *look, peek, glance, stare, glare, scowl*) and adjectives differing in intensity (e.g., large, gigantic) by defining or choosing them or by acting out the meanings.
L.1.6	Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships (e.g., *because*).

GRADE 2

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

These standards are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system. These foundational skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines. Instruction should be differentiated: good readers will need much less practice with these concepts that struggling readers will. The point is to teach students what they need to learn and not what they already know—to discern when particular children or activities warrant more or less attention.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources.

Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at *mdek12.org/secondaryeducation/englishlanguage/*

READING LITERATURE

IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RL.2.1	Ask and answer such questions as *who, what, where, when, why,* and *how* to demonstrate understanding of key details in a text.
RL.2.2	Recount stories, including fables and folktales from diverse cultures, and determine their central message, lesson, or moral.
RL.2.3	Describe how characters in a story respond to major events and challenges.
CRAFT AND STRUCTURE	
RL.2.4	Describe how words and phrases (e.g., regular beats, alliteration, rhymes, repeated lines) supply rhythm and meaning in a story, poem, or song.
RL.2.5	Describe the overall structure of a story, including describing how the beginning introduces the story and the ending concludes the action.
RL.2.6	Acknowledge differences in the points of view of characters, including by speaking in a different voice for each character when reading dialogue aloud.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RL.2.7	Use information gained from the illustrations and words in a print or digital text to demonstrate understanding of its characters, setting, or plot.
RL.2.8	Not applicable to literature
RL.2.9	Compare and contrast two or more versions of the same story (e.g., Cinderella stories) by different authors or from different cultures.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RL.2.10	By the end of the year, read and comprehend literature, including stories and poetry, in the Grades 2-3 text complexity band proficiently, with scaffolding as needed at the high end of the range.

READING INFORMATIONAL TEXT	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RI.2.1	Ask and answer such questions as *who, what, where, when, why*, and *how* to demonstrate understanding of key details in a text.
RI.2.2	Identify the main topic of a multi-paragraph text as well as the focus of specific paragraphs within the text.
RI.2.3	Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.
CRAFT AND STRUCTURE	
RI.2.4	Determine the meaning of words and phrases in a text relevant to a Grade 2 topic or subject area.
RI.2.5	Know and use various text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text efficiently.
RI.2.6	Identify the main purpose of a text, including what the author wants to answer, explain, or describe.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RI.2.7	Explain how specific images (e.g., a diagram showing how a machine works) contribute to and clarify a text.
RI.2.8	Describe how reasons support specific points the author makes in a text.
RI.2.9	Compare and contrast the most important points presented by two texts on the same topic.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RI.2.10	By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the Grades 2-3 text complexity band proficiently, with scaffolding as needed at the high end of the range.

READING FOUNDATIONAL SKILLS	
IDENTIFIER	STANDARD
PRINT CONCEPTS	
RF.2.1	Not applicable in Grade 2.
PHONOLOGICAL AWARENESS	
RF.2.2	Not applicable in Grade 2.
PHONICS AND WORD RECOGNITION	
RF.1.3	Know and apply grade-level phonics and word analysis skills in decoding words. a. Distinguish long and short vowels when reading regularly spelled one-syllable words. b. Know spelling-sound correspondences for additional common vowel teams. c. Decode regularly spelled two-syllable words with long vowels. d. Decode words with common prefixes and suffixes. e. Identify words with inconsistent but common spelling-sound correspondences. f. Recognize and read grade-appropriate irregularly spelled words.
FLUENCY	
RF.1.4	Read with sufficient accuracy and fluency to support comprehension. a. Read grade-level text with purpose and understanding. b. Read grade-level text orally with accuracy, appropriate rate, and expression on successive readings. c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

WRITING	
IDENTIFIER	STANDARD
TEXT TYPES AND PURPOSES	
W.2.1	Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., *because, and, also*) to connect opinion and reasons, and provide a concluding statement or section.
W.2.2	Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.
W.2.3	Write narratives in which they recount a well-elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings, use temporal words to signal event order, and provide a sense of closure.
PRODUCTION AND DISTRIBUTION OF WRITING	
W.2.4	Begins in Grade 3
W.2.5	With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing.
W.2.6	With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
W.2.7	Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).
W.2.8	Recall information from experiences or gather information from provided sources to answer a question.
W.2.9	Begins in Grade 4
RANGE OF WRITING	
W.2.10	Begins in Grade 3

SPEAKING AND LISTENING

IDENTIFIER	STANDARD
COMPREHENSION AND COLLABORATION	
SL.2.1	Participate in collaborative conversations with diverse partners about Grade 2 topics and texts with peers and adults in small and larger groups. a. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion). b. Build on others' talk in conversations by linking their comments to the remarks of others. c. Ask for clarification and further explanation as needed about the topics and texts under discussion.
SL.2.2	Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
SL.2.3	Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.
PRESENTATION OF KNOWLEDGE AND IDEAS	
SL.2.4	Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.
SL.2.5	Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.
SL.2.6	Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification (See Grade 2 Language standard 1 for specific expectations.)

LANGUAGE	
IDENTIFIER	STANDARD
CONVENTIONS OF STANDARD ENGLISH	
L.2.1	Demonstrate command of the conventions of standard English grammar and usage when writing (printing, cursive, or keyboarding) or speaking. a. Use collective nouns (e.g., *group*). b. Form and use frequently occurring irregular plural nouns (e.g., *feet, children, teeth, mice, fish*). c. Use reflexive pronouns (e.g., *myself, ourselves*). d. Form and use the past tense of frequently occurring irregular verbs (e.g., *sat, hid, told*). e. Use adjectives and adverbs, and choose between them depending on what is to be modified.
L.2.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Capitalize holidays, product names, and geographic names. b. Use commas in greetings and closings of letters. c. Use an apostrophe to form contractions and frequently occurring possessives. d. Generalize learned spelling patterns when writing words (e.g., cage → badge; boy → boil). e. Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.
KNOWLEDGE OF LANGUAGE	
L.2.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening. a. Compare formal and informal uses of English.
VOCABULARY ACQUISITION AND USE	
L.2.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on Grade 2 reading and content, choosing flexibly from an array of strategies. a. Use sentence-level context as a clue to the meaning of a word or phrase. b. Determine the meaning of the new word formed when a known prefix is added to a known word (e.g., *happy/unhappy, tell/retell*). c. Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., *addition, additional*). d. Use knowledge of the meaning of individual words to predict the meaning of compound words (e.g., *birdhouse, lighthouse, housefly; bookshelf, notebook, bookmark*). e. Use glossaries and beginning dictionaries, both print and digital, to determine or clarify the meaning of words and phrases.

L.2.5	Demonstrate understanding of word relationships and nuances in word meanings. a. Identify real-life connections between words and their use (e.g., describe foods that are spicy or juicy). b. Distinguish shades of meaning among closely related verbs (e.g., *toss, throw, hurl*) and closely related adjectives (e.g., *thin, slender, skinny, scrawny*).
L.2.6	Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., *When other kids are happy that makes me happy*).

GRADE 3

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

These standards are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system. These foundational skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines. Instruction should be differentiated: good readers will need much less practice with these concepts that struggling readers will. The point is to teach students what they need to learn and not what they already know—to discern when particular children or activities warrant more or less attention.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources.

Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at *mdek12.org/secondaryeducation/englishlanguage/*

READING LITERATURE

IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RL.3.1	Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
RL.3.2	Recount stories, including fables, folktales, and myths from diverse cultures; determine the central message, lesson, or moral and explain how it is conveyed through key details in the text.
RL.3.3	Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.
CRAFT AND STRUCTURE	
RL.3.4	Determine the meaning of words and phrases as they are used in a text, distinguishing literal from nonliteral language.
RL.3.5	Refer to parts of stories, dramas, and poems when writing or speaking about a text, using terms such as chapter, scene, and stanza; describe how each successive part builds on earlier sections.
RL.3.6	Distinguish their own point of view from that of the narrator or those of the characters.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RL.3.7	Explain how specific aspects of a text's illustrations contribute to what is conveyed by the words in a story (e.g., create mood, emphasize aspects of a character or setting).
RL.3.8	Not applicable to literature
RL.3.9	Compare and contrast the themes, settings, and plots of stories written by the same author about the same or similar characters (e.g., in books from a series).
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RL.3.10	By the end of the year, read and comprehend literature, including stories, dramas, and poetry, at the high end of the Grades 2-3 text complexity band independently and proficiently.

READING INFORMATIONAL TEXT

IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RI.3.1	Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
RI.3.2	Determine the main idea of a text; recount the key details and explain how they support the main idea.
RI.3.3	Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.
CRAFT AND STRUCTURE	
RI.3.4	Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a Grade 3 topic or subject area.
RI.3.5	Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.
RI.3.6	Distinguish their own point of view from that of the author of a text.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RI.3.7	Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).
RI.3.8	Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence).
RI.3.9	Compare and contrast the most important points and key details presented in two texts on the same topic.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RI.3.10	By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the Grades 2-3 text complexity band independently and proficiently.

READING FOUNDATIONAL SKILLS

IDENTIFIER	STANDARD
PRINT CONCEPTS	
RF.3.1	Not applicable in Grade 3.
PHONOLOGICAL AWARENESS	
RF.3.2	Not applicable in Grade 3.
PHONICS AND WORD RECOGNITION	
RF.3.3	Know and apply grade-level phonics and word analysis skills in decoding words. a. Identify and know the meaning of the most common prefixes and derivational suffixes. b. Decode words with common Latin suffixes. c. Decode multisyllable words. d. Read grade-appropriate irregularly spelled words.
FLUENCY	
RF.3.4	Read with sufficient accuracy and fluency to support comprehension. a. Read grade-level text with purpose and understanding. b. Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings. c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

WRITING	
IDENTIFIER	STANDARD
TEXT TYPES AND PURPOSES	
W.3.1	Write opinion pieces on topics or texts, supporting a point of view with reasons. a. Introduce the topic or text they are writing about, state an opinion, and create an organizational structure that lists reasons. b. Provide reasons that support the opinion. c. Use linking words and phrases (e.g., *because, therefore, since, for example*) to connect opinion and reasons. d. Provide a concluding statement or section.
W.3.2	Write informative/explanatory texts to examine a topic and convey ideas and information clearly. a. Introduce a topic and group related information together; include illustrations when useful to aiding comprehension. b. Develop the topic with facts, definitions, and details. c. Use linking words and phrases (e.g., *also, another, and, more, but*) to connect ideas within categories of information. d. Provide a concluding statement or section.
W.3.3	Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. a. Establish a situation and introduce a narrator and/or characters; organize an event sequence that unfolds naturally. b. Use dialogue and descriptions of actions, thoughts, and feelings to develop experiences and events or show the response of characters to situations. c. Use temporal words and phrases to signal event order. d. Provide a sense of closure.
PRODUCTION AND DISTRIBUTION OF WRITING	
W.3.4	With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose. (Grade-specific expectations for writing types are defined in Standards 1-3 above).
W.3.5	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language Standards 1-3 up to and including Grade 3).
W.3.6	With guidance and support from adults, use technology to produce and publish writing (using keyboarding skills) as well as to interact and collaborate with others.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
W.3.7	Conduct short research projects that build knowledge about a topic.
W.3.8	Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.

W.3.9	Begins in Grade 4
RANGE OF WRITING	
W.3.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

SPEAKING AND LISTENING

IDENTIFIER	STANDARD
COMPREHENSION AND COLLABORATION	
SL.3.1	Engage effectively in a range of collaborative conversations (one-on-one, in groups, and teacher-led) with diverse partners on Grade 3 topics and texts, building on others' ideas and expressing their own clearly. a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. b. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion). c. Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others. d. Explain their own ideas and understanding in light of the discussion.
SL.3.2	Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
SL.3.3	Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.
PRESENTATION OF KNOWLEDGE AND IDEAS	
SL.3.4	Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.
SL.3.5	Create engaging audio recordings of stories or poems that demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details.
SL.3.6	Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification (See Grade 3 Language Standards 1 and 3 for specific expectations.)

LANGUAGE	
IDENTIFIER	STANDARD
CONVENTIONS OF STANDARD ENGLISH	
L.3.1	Demonstrate command of the conventions of standard English grammar and usage when writing (printing, cursive, or keyboarding) or speaking. a. Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general and their functions in particular sentences. b. Form and use regular and irregular plural nouns. c. Use abstract nouns (e.g., childhood). d. Form and use regular and irregular verbs. e. Form and use the simple (e.g., I walked; I walk; I will walk) verb tenses. f. Ensure subject-verb and pronoun-antecedent agreement. g. Form and use comparative and superlative adjectives and adverbs, and choose between them depending on what is to be modified. h. Use coordinating and subordinating conjunctions. i. Produce simple, compound, and complex sentences.
L.3.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Capitalize appropriate words in titles. b. Use commas in addresses. c. Use commas and quotation marks in dialogue. d. Form and use possessives. e. Use conventional spelling for high-frequency and other studied words and for adding suffixes to base words (e.g., *sitting, smiled, cries, happiness*). f. Use spelling patterns and generalizations (e.g., *word families, position-based spellings, syllable patterns, ending rules, meaningful word parts*) in writing words. g. Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.
KNOWLEDGE OF LANGUAGE	
L.3.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening. a. Choose words and phrases for effect. b. Recognize and observe differences between the conventions of spoken and written standard English.
VOCABULARY ACQUISITION AND USE	
L.3.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on Grade 3 reading and content, choosing flexibly from a range of strategies. a. Use sentence-level context as a clue to the meaning of a word or phrase. b. Determine the meaning of the new word formed when a known affix is added to a known word (e.g., agreeable/disagreeable, comfortable/uncomfortable, care/careless, heat/preheat).

	c. Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., company, companion). d. Use glossaries or beginning dictionaries, both print and digital, to determine or clarify the precise meaning of key words and phrases.
L.3.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. c. Distinguish the literal and nonliteral meanings of words and phrases in context (e.g., take steps). d. Identify real-life connections between words and their use (e.g., describe people who are friendly or helpful). e. Distinguish shades of meaning among related words that describe states of mind or degrees of certainty (e.g., knew, believed, suspected, heard, wondered).
L.3.6	Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationship (e.g., After dinner that night we went looking for them).

GRADE 4

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

These standards are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system. These foundational skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines. Instruction should be differentiated: good readers will need much less practice with these concepts that struggling readers will. The point is to teach students what they need to learn and not what they already know—to discern when particular children or activities warrant more or less attention.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Beginning in grade 4, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).

Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at *mdek12.org/secondaryeducation/englishlanguage/*

READING LITERATURE	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RL.4.1	Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
RL.4.2	Determine a theme of a story, drama, or poem from details in the text; summarize the text.
RL.4.3	Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions).
CRAFT AND STRUCTURE	
RL.4.4	Determine the meaning of words and phrases as they are used in a text, including those that allude to significant characters found in mythology (e.g., Herculean).
RL.4.5	Explain major differences between poems, drama, and prose, and refer to the structural elements of poems (e.g., verse, rhythm, meter) and drama (e.g., casts of characters, settings, descriptions, dialogue, stage directions) when writing or speaking about a text.
RL.4.6	Compare and contrast the point of view from which different stories are narrated, including the difference between first- and third-person narrations.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RL.4.7	Make connections between the text of a story or drama and a visual or oral presentation of the text, identifying where each version reflects specific descriptions and directions in the text.
RL.4.8	Not applicable to literature
RL.4.9	Compare and contrast the treatment of similar themes and topics (e.g., opposition of good and evil) and patterns of events (e.g., the quest) in stories, myths, and traditional literature from different cultures.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RL.4.10	By the end of the year, read and comprehend literature, including stories, dramas, and poetry, in the Grades 4-5 text complexity band proficiently, with scaffolding as needed at the high end of the range.

READING INFORMATIONAL TEXT	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RI.4.1	Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
RI.4.2	Determine the main idea of a text and explain how it is supported by key details; summarize the text.
RI.4.3	Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.
CRAFT AND STRUCTURE	
RI.4.4	Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a Grade 4 topic or subject area.
RI.4.5	Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.
RI.4.6	Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RI.4.7	Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, timelines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.
RI.4.8	Explain how an author uses reasons and evidence to support particular points in a text.
RI.4.9	Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RI.4.10	By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the Grades 4-5 text complexity band proficiently, with scaffolding as needed at the high end of the range.

READING FOUNDATIONAL SKILLS	
IDENTIFIER	STANDARD
PRINT CONCEPTS	
RF.4.1	Not applicable in Grade 4.
PHONOLOGICAL AWARENESS	
RF.4.2	Not applicable in Grade 4.
PHONICS AND WORD RECOGNITION	
RF.4.3	Know and apply grade-level phonics and word analysis skills in decoding words. a. Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.
FLUENCY	
RF.4.4	Read with sufficient accuracy and fluency to support comprehension. a. Read grade-level text with purpose and understanding. b. Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings. c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

WRITING	
IDENTIFIER	STANDARD
TEXT TYPES AND PURPOSES	
W.4.1	Write opinion pieces on topics or texts, supporting a point of view with reasons and information. a. Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer's purpose. b. Provide reasons that are supported by facts and details. c. Link opinion and reasons using words and phrases (e.g., for instance, in order to, in addition). d. Provide a concluding statement or section related to the opinion presented.
W.4.2	Write informative/explanatory texts to examine a topic and convey ideas and information clearly. a. Introduce a topic and group related information in paragraphs and sections; include formatting (e.g., heading), illustrations, and multimedia when useful to aiding comprehension. b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic. c. Link ideas within categories of information using words and phrases (e.g., another, for example, also, because). d. Use precise language and domain-specific vocabulary to inform about or explain the topic. e. Provide a concluding statement or section related to the information or explanation presented.
W.4.3	Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. a. Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally. b. Use dialogue and description to develop experiences and events or show the responses of characters to situations. c. Use a variety of transitional words and phrases to manage the sequence of events. d. Use concrete words and phrases and sensory details to convey experiences and events precisely. e. Provide a conclusion that follows from the narrated experiences or events.
PRODUCTION AND DISTRIBUTION OF WRITING	
W.4.4	Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1-3 above).
W.4.5	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language Standards 1-3 up to and including Grade 4).

W.4.6	With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
W.4.7	Conduct short research projects that build knowledge through investigation of different aspects of a topic.
W.4.8	recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.
W.4.9	Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply Grade 4 Reading Standards to literature (e.g., "Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text [e.g., a character's thoughts, words, or actions]."). b. Apply Grade 4 Reading Standards to information texts (e.g., "Explain how an author uses reasons and evidence to support particular points in a text").
RANGE OF WRITING	
W.4.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

SPEAKING AND LISTENING	
IDENTIFIER	STANDARD
COMPREHENSION AND COLLABORATION	
SL.4.1	Engage effectively in a range of collaborative conversations (one-on-one, in groups, and teacher-led) with diverse partners on Grade 4 topics and texts, building on others' ideas and expressing their own clearly. a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. b. Follow agreed-upon rules for discussions and carry out assigned roles. c. Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others. d. Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.
SL.4.2	Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
SL.4.3	Identify the reasons and evidence a speaker provides to support particular points.
PRESENTATION OF KNOWLEDGE AND IDEAS	
SL.4.4	Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
SL.4.5	Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.
SL.4.6	Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation. (See Grade 4 Language Standard 1 for specific expectations.)

LANGUAGE

IDENTIFIER	STANDARD
CONVENTIONS OF STANDARD ENGLISH	
L.4.1	Demonstrate command of the conventions of standard English grammar and usage when writing (printing, cursive, or keyboarding) or speaking. a. Use relative pronouns (who, whose, whom, which, that) and relative adverbs (where, when, why). b. Form and use the progressive (e.g., I was walking; I am walking; I will be walking) verb tenses. c. Use modal auxiliaries (e.g., can, may, must) to convey various conditions. d. Order adjectives within sentences according to conventional patterns (e.g., a small red bag rather than a red small bag). e. Form and use prepositional phrases. f. Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons. * g. Correctly use frequently-confused words (e.g., to, too, two; there, their). *
L.4.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Use correct capitalization. b. Use commas and quotation marks to mark direct speech and quotations from a text. c. Use a comma before a coordinating conjunction in a compound sentence. d. Spell grade-appropriate words correctly, consulting references as needed.
KNOWLEDGE OF LANGUAGE	
L.4.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening. a. Choose words and phrases to convey ideas precisely. * b. Choose punctuation for effect. * c. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion).
VOCABULARY ACQUISITION AND USE	
L.4.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on Grade 4 reading and content, choosing flexibly from a range of strategies. a. Use context (e.g., definitions, examples, or restatements in text) as a clue to the meaning of a word or phrase. b. Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., telegraph, photograph, autograph). c. Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.

L.4.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Explain the meaning of simple similes and metaphors (e.g., as pretty as a picture) in context. b. Recognize and explain the meaning of common idioms, adages, and proverbs. c. Demonstrate understanding of words by relating them tot heir opposites (antonyms) and to words with similar but not identical meanings (synonyms).
L.3.6	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., quizzed, whined, stammered) and that are basic to a particular topic (e.g., wildlife, conservation, and endangered when discussing animal preservation).

* Denotes skills and understandings that are particularly likely to require continued attention in higher grades are they are applied to increasingly sophisticated writing and speaking.

GRADE 5

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

These standards are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system. These foundational skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines. Instruction should be differentiated: good readers will need much less practice with these concepts that struggling readers will. The point is to teach students what they need to learn and not what they already know—to discern when particular children or activities warrant more or less attention.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Beginning in grade 4, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).

Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at *mdek12.org/secondaryeducation/englishlanguage/*

READING LITERATURE

IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RL.5.1	Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
RL.5.2	Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.
RL.5.3	Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text (e.g., how characters interact).
CRAFT AND STRUCTURE	
RL.5.4	Determine the meaning of words and phrases as they are used in a text, including figurative language such as metaphors and similes.
RL.5.5	Explain how a series of chapters, scenes, or stanzas fits together to provide the overall structure of a particular story, drama, or poem.
RL.5.6	Describe how a narrator's or speaker's point of view influences how events are described.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RL.5.7	Analyze how visual and multimedia elements contribute to the meaning, tone, or beauty of a text (e.g., graphic novel, multimedia presentation of fiction, folktale, myth, poem).
RL.5.8	Not applicable to literature
RL.5.9	Compare and contrast stories in the same genre (e.g., mysteries and adventure stories) on their approaches to similar themes and topics.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RL.5.10	By the end of the year, read and comprehend literature, including stories, dramas, and poetry, at the high end of the Grades 4-5 text complexity band independently and proficiently.

READING INFORMATIONAL TEXT	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RI.5.1	Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
RI.5.2	Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
RI.5.3	Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.
CRAFT AND STRUCTURE	
RI.5.4	Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a Grade 5 topic or subject area.
RI.5.5	Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts.
RI.5.6	Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RI.5.7	Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.
RI.5.8	Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).
RI.5.9	Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RI.5.10	By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the Grades 4-5 text complexity band independently and proficiently.

READING FOUNDATIONAL SKILLS	
IDENTIFIER	STANDARD
PRINT CONCEPTS	
RF.5.1	Not applicable in Grade 5.
PHONOLOGICAL AWARENESS	
RF.5.2	Not applicable in Grade 5.
PHONICS AND WORD RECOGNITION	
RF.5.3	Know and apply grade-level phonics and word analysis skills in decoding words. a. Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.
FLUENCY	
RF.5.4	Read with sufficient accuracy and fluency to support comprehension. a. Read grade-level text with purpose and understanding. b. Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings. c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

WRITING

<table>
<tr><th>IDENTIFIER</th><th>STANDARD</th></tr>
<tr><td colspan="2">TEXT TYPES AND PURPOSES</td></tr>
<tr><td>W.5.1</td><td>Write opinion pieces on topics or texts, supporting a point of view with reasons and information.
a. Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are logically grouped to support the writer's purpose.
b. Provide logically ordered reasons that are supported by facts and details.
c. Link opinion and reasons using words, phrases, and clauses (e.g., consequently, specifically).
d. Provide a concluding statement or section related to the opinion presented.</td></tr>
<tr><td>W.5.2</td><td>Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
a. Introduce a topic clearly, provide a general observation and focus, and group related information logically; include formatting (e.g., heading), illustrations, and multimedia when useful to aiding comprehension.
b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.
c. Link ideas within categories of information using words, phrases, and clauses (e.g., in contrast, especially).
d. Use precise language and domain-specific vocabulary to inform about or explain the topic.
e. Provide a concluding statement or section related to the information or explanation presented.</td></tr>
<tr><td>W.5.3</td><td>Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.
a. Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally.
b. Use narrative techniques, such as dialogue, description, and pacing, to develop experiences and events or show the responses of characters to situations.
c. Use a variety of transitional words, phrases, and clauses to manage the sequence of events.
d. Use concrete words and phrases and sensory details to convey experiences and events precisely.
e. Provide a conclusion that follows from the narrated experiences or events.</td></tr>
<tr><td colspan="2">PRODUCTION AND DISTRIBUTION OF WRITING</td></tr>
<tr><td>W.5.4</td><td>Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1-3 above).</td></tr>
</table>

W.5.5	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language Standards 1-3 up to and including Grade 5).
W.5.6	With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
W.5.7	Conduct short research projects that build knowledge through investigation of different aspects of a topic.
W.5.8	Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.
W.5.9	Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply Grade 5 Reading Standards to literature (e.g., "compare and contrast two or more characters, settings, or events in a story or a drama, drawing on specific details in the text [e.g., how characters interact]."). b. Apply Grade 5 Reading Standards to informational texts (e.g., "Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support with point[s]").
RANGE OF WRITING	
W.5.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

SPEAKING AND LISTENING	
IDENTIFIER	STANDARD
COMPREHENSION AND COLLABORATION	
SL.5.1	Engage effectively in a range of collaborative conversations (one-on-one, in groups, and teacher-led) with diverse partners on Grade 5 topics and texts, building on others' ideas and expressing their own clearly. a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. b. Follow agreed-upon rules for discussions and carry out assigned roles. c. Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others. d. Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.
SL.5.2	Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
SL.5.3	Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.
PRESENTATION OF KNOWLEDGE AND IDEAS	
SL.5.4	Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
SL.5.5	Include multimedia components (e.g., graphics, sound) and visual displays in presentations with appropriate to enhance the development of main ideas or themes.
SL.5.6	Adapt speech to a variety of contexts and tasks, using formal English when appropriate to task and situation. (See Grade 5 Language Standards 1 and 3 for specific expectations.)

LANGUAGE	
IDENTIFIER	STANDARD
CONVENTIONS OF STANDARD ENGLISH	
L.5.1	Demonstrate command of the conventions of standard English grammar and usage when writing (printing, cursive, or keyboarding) or speaking. a. Explain the function of conjunctions, prepositions, and interjections in general and their function in particular sentences. b. Form and use the perfect (e.g., I had walked; I have walked; I will have walked) verb tenses. c. Use verb tense to convey various times, sequences, states, and conditions. d. Recognize and correct inappropriate shifts in verb tense. * e. Use correlative conjunctions (e.g., either/or, neither/nor).
L.5.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Use punctuation to separate items in a series. * b. Use a comma to separate an introductory element from the rest of the sentence. c. Use a comma to set off the words yes and no (e.g., Yes, thank you), to set off a tag question from the rest of the sentence (e.g., It's true, isn't it?), and to indicate direct address (e.g., Is that you, Steve?). d. Use underlining, quotation marks, or italics to indicate titles of works. e. Spell grade-appropriate words correctly, consulting references as needed.
KNOWLEDGE OF LANGUAGE	
L.5.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening. a. Expand, combine, and reduce sentences for meaning, reader/listener interest, and style. b. Compare and contrast the varieties of English (e.g., dialects, registers) used in stories, dramas, or poems.
VOCABULARY ACQUISITION AND USE	
L.5.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on Grade 5 reading and content, choosing flexibly from a range of strategies. a. Use context (e.g., cause/effect relationships and comparisons in text) as a clue to the meaning of a word or phrase. b. Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., photograph, photosynthesis). c. Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.

L.5.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Interpret figurative language, including similes and metaphors, in context. b. Recognize and explain the meaning of common idioms, adages, and proverbs. c. Use the relationship between particular words (e.g., synonyms, antonyms, homographs) to better understand each of the words.
L.5.6	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships (e.g., however, although, nevertheless, similarly, moreover, in addition).

* Denotes skills and understandings that are particularly likely to require continued attention in higher grades are they are applied to increasingly sophisticated writing and speaking.

2025
MS CCRS
ENGLISH LANGUAGE ARTS

▶ GRADES 6-8

GRADE 6

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Beginning in grade 4, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).

The CCR anchor standards and secondary grade-specific standards work in tandem to define college- and career-readiness expectations—the former providing broad standards, the latter providing additional specificity. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at *mdek12.org/secondaryeducation/englishlanguage/*

READING LITERATURE

IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RL.6.1	Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RL.6.2	Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text based upon this determination.
RL.6.3	Describe how the plot of a literary text unfolds in a series of episodes as well as how the characters respond or change as the plot moves toward a resolution.
CRAFT AND STRUCTURE	
RL.6.4	Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of a specific word choice on meaning and tone.
RL.6.5	Analyze how a particular sentence, chapter, scene, or stanza fits into the overall structure of a text and contributes to the development of the theme, setting, or plot.
RL.6.6	Explain how an author develops the point of view of the narrator or speaker in a text.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RL.6.7	Compare and contrast the experience of reading a story, drama, or poem to listening to or viewing an audio, video, or live version of the text, including contrasting what they “see” and “hear” when reading the text to what they perceive when they listen or watch.
RL.6.8	Not applicable to literature
RL.6.9	Compare and contrast texts in different forms or genres (e.g., stories and poems; historical novels and fantasy stories) in terms of their approaches to similar themes and topics.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RL.6.10	By the end of the year, read and comprehend literature, including stories, dramas, and poetry, in the Grades 6-8 text complexity band proficiently, with scaffolding as needed at the high end of the range.

READING INFORMATIONAL TEXT	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RI.6.1	Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RI.6.2	Determine a central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgements.
RI.6.3	Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text (e.g., through examples or anecdotes).
CRAFT AND STRUCTURE	
RI.6.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.
RI.6.5	Analyze how a particular sentence, paragraph, chapter, or section fits into the overall structure of a text and contributes to the development of the ideas.
RI.6.6	Determine an author's point of view or purpose in a text and explain how it is conveyed in the text.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RI.6.7	Integrate information presented in different media or formats (e.g., visually, quantitative) as well as in words to develop a coherent understanding of a topic or issue.
RI.6.8	Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.
RI.6.9	Compare and contrast one author's presentation of events with that of another (e.g., a memoir written by and a biography on the same person).
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RI.6.10	By the end of the year, read and comprehend literary nonfiction in the Grades 6-8 text complexity band proficiently, with scaffolding as needed at the high end of the range.

WRITING

IDENTIFIER	STANDARD
TEXT TYPES AND PURPOSES	
W.6.1	Write arguments to support claims with clear reasons and relevant evidence. a. Introduce claim(s) and organize the reasons and evidence clearly. b. Support claim(s) with clear reasons and relevant evidence, using credible sources and demonstrating an understanding of the topic or text. c. Use words, phrases, and clauses to clarify the relationships among claim(s) and reasons. d. Establish and maintain a formal style. e. Provide a concluding statement or section that follows from the argument presented.
W.6.2	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. a. Introduce a topic; organize ideas, concepts and information, using strategies such as definition, classification, comparison/contrast, and cause/effect; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. b. Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples. c. Use appropriate transitions to clarify the relationship among ideas and concepts. d. Use precise language and domain-specific vocabulary to inform about or explain the topic. e. Establish and maintain a formal style. f. Provide a concluding statement or section that follows from the information or explanation presented.
W.6.3	Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences. a. Engage and orient the reader by establishing a context and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically. b. Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters. c. Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another. d. Use precise words and phrases, relevant descriptive details, and sensory language to convey experiences and events. e. Provide a conclusion that follows from the narrated experiences or events.
PRODUCTION AND DISTRIBUTION OF WRITING	
W.6.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1-3 above).

W.6.5	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. (Editing for conventions should demonstrate command of Language Standards 1-3 up to and including Grade 6).
W.6.6	Use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
W.6.7	Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.
W.6.8	Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.
W.6.9	Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply Grade 6 Reading Standards to literature (e.g., "Compare and contrast texts in different forms or genres [e.g., stories and poems; historical novels and fantasy stories] in terms of their approaches to similar themes and topics."). b. Apply Grade 6 Reading Standards to literary nonfiction and/or information texts (e.g., "Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not").
RANGE OF WRITING	
W.6.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

SPEAKING AND LISTENING	
IDENTIFIER	STANDARD
COMPREHENSION AND COLLABORATION	
SL.6.1	Engage effectively in a range of collaborative conversations (one-on-one, in groups, and teacher-led) with diverse partners on Grade 6 topics and texts, building on others' ideas and expressing their own clearly. a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion. b. Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed. c. Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion. d. Review the key ideas expressed and demonstrate understanding of multiple perspectives through reflection and paraphrasing.
SL.6.2	Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes toa topic, text, or issue under study.
SL.6.3	Delineate a speaker's argument and specific claims, distinguishing claims that are supported by reasons and evidence from claims that are not.
PRESENTATION OF KNOWLEDGE AND IDEAS	
SL.6.4	Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.
SL.6.5	Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.
SL.6.6	Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See Grade 6 Language Standards 1 and 3 for specific expectations.)

LANGUAGE	
IDENTIFIER	STANDARD
CONVENTIONS OF STANDARD ENGLISH	
L.6.1	Demonstrate command of the conventions of standard English grammar and usage when writing (printing, cursive, or keyboarding) or speaking. a. Ensure that pronouns are in the proper case (subjective, objective, possessive). b. Use intensive pronouns (e.g., myself, ourselves). c. Recognize and correct inappropriate shifts in pronoun number and person. * d. Recognize and correct vague pronouns (i.e., ones with unclear or ambiguous antecedents). * e. Recognize variations from standard English in their own and others' writing and speaking, and identify and use strategies to improve expression in conventional language. *
L.6.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Use punctuation (commas, parentheses, dashes) to set off nonrestrive/parenthetical elements. * b. Spell correctly.
KNOWLEDGE OF LANGUAGE	
L.6.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening. a. Vary sentence patterns for meaning, reader/listener interest, and style. * b. Maintain consistency in style and tone. *
VOCABULARY ACQUISITION AND USE	
L.6.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on Grade 6 reading and content, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. b. Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., audience, auditory, audible). c. Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify the precise meaning or its part of speech.

L.6.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Interpret figures of speech (e.g., personification) in context. b. Use the relationship between particular words (e.g., cause/effect, part/whole, item/category) to better understand each of the words. c. Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., stingy, scrimping, economical, unwasteful, thrifty).
L.6.6	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

* Denotes skills and understandings that are particularly likely to require continued attention in higher grades are they are applied to increasingly sophisticated writing and speaking.

GRADE 7

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Beginning in grade 4, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).

The CCR anchor standards and secondary grade-specific standards work in tandem to define college- and career-readiness expectations—the former providing broad standards, the latter providing additional specificity. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at *mdek12.org/secondaryeducation/englishlanguage/*

READING LITERATURE	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RL.7.1	Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RL.7.2	Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an accurate summary of the text based upon this analysis.
RL.7.3	Analyze how particular elements of a literary text interact (e.g., how setting shapes the characters or plot).
CRAFT AND STRUCTURE	
RL.7.4	Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of a specific word choice (e.g., alliteration) on meaning and tone.
RL.7.5	Analyze how a literary text's form or structure (e.g., soliloquy, sonnet) contributes to its meaning.
RL.7.6	Analyze how an author develops and contrasts the points of view of different characters or narrators in a text.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RL.7.7	Compare and contrast a written story, drama, or poem to its audio, filmed, staged, or multimedia version, analyzing the effects of techniques unique to each medium (e.g., lighting, sound, color, or camera focus and angles in a film).
RL.7.8	Not applicable to literature
RL.7.9	Compare and contrast a fictional portrayal of a time, place, or character and a historical account of the same period as a means of understanding how authors of fiction use or alter history.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RL.7.10	By the end of the year, read and comprehend literature, including stories, dramas, and poetry, in the Grades 6-8 text complexity band proficiently, with scaffolding as needed at the high end of the range.

READING INFORMATIONAL TEXT	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RI.7.1	Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RI.7.2	Determine a central idea of a text and analyze in detail its development over the course of the text, including how it merges and is shaped and refined by specific details; provide an accurate summary of the text based upon this analysis.
RI.7.3	Analyze the interactions between individual, events, and ideas in a text (e.g., how ideas influence individuals or events, or how individuals influence ideas or events).
CRAFT AND STRUCTURE	
RI.7.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.
RI.7.5	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to the development of the ideas.
RI.7.6	Determine an author's point of view or purpose in a text and analyze how the author distinguishes his or her position from that of the others.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RI.7.7	Compare and contrast a text to an audio, video, or multimedia version of the text, analyzing each medium's portrayal of the subject (e.g., how the delivery of a speech affects the impact of the words).
RI.7.8	Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims.
RI.7.9	Analyze how two or more authors writing about the same topic shape their presentations of key information by emphasizing different evidence or advancing different interpretations of facts.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RI.7.10	By the end of the year, read and comprehend literary nonfiction in the Grades 6-8 text complexity band proficiently, with scaffolding as needed at the high end of the range.

WRITING	
IDENTIFIER	STANDARD
TEXT TYPES AND PURPOSES	
W.7.1	Write arguments to support claims with clear reasons and relevant evidence. a. Introduce claim(s) and organize the reasons and evidence clearly. b. Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text. c. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), reasons, and evidence. d. Establish and maintain a formal style. e. Provide a concluding statement or section that follows from and supports the argument presented.
W.7.2	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. a. Introduce a topic; organize ideas, concepts and information, using strategies such as definition, classification, comparison/contrast, and cause/effect; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. b. Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples. c. Use appropriate transitions to clarify the relationship among ideas and concepts. d. Use precise language and domain-specific vocabulary to inform about or explain the topic. e. Establish and maintain a formal style. f. Provide a concluding statement or section that follows from the information or explanation presented.
W.7.3	Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences. a. Engage and orient the reader by establishing a context and point of view and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically. b. Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters. c. Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another. d. Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events. e. Provide a conclusion that follows from and reflects on the narrated experiences or events.

PRODUCTION AND DISTRIBUTION OF WRITING	
W.7.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1-3 above).
W.7.5	With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed. (Editing for conventions should demonstrate command of Language Standards 1-3 up to and including Grade 7).
W.7.6	Use technology, including the Internet, to produce and publish writing and link to and cite sources as well as to interact and collaborate with others, including linking to and citing sources.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
W.7.7	Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.
W.7.8	Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
W.7.9	Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply Grade 7 Reading Standards to literary texts (e.g., “Compare and contrast a fictional portrayal of a time, place, or character and a historical account of the same period as a means of understanding how authors of fiction use or alter history”). b. Apply Grade 7 Reading Standards to literary nonfiction and/or information texts (e.g., “Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims”).
RANGE OF WRITING	
W.7.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

SPEAKING AND LISTENING	
IDENTIFIER	STANDARD
COMPREHENSION AND COLLABORATION	
SL.7.1	Engage effectively in a range of collaborative conversations (one-on-one, in groups, and teacher-led) with diverse partners on Grade 7 topics and texts, building on others' ideas and expressing their own clearly. a. Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion. b. Follow rules for collegial discussions, track progress toward specific goals and deadlines, and define individual roles as needed. c. Pose questions that elicit elaboration and respond to others 'questions and comments with relevant observations and things that bring the discussion back on topic as needed. d. Acknowledge new information expressed by others and, when warranted, modify their own views.
SL.7.2	Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.
SL.7.3	Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence.
PRESENTATION OF KNOWLEDGE AND IDEAS	
SL.7.4	Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, and details; use appropriate eye contact, adequate volume, and clear pronunciation.
SL.7.5	Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.
SL.7.6	Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See Grade 7 Language Standards 1 and 3 for specific expectations.)

LANGUAGE

IDENTIFIER	STANDARD
CONVENTIONS OF STANDARD ENGLISH	
L.7.1	Demonstrate command of the conventions of standard English grammar and usage when writing (printing, cursive, or keyboarding) or speaking. a. Explain the function of phrases and clauses in general and their function in specific sentences. b. Choose among simple, compound, complex, and compound-complex sentences to signal different relationships among ideas. c. Place phrases and clauses within a sentence, recognizing and correcting misplaced and dangling modifiers. *
L.7.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Use a comma to separate coordinate adjectives (e.g., It was a fascinating, enjoyable movie but not He wore an old[,] green shirt). b. Spell correctly.
KNOWLEDGE OF LANGUAGE	
L.7.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening. a. Choose language that expresses ideas precisely and concisely, recognizing and eliminating wordiness and redundancy. *
VOCABULARY ACQUISITION AND USE	
L.7.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on Grade 7 reading and content, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. b. Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., belligerent, bellicose, rebel). c. Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify the precise meaning or its part of speech. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

L.7.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Interpret figures of speech (e.g., literary, biblical, and mythological allusions) in context. b. Use the relationship between particular words (e.g., synonym/antonym, analogy) to better understand each of the words. c. Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., refined, respectful, polite, diplomatic, condescending).
L.7.6	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

* Denotes skills and understandings that are particularly likely to require continued attention in higher grades are they are applied to increasingly sophisticated writing and speaking.

GRADE 8

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Beginning in grade 4, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).

The CCR anchor standards and secondary grade-specific standards work in tandem to define college- and career-readiness expectations—the former providing broad standards, the latter providing additional specificity. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at *mdek12.org/secondaryeducation/englishlanguage/*

READING LITERATURE	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RL.8.1	Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
RL.8.2	Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an accurate summary of the text based upon this analysis.
RL.8.3	Analyze how particular lines of dialogue or incidents in a literary text propel the action, reveal aspects of a character, or provoke a decision.
CRAFT AND STRUCTURE	
RL.8.4	Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of a specific word choices on meaning and tone, including analogies or allusions to other texts.
RL.8.5	Compare and contrast the structure of two or more texts and analyze how the differing structure of each text contributes to its meaning and style.
RL.8.6	Analyze how differences in the points of view of the characters and the audience or reader (e.g., created through the use of dramatic irony) create such effects as suspense or humor.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RL.8.7	Analyze the extent to which an adaptation of a story or drama stays faithful to or departs from the text or script, using non-text content (e.g., images, video, audio) to evaluate the choices made by the director or actors.
RL.8.8	Not applicable to literature
RL.8.9	Analyze how myths, traditional stories, or religious works such as the Bible influence themes, patterns of events, or character types in a modern work, including how the material is rendered new.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RL.8.10	By the end of the year, read and comprehend literature, including stories, dramas, and poetry, at the high end of the Grades 6-8 text complexity band independently and proficiently.

READING INFORMATIONAL TEXT	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RI.8.1	Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
RI.8.2	Determine a central idea of a text and analyze in detail its development over the course of the text, including how it merges and is shaped and refined by specific details; provide an accurate summary of the text based upon this analysis.
RI.8.3	Analyze how a text makes connections among and distinctions between individuals, ideas, or events (e.g., through comparisons, analogies, or categories).
CRAFT AND STRUCTURE	
RI.8.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone, including analogies or allusions to other texts.
RI.8.5	Analyze the structure of a specific paragraph in a text, including the role of particular sentences in developing and refining a key concept.
RI.8.6	Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RI.8.7	Evaluate the advantages and disadvantages of using different mediums (e.g., print or digital text, video, multimedia) to present a particular topic or idea.
RI.8.8	Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced.
RI.8.9	Analyze a case in which two or more texts provide conflicting information on the same topic and identify where the texts disagree on matters of fact or interpretation.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RI.8.10	By the end of the year, read and comprehend literary nonfiction at the high end of the Grades 6-8 text complexity band independently and proficiently.

WRITING	
IDENTIFIER	STANDARD
TEXT TYPES AND PURPOSES	
W.8.1	Write arguments to support claims with clear reasons and relevant evidence. a. Introduce claim(s), acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically. b. Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text. c. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence. d. Establish and maintain a formal style. e. Provide a concluding statement or section that follows from and supports the argument presented.
W.8.2	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. a. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts and information into broader categories; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. b. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. c. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. d. Use precise language and domain-specific vocabulary to inform about or explain the topic. e. Establish and maintain a formal style. f. Provide a concluding statement or section that follows from the information or explanation presented.
W.8.3	Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences. a. Engage and orient the reader by establishing a context and point of view and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically. b. Use narrative techniques, such as dialogue, pacing, description, and reflection, to develop experiences, events, and/or characters. c. Use a variety of transition words, phrases, and clauses to convey sequence, signal shifts from one time frame or setting to another, and show the relationships among experiences and events. d. Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events. e. Provide a conclusion that follows from and reflects on the narrated experiences or events.

PRODUCTION AND DISTRIBUTION OF WRITING	
W.8.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1-3 above).
W.8.5	With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed. (Editing for conventions should demonstrate command of Language Standards 1-3 up to and including Grade 8).
W.8.6	Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas efficiently as well as to interact and collaborate with others.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
W.8.7	Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions for multiple avenues of exploration.
W.8.8	Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
W.8.9	Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply Grade 8 Reading Standards to literature (e.g., "Analyze how a modern work of fiction draws on themes, patterns of events, or character types from myths, traditional stories, or religious works such as the Bible, including describing how the material is rendered new"). b. Apply Grade 8 Reading Standards to literary nonfiction and/or informational texts (e.g., "Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced").
RANGE OF WRITING	
W.8.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

SPEAKING AND LISTENING

IDENTIFIER	STANDARD
COMPREHENSION AND COLLABORATION	
SL.8.1	Engage effectively in a range of collaborative conversations (one-on-one, in groups, and teacher-led) with diverse partners on Grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly. a. Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion. b. Follow rules for collegial discussions and decision-making, track progress toward specific goals and deadlines, and define individual roles as needed. c. Pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence, observations, and ideas. d. Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.
SL.8.2	Analyze the purpose of information presented in diverse media and formats (e.g., visually, quantitatively, orally) and evaluate the motives (e.g., social, commercial, political) behind its presentation.
SL.8.3	Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence and identifying when irrelevant evidence is introduced.
PRESENTATION OF KNOWLEDGE AND IDEAS	
SL.8.4	Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.
SL.8.5	Integrate multimedia components and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.
SL.8.6	Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See Grade 8 Language Standards 1 and 3 for specific expectations.)

LANGUAGE	
IDENTIFIER	STANDARD
CONVENTIONS OF STANDARD ENGLISH	
L.8.1	Demonstrate command of the conventions of standard English grammar and usage when writing (printing, cursive, or keyboarding) or speaking. a. Explain the function of verbals (gerunds, participles, infinitives) in general and their function in particular sentences. b. Form and use verbs in the active and passive voice. c. Form and use verbs in the indicative, imperative, interrogative, conditional, and subjunctive mood. d. Recognize and correct inappropriate shifts in verb voice and mood. *
L.8.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Use punctuation (comma, ellipsis, dash) to indicate a pause or break. b. Use an ellipsis to indicate an omission. c. Spell correctly.
KNOWLEDGE OF LANGUAGE	
L.8.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening. a. Use verbs in the active and passive voice and in the conditional and subjunctive mood to achieve particular effects (e.g., emphasizing the actor or the action; expressing uncertainty or describing a state contrary to fact).
VOCABULARY ACQUISITION AND USE	
L.8.4	Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on Grade 8 reading and content, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. b. Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., precede, recede, secede). c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify the precise meaning or its part of speech. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

L.8.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Interpret figures of speech (e.g., verbal irony, puns) in context. b. Use the relationship between particular words to better understand each of the words. c. Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., bullheaded, willful, firm, persistent, resolute).
L.8.6	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

* Denotes skills and understandings that are particularly likely to require continued attention in higher grades are they are applied to increasingly sophisticated writing and speaking.

LITERACY & WRITING

GRADES 6-8

Reading History/Social Studies

Reading Science and Technical Subjects

Writing in History/Social Studies, Science, and Technical Subjects

The standards below begin at grade 6; standards for K–5 reading and writing in history/social studies, science, and technical subjects are integrated into the K–5 Reading and Writing standards. The CCR anchor standards and high school standards in literacy work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.

READING HISTORY/SOCIAL STUDIES	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RH.6-8.1	Cite specific textual evidence to support analysis of primary and secondary sources.
RH.6-8.2	Determine the central ideas or information of a primary or secondary source; provide and accurate summary of the source distinct from prior knowledge or opinions.
RH.6-8.3	Identify key steps in a text's description of a process related to history/social studies (e.g., how a bill becomes law, how interest rates are raised or lowered).
CRAFT AND STRUCTURE	
RH.6-8.4	Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies.
RH.6-8.5	Describe how a text presents information (e.g., sequentially, comparatively, causally).
RH.6-8.6	Identify aspects of a text that reveal an author's point of view or purpose (e.g., loaded language, inclusion or avoidance of particular facts).
INTEGRATION OF KNOWLEDGE AND IDEAS	
RH.6-8.7	Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.
RH.6-8.8	Distinguish among fact, opinion, and reasoned judgment in a text.
RH.6-8.9	Analyze the relationship between a primary and secondary source on the same topic.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RH.6-8.10	By the end of Grade 8, read and comprehend history/social studies texts in the Grades 6-8 text complexity band independently and proficiently.

READING SCIENCE AND TECHNICAL SUBJECTS	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RST.6-8.1	Cite specific textual evidence to support analysis of science and technical texts.
RST.6-8.2	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
RST.6-8.3	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
CRAFT AND STRUCTURE	
RST.6-8.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to Grades 6-8 texts and topics.
RST.6-8.5	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
RST.6-8.6	Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RST.6-8.7	Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).
RST.6-8.8	Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.
RST.6-8.9	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RST.6-8.10	By the end of Grade 8, read and comprehend science/technical texts in the Grades 6-8 text complexity band independently and proficiently.

WRITING IN HISTORY/SOCIAL STUDIES, SCIENCE, & TECHNICAL SUBJECTS

IDENTIFIER	STANDARD
TEXT TYPES AND PURPOSES	
WHST.6-8.1	Write arguments focused on discipline-specific content. a. Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically. b. Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources. c. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence. d. Establish and maintain a formal style. e. Provide a concluding statement or section that follows from and supports the argument presented.
WHST.6-8.2	Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. a. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. b. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. c. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. d. Use precise language and domain-specific vocabulary to inform about or explain the topic. e. Establish and maintain a formal style and objective tone. f. Provide a concluding statement or section that follows from the information or explanation presented.
WHST.6-8.3	Not Applicable
PRODUCTION AND DISTRIBUTION OF WRITING	
WHST.6-8.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
WHST.6-8.5	With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.
WHST.6-8.6	Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
WHST.6-8.7	Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions for multiple avenues of exploration.
WHST.6-8.8	Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
WHST.6-8.9	Draw evidence from informational texts to support analysis, reflection, and research.
RANGE OF WRITING	
WHST.6-8.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Note: Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In history/social studies, students must be able to incorporate narrative accounts into their analyses of individuals or events of historical import. In science and technical subjects, students must be able to write precise enough descriptions of the step- by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.

2025
MS CCRS
ENGLISH LANGUAGE ARTS

▶ GRADES 9-12

ENGLISH I

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Beginning in grade 4, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).

The CCR anchor standards and secondary grade-specific standards work in tandem to define college- and career-readiness expectations—the former providing broad standards, the latter providing additional specificity. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at *mdek12.org/secondaryeducation/englishlanguage/*

READING LITERATURE

IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RL.9.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RL.9.2	Determine the theme(s) or central idea(s) of a text and analyze in detail the development over the course of the text, including how details of a text interact and build on one another to shape and refine the theme(s) or central idea(s); provide an accurate summary of the text based upon this analysis.
RL.9.3	Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a literary text, interact with other characters, and advance the plot or develop the theme.
CRAFT AND STRUCTURE	
RL.9.4	Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of a specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone).
RL.9.5	Analyze how an author's choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise.
RL.9.6	Analyze a particular point of view or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RL.9.7	Analyze the representation of a subject or a key scene in two different artistic mediums, including what is emphasized or absent in each treatment (e.g., Auden's "Musée des Beaux Arts" and Breughel's Landscape with the Fall of Icarus).
RL.9.8	Not applicable to literature
RL.9.9	Analyze how an author draws on and transforms source material in a specific work (e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare).
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RL.9.10	By the end of Grade 9, read and comprehend literature, including stories, dramas, and poems, in the Grades 9-10 text complexity band proficiently, with scaffolding as needed at the high end of the range.

READING INFORMATIONAL TEXT

IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RI.9.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RI.9.2	Determine central idea(s) of a text and analyze in detail the development over the course of the text, including how details of a text interact and build on one another to shape and refine the central idea(s); provide an accurate summary of the text based upon this analysis.
RI.9.3	Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.
CRAFT AND STRUCTURE	
RI.9.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).
RI.9.5	Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).
RI.9.6	Determine an author's point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RI.9.7	Analyze various accounts of a subject told in different mediums (e.g. a person's life story in both print and multimedia), determining which details are emphasized in each account.
RI.9.8	Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.
RI.9.9	Analyze seminal U.S. documents of historical and literary significance (e.g. Washington's Farewell Address, the Gettysburg Address, Roosevelt's Four Freedoms speech, King's "Letter from Birmingham Jail"), including how they address related themes and concepts.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RI.9.10	By the end of Grade 9, read and comprehend literary nonfiction in the Grades 9-10 text complexity band proficiently, with scaffolding as needed at the high end of the range.

WRITING	
IDENTIFIER	STANDARD
TEXT TYPES AND PURPOSES	
W.9.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. a. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counterclaims fairly, supplying evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level and concerns. c. Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. e. Provide a concluding statement or section that follows from and supports the argument presented.
W.9.2	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. a. Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. c. Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. d. Use precise language and domain-specific vocabulary to manage the complexity of the topic. e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
W.9.3	Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences. a. Engage and orient the reader by setting out a problem, situation, or observation, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events. b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.

	c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole. d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters. e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.
PRODUCTION AND DISTRIBUTION OF WRITING	
W.9.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1-3 above).
W.9.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language Standards 1-3 up to and including Grades 9-10).
W.9.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
W.9.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.9.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
W.9.9	Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply grades 9–10 Reading standards to literature (e.g., "Analyze how an author draws on and transforms source material in a specific work [e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare]"). b. Apply grades 9–10 Reading standards to literary nonfiction and/or informational texts (e.g., "Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning").
RANGE OF WRITING	
W.9.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

SPEAKING AND LISTENING	
IDENTIFIER	STANDARD
COMPREHENSION AND COLLABORATION	
SL.9.1	Initiate and participate effectively in a range of collaborative conversations (one-on-one, in groups, and teacher-led) with diverse partners on Grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively. a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas. b. Work with peers to set rules for collegial discussions and decision-making (e.g., informal consensus, taking votes on key issues, presentation of alternate views), clear goals and deadlines, and individual roles as needed. c. Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions. d. Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented.
SL.9.2	Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.
SL.9.3	Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.
PRESENTATION OF KNOWLEDGE AND IDEAS	
SL.9.4	Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.
SL.9.5	Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
SL.9.6	Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See Grades 9–10 Language standards 1 and 3 for specific expectations.)

LANGUAGE	
IDENTIFIER	STANDARD
CONVENTIONS OF STANDARD ENGLISH	
L.9.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Use parallel structure.* b. Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.
L.9.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses. b. Use a colon to introduce a list or quotation. c. Spell correctly.
KNOWLEDGE OF LANGUAGE	
L.9.3	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening. a. Write and edit work so that it conforms to the guidelines in a style manual (e.g., MLA Handbook, Turabian's Manual for Writers) appropriate for the discipline and writing type.
VOCABULARY ACQUISITION AND USE	
L.9.4	Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on Grades 9-10 reading and content, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. b. Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., analyze, analysis, analytical; advocate, advocacy). c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

L.9.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Interpret figures of speech (e.g., euphemism, oxymoron) in context and analyze their role in the text. b. Analyze nuances in the meaning of words with similar denotations.
L.9.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

* Denotes skills and understandings that are particularly likely to require continued attention in higher grades are they are applied to increasingly sophisticated writing and speaking.

ENGLISH II

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Beginning in grade 4, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).

The CCR anchor standards and secondary grade-specific standards work in tandem to define college- and career-readiness expectations—the former providing broad standards, the latter providing additional specificity. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at *mdek12.org/secondaryeducation/englishlanguage/*

READING LITERATURE	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RL.10.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RL.10.2	Determine the theme(s) or central idea(s) of a text and analyze in detail the development over the course of the text, including how details of a text interact and build on one another to shape and refine the theme(s) or central idea(s); provide an accurate summary of the text based upon this analysis.
RL.10.3	Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a literary text, interact with other characters, and advance the plot or develop the theme.
CRAFT AND STRUCTURE	
RL.10.4	Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the cumulative impact of a specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone).
RL.10.5	Analyze how an author's choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise.
RL.10.6	Analyze a particular point of view or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RL.10.7	Analyze the representation of a subject or a key scene in two different artistic mediums, including what is emphasized or absent in each treatment (e.g., Auden's "Musée des Beaux Arts" and Breughel's Landscape with the Fall of Icarus).
RL.10.8	Not applicable to literature
RL.10.9	Analyze how an author draws on and transforms source material in a specific work (e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare).
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RL.10.10	By the end of Grade 10, read and comprehend literature, including stories, dramas, and poems, at the high end of the Grades 9-10 text complexity band independently and proficiently.

READING INFORMATIONAL TEXT	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RI.10.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RI.10.2	Determine central idea(s) of a text and analyze in detail the development over the course of the text, including how details of a text interact and build on one another to shape and refine the central idea(s); provide an accurate summary of the text based upon this analysis.
RI.10.3	Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.
CRAFT AND STRUCTURE	
RI.10.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).
RI.10.5	Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).
RI.10.6	Determine an author's point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RI.10.7	Analyze various accounts of a subject told in different mediums (e.g. a person's life story in both print and multimedia), determining which details are emphasized in each account.
RI.10.8	Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.
RI.10.9	Analyze seminal U.S. documents of historical and literary significance (e.g. Washington's Farewell Address, the Gettysburg Address, Roosevelt's Four Freedoms speech, King's "Letter from Birmingham Jail"), including how they address related themes and concepts.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RI.10.10	By the end of Grade 10, read and comprehend literary nonfiction at the high end of the Grades 9-10 text complexity band independently and proficiently.

WRITING	
IDENTIFIER	STANDARD
TEXT TYPES AND PURPOSES	
W.10.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. a. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counterclaims fairly, supplying evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level and concerns. c. Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. e. Provide a concluding statement or section that follows from and supports the argument presented.
W.10.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. a. Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. c. Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. d. Use precise language and domain-specific vocabulary to manage the complexity of the topic. e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
W.10.3	Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences. a. Engage and orient the reader by setting out a problem, situation, or observation, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events. b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.

	c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole. d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters. e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.
PRODUCTION AND DISTRIBUTION OF WRITING	
W.10.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1-3 above).
W.10.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language Standards 1-3 up to and including Grades 9-10).
W.10.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
W.10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.10.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
W.10.9	Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply grades 9–10 Reading standards to literature (e.g., "Analyze how an author draws on and transforms source material in a specific work [e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare]"). b. Apply grades 9–10 Reading standards to literary nonfiction and/or informational texts (e.g., "Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning").
RANGE OF WRITING	
W.10.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

SPEAKING AND LISTENING	
IDENTIFIER	STANDARD
COMPREHENSION AND COLLABORATION	
SL.10.1	Initiate and participate effectively in a range of collaborative conversations (one-on-one, in groups, and teacher-led) with diverse partners on Grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively. a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts or other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas. b. Work with peers to set rules for collegial discussions and decision-making (e.g., informal consensus, taking votes on key issues, presentation of alternate views), clear goals and deadlines, and individual roles as needed. c. Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions. d. Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented.
SL.10.2	Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.
SL.10.3	Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.
PRESENTATION OF KNOWLEDGE AND IDEAS	
SL.10.4	Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.
SL.10.5	Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
SL.10.6	Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See Grades 9–10 Language standards 1 and 3 for specific expectations.)

LANGUAGE	
IDENTIFIER	STANDARD
CONVENTIONS OF STANDARD ENGLISH	
L.10.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Use parallel structure.* b. Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.
L.10.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses. b. Use a colon to introduce a list or quotation. c. Spell correctly.
KNOWLEDGE OF LANGUAGE	
L.10.3	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening. a. Write and edit work so that it conforms to the guidelines in a style manual (e.g., MLA Handbook, Turabian's Manual for Writers) appropriate for the discipline and writing type.
VOCABULARY ACQUISITION AND USE	
L.10.4	Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on Grades 9-10 reading and content, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. b. Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., analyze, analysis, analytical; advocate, advocacy). c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

L.10.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Interpret figures of speech (e.g., euphemism, oxymoron) in context and analyze their role in the text. b. Analyze nuances in the meaning of words with similar denotations.
L.10.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

* Denotes skills and understandings that are particularly likely to require continued attention in higher grades are they are applied to increasingly sophisticated writing and speaking.

LITERACY & WRITING

GRADES 9-10

Reading History/Social Studies

Reading Science and Technical Subjects

Writing in History/Social Studies, Science, and Technical Subjects

The standards below begin at grade 6; standards for K–5 reading and writing in history/social studies, science, and technical subjects are integrated into the K–5 Reading and Writing standards. The CCR anchor standards and high school standards in literacy work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.

READING HISTORY/SOCIAL STUDIES	
IDENTIFIER	**STANDARD**
KEY IDEAS AND DETAILS	
RH.9-10.1	Cite specific textual evidence to support analysis of primary and secondary sources, attending to such features as the date and origin of the information.
RH.9-10.2	Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.
RH.9-10.3	Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them.
CRAFT AND STRUCTURE	
RH.9-10.4	Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history/social science.
RH.9-10.5	Analyze how a text uses structure to emphasize key points or advance an explanation or analysis.
RH.9-10.6	Compare the point of view of two or more authors for how they treat the same or similar topics, including which details they include and emphasize in their respective accounts.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RH.9-10.7	Integrate quantitative or technical analysis (e.g., charts, research data) with qualitative analysis in print or digital text.
RH.9-10.8	Assess the extent to which the reasoning and evidence in a text support the author's claims.
RH.9-10.9	Compare and contrast treatments of the same topic in several primary and secondary sources.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RH.9-10.10	By the end of Grade 10, read and comprehend history/social studies texts in the Grades 9-10 text complexity band independently and proficiently.

READING SCIENCE AND TECHNICAL SUBJECTS	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RST.9-10.1	Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.
RST. 9-10.2	Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.
RST. 9-10.3	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.
CRAFT AND STRUCTURE	
RST. 9-10.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to Grades 9-10 texts and topics.
RST. 9-10.5	Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).
RST. 9-10.6	Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RST. 9-10.7	Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.
RST. 9-10.8	Assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem.
RST. 9-10.9	Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RST. 9-10.10	By the end of Grade 10, read and comprehend science/technical texts in the Grades 9-10 text complexity band independently and proficiently.

WRITING IN HISTORY/SOCIAL STUDIES, SCIENCE, & TECHNICAL SUBJECTS

IDENTIFIER	STANDARD
TEXT TYPES AND PURPOSES	
WHST.9-10.1	Write arguments focused on discipline-specific content. a. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns. c. Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. e. Provide a concluding statement or section that follows from or supports the argument presented.
WHST.9-10.2	Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. a. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. c. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts. d. Use precise language and domain-specific vocabulary to manage the complexity of the topic and convey a style appropriate to the discipline and context as well as to the expertise of likely readers. e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
WHST.9-10.3	Not Applicable
PRODUCTION AND DISTRIBUTION OF WRITING	
WHST.9-10.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

WHST.9-10.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on what is most significant for a specific purpose and audience.
WHST.9-10.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
WHST.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
WHST.9-10.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
WHST.9-10.9	Draw evidence from informational texts to support analysis, reflection, and research.
RANGE OF WRITING	
WHST.9-10.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Note: Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In history/social studies, students must be able to incorporate narrative accounts into their analyses of individuals or events of historical import. In science and technical subjects, students must be able to write precise enough descriptions of the step- by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.

ENGLISH III

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Beginning in grade 4, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).

The CCR anchor standards and secondary grade-specific standards work in tandem to define college- and career-readiness expectations—the former providing broad standards, the latter providing additional specificity. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at *mdek12.org/secondaryeducation/englishlanguage/*

READING LITERATURE	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RL.11.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
RL.11.2	Determine the themes or central ideas of a text and analyze in detail their development over the course of the text, including how details of a text interact and build on one another to produce a complex account; provide an accurate summary of the text based upon this analysis.
RL.11.3	Analyze the impact of the author's choices regarding how to develop and relate elements of a literary text (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed).
CRAFT AND STRUCTURE	
RL.11.4	Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful. (Include Shakespeare as well as other authors.)
RL.11.5	Analyze how an author's choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact.
RL.11.6	Analyze a case in which grasping a point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement).
INTEGRATION OF KNOWLEDGE AND IDEAS	
RL.11.7	Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play or recorded novel or poetry), evaluating how each version interprets the source text. (Include at least one play by Shakespeare and one play by an American dramatist.)
RL.11.8	Not applicable to literature
RL.11.9	Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RL.11.10	By the end of Grade 11, read and comprehend literature, including stories, dramas, and poems, in the Grades 11-12 text complexity band proficiently, with scaffolding as needed at the high end of the range.

READING INFORMATIONAL TEXT	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RI.11.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
RI.11.2	Determine central ideas of a text and analyze in detail their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an accurate summary of the text based upon this analysis.
RI.11.3	Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.
CRAFT AND STRUCTURE	
RI.11.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).
RI.11.5	Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.
RI.11.6	Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness, or beauty of the text.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RI.11.7	Integrate and evaluate multiple sources of information presented in different media or formats (e.g. visually, quantitatively) as well as in words in order to address a question or solve a problem.
RI.11.8	Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g. The Federalist, presidential addresses). ^
RI.11.9	Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance for their themes, purposes, and rhetorical features. Such documents might include The Declaration of Independence, the Preamble to the Constitution, the Bill of Rights, and Lincoln's Second Inaugural Address.

^ The discussion of U.S. historical documents can be applied in context to a more global perspective.

RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RI.11.10	By the end of Grade 11, read and comprehend literary nonfiction in the Grades 11-12 text complexity band proficiently, with scaffolding as needed at the high end of the range.

WRITING	
IDENTIFIER	STANDARD
TEXT TYPES AND PURPOSES	
W.11.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level and concerns. c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. e. Provide a concluding statement or section that follows from and supports the argument presented.
W.11.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. a. Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. c. Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. d. Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic. e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

W.11.3	Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences. a. Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events. b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters. c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution). d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters. e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.
PRODUCTION AND DISTRIBUTION OF WRITING	
W.11.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1-3 above).
W.11.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language Standards 1-3 up to and including Grades 11-12).
W.11.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
W.11.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.11.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and weaknesses of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source, and following a standard format for citation.

W.11.9	Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply Grades 11-12 Reading standards to literature (e.g., “demonstrate knowledge of eighteenth-, nineteenth-, and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics”). b. Apply Grades 11-12 Reading standards to literary nonfiction and/or informational texts (e.g., “Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., The Federalist, presidential addresses]”).
RANGE OF WRITING	
W.11.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

SPEAKING AND LISTENING

IDENTIFIER	STANDARD
COMPREHENSION AND COLLABORATION	
SL.11.1	Initiate and participate effectively in a range of collaborative conversations (one-on-one, in groups, and teacher-led) with diverse partners on Grades 11-12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively. a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas. b. Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed. c. Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives. d. Respond thoughtfully to diverse perspectives; synthesize commends, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.
SL.11.2	Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
SL.11.3	Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.
PRESENTATION OF KNOWLEDGE AND IDEAS	
SL.11.4	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
SL.11.5	Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
SL.11.6	Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate. (See Grades 11-12 Language standards 1 and 3 for specific expectations.)

LANGUAGE	
IDENTIFIER	STANDARD
CONVENTIONS OF STANDARD ENGLISH	
L.11.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested. b. Resolve issues of complex or contested usage, consulting references (e.g., Merriam-Webster's Dictionary of English Usage, Garner's Modern American Usage) as needed.
L.11.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Observe hyphenation conventions. b. Spell correctly.
KNOWLEDGE OF LANGUAGE	
L.11.3	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening. a. Vary syntax for effect, consulting references (e.g., Tufte's Artful Sentences) for guidance as needed; when analyzing complex texts, demonstrate an understanding of how syntax contributes to the purpose or meaning of the text.
VOCABULARY ACQUISITION AND USE	
L.11.4	Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on Grades 11-12 reading and content, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. b. Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., conceive, conception, conceivable). c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its standard usage. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

L.11.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Interpret figures of speech (e.g., hyperbole, paradox) in context and analyze their role in the text. b. Analyze nuances in the meaning of words with similar denotations.
L.11.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

* Denotes skills and understandings that are particularly likely to require continued attention in higher grades are they are applied to increasingly sophisticated writing and speaking.

ENGLISH IV

The following standards offer a focus for instruction and help ensure that students gain adequate mastery of a range of skills and applications, as well as exposure to a range of texts and tasks throughout the year. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Beginning in grade 4, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).

The CCR anchor standards and secondary grade-specific standards work in tandem to define college- and career-readiness expectations—the former providing broad standards, the latter providing additional specificity. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

For further information, including guides to navigate the standards and links to other resources, visit the English Language Arts page at *mdek12.org/secondaryeducation/englishlanguage/*

READING LITERATURE

IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RL.12.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
RL.12.2	Determine the themes or central ideas of a text and analyze in detail their development over the course of the text, including how details of a text interact and build on one another to produce a complex account; provide an accurate summary of the text based upon this analysis.
RL.12.3	Analyze the impact of the author's choices regarding how to develop and relate elements of a literary text (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed).
CRAFT AND STRUCTURE	
RL.12.4	Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful. (Include Shakespeare as well as other authors.)
RL.12.5	Analyze how an author's choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact.
RL.12.6	Analyze a case in which grasping a point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement).
INTEGRATION OF KNOWLEDGE AND IDEAS	
RL.12.7	Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play or recorded novel or poetry), evaluating how each version interprets the source text. (Include at least one play by Shakespeare and one play by an American dramatist.)
RL.12.8	Not applicable to literature
RL.12.9	Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics. ǂ
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RL.12.10	By the end of Grade 12, read and comprehend literature, including stories, dramas, and poems, at the high end of the Grades 11-12 text complexity band independently and proficiently.

ǂ In English IV, this study may be expanded to include the literature of other cultures during the same time period.

READING INFORMATIONAL TEXT	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RI.12.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
RI.12.2	Determine two or more central ideas of a text and analyze in detail their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an accurate summary of the text based upon this analysis.
RI.12.3	Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.
CRAFT AND STRUCTURE	
RI.12.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).
RI.12.5	Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.
RI.12.6	Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness, or beauty of the text.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RI.12.7	Integrate and evaluate multiple sources of information presented in different media or formats (e.g. visually, quantitatively) as well as in words in order to address a question or solve a problem.
RI.12.8	Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g. The Federalist, presidential addresses). ^
RI.12.9	Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance for their themes, purposes, and rhetorical features. Such documents might include The Declaration of Independence, the Preamble to the Constitution, the Bill of Rights, and Lincoln's Second Inaugural Address.

^ The discussion of U.S. historical documents can be applied in context to a more global perspective.

RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RI.12.10	By the end of Grade 11, read and comprehend literary nonfiction in the Grades 11-12 text complexity band independently and proficiently.

WRITING	
IDENTIFIER	STANDARD
TEXT TYPES AND PURPOSES	
W.12.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases. c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. e. Provide a concluding statement or section that follows from and supports the argument presented.
W.12.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. a. Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. c. Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. d. Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic. e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

W.12.3	Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences. a. Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events. b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters. c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution). d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters. e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.
PRODUCTION AND DISTRIBUTION OF WRITING	
W.12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1-3 above).
W.12.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language Standards 1-3 up to and including Grades 11-12).
W.12.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
W.12.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and weaknesses of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

W.12.9	Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply Grades 11-12 Reading standards to literature (e.g., “Demonstrate knowledge of eighteenth-, nineteenth-, and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics”). b. Apply Grades 11-12 Reading standards to literary nonfiction and/or informational texts (e.g., “Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., The Federalist, presidential addresses]”).
RANGE OF WRITING	
W.12.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

SPEAKING AND LISTENING	
IDENTIFIER	STANDARD
COMPREHENSION AND COLLABORATION	
SL.12.1	Initiate and participate effectively in a range of collaborative conversations (one-on-one, in groups, and teacher-led) with diverse partners on Grades 11-12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively. a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas. b. Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed. c. Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives. d. Respond thoughtfully to diverse perspectives; synthesize commends, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.
SL.12.2	Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
SL.12.3	Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.
PRESENTATION OF KNOWLEDGE AND IDEAS	
SL.12.4	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
SL.12.5	Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
SL.12.6	Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate. (See Grades 11-12 Language standards 1 and 3 for specific expectations.)

LANGUAGE	
IDENTIFIER ▼	STANDARD ▼
CONVENTIONS OF STANDARD ENGLISH	
L.12.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested. b. Resolve issues of complex or contested usage, consulting references (e.g., Merriam-Webster's Dictionary of English Usage, Garner's Modern American Usage) as needed.
L.12.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Observe hyphenation conventions. b. Spell correctly.
KNOWLEDGE OF LANGUAGE	
L.12.3	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening. a. Vary syntax for effect, consulting references (e.g., Tufte's Artful Sentences) for guidance as needed; when analyzing complex texts, demonstrate an understanding of how syntax contributes to the purpose or meaning of the text.
VOCABULARY ACQUISITION AND USE	
L.12.4	Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on Grades 11-12 reading and content, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. b. Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., conceive, conception, conceivable). c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its standard usage. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

L.12.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Interpret figures of speech (e.g., hyperbole, paradox) in context and analyze their role in the text. b. Analyze nuances in the meaning of words with similar denotations.
L.12.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

* Denotes skills and understandings that are particularly likely to require continued attention in higher grades are they are applied to increasingly sophisticated writing and speaking.

LITERACY & WRITING

GRADES 11-12

Reading History/Social Studies

Reading Science and Technical Subjects

Writing in History/Social Studies, Science, and Technical Subjects

The standards below begin at grade 6; standards for K–5 reading and writing in history/social studies, science, and technical subjects are integrated into the K–5 Reading and Writing standards. The CCR anchor standards and high school standards in literacy work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.

READING HISTORY/SOCIAL STUDIES	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RH.11-12.1	Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
RH.11-12.2	Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
RH.11-12.3	Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
CRAFT AND STRUCTURE	
RH.11-12.4	Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines faction in Federalist No. 10).
RH.11-12.5	Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs, and larger portions of the text contribute to the whole.
RH.11-12.6	Evaluate author's differing points of view on the same historical event or issue by assessing the authors' claims, reasoning, and evidence.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RH.11-12.7	Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.
RH.11-12.8	Evaluate an author's premises, claims, and evidence by corroborating or challenging them with other information.
RH.11-12.9	Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RH.11-12.10	By the end of Grade 12, read and comprehend history/social studies texts in the Grades 11-12 text complexity band independently and proficiently.

READING SCIENCE AND TECHNICAL SUBJECTS

IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RST.11-12.1	Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.
RST.11-12.2	Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
RST.11-12.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
CRAFT AND STRUCTURE	
RST.11-12.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to Grades 11-12 texts and topics.
RST.11-12.5	Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.
RST.11-12.6	Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unsolved.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RST.11-12.7	Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
RST.11-12.8	Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.
RST.11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RST.11-12.10	By the end of Grade 12, read and comprehend science/technical texts in the Grades 11-12 text complexity band independently and proficiently.

WRITING IN HISTORY/SOCIAL STUDIES, SCIENCE, & TECHNICAL SUBJECTS	
IDENTIFIER	STANDARD
TEXT TYPES AND PURPOSES	
WHST.11-12.1	Write arguments focused on discipline-specific content. a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counterclaims fairly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases. c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. e. Provide a concluding statement or section that follows from or supports the argument presented.
WHST.11-12.2	Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. a. Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. c. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts. d. Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers. e. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
WHST.11-12.3	Not Applicable

PRODUCTION AND DISTRIBUTION OF WRITING	
WHST.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
WHST.11-12.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
WHST.11-12.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
WHST.11-12.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
WHST.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
WHST.11-12.9	Draw evidence from informational texts to support analysis, reflection, and research.
RANGE OF WRITING	
WHST.11-12.10	Write routinely over extended time frames (time for reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Note: Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In history/social studies, students must be able to incorporate narrative accounts into their analyses of individuals or events of historical import. In science and technical subjects, students must be able to write precise enough descriptions of the step- by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.

2025
MS CCRS
ENGLISH LANGUAGE ARTS

▶ SECONDARY ELECTIVES & SUPPLEMENTAL COURSES

ELA ELECTIVES

CREATIVE WRITING

Grades 9-12

1 English Credit

The Creative Writing course will provide the student practices in the processes of composing poems, personal descriptive and narratives essays, and short fiction. If time allows, the writing of drama may be pursued. The course affords an opportunity for self-expression, promotes critical thinking, expands the imagination, and develops the use of figurative and literal language. The student will pursue an independent project in creative writing. The student will become a critical reader and editor of his/her own work and of the work of his/her classmates. The student will be encouraged to submit works for publication.

WRITING	
IDENTIFIER	STANDARD
TEXT TYPES AND PURPOSES	
W.11-12.3	Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences. a. Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events. b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters. c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution). d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters. e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.
PRODUCTION AND DISTRIBUTION OF WRITING	
W.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1-3 above).
W.11-12.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language Standards 1-3 up to and including Grades 11-12).
W.11-12.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
W.11-12.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and weaknesses of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

W.11-12.9	Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply Grades 11-12 Reading standards to literature (e.g., "Demonstrate knowledge of eighteenth-, nineteenth-, and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics").
RANGE OF WRITING	
W.11-12.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

LANGUAGE

IDENTIFIER	STANDARD
CONVENTIONS OF STANDARD ENGLISH	
L.11-12.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested. b. Resolve issues of complex or contested usage, consulting references (e.g., Merriam-Webster's Dictionary of English Usage, Garner's Modern American Usage) as needed.
L.11-12.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Observe hyphenation conventions. b. Spell correctly.
KNOWLEDGE OF LANGUAGE	
L.11-12.3	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening. a. Vary syntax for effect, consulting references (e.g., Tufte's Artful Sentences) for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.
VOCABULARY ACQUISITION AND USE	
L.11-12.4	Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on Grades 11-12 reading and content, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. b. Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., conceive, conception, conceivable). c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its standard usage. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
L.11-12.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Interpret figures of speech (e.g., hyperbole, paradox) in context and analyze their role in the text. b. Analyze nuances in the meaning of words with similar denotations.

L.11-12.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

ELA ELECTIVES

DEBATE

Grades 9-12

.5 or 1 English Credit

This course provides instruction in how to acquire, analyze, and evaluate information in order to organize effective arguments, and it provides practice in making those arguments. Skill in debate helps the individual to think logically, clearly, and quickly, and it helps a student to identify flawed reasoning and argue persuasively.

WRITING	
IDENTIFIER	STANDARD
TEXT TYPES AND PURPOSES	
W.11-12.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases. c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. e. Provide a concluding statement or section that follows from and supports the argument presented.
W.11-12.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. a. Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. c. Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. d. Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic. e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

PRODUCTION AND DISTRIBUTION OF WRITING	
W.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1-3 above).
W.11-12.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language Standards 1-3 up to and including Grades 11-12).
W.11-12.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
W.11-12.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and weaknesses of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
W.11-12.9	Draw evidence from literary or informational texts to support analysis, reflection, and research. b. Apply Grades 11-12 Reading standards to literary nonfiction and/or informational texts (e.g., "Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., The Federalist, presidential addresses]").
RANGE OF WRITING	
W.11-12.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

SPEAKING AND LISTENING	
IDENTIFIER	STANDARD
COMPREHENSION AND COLLABORATION	
SL.11-12.1	Initiate and participate effectively in a range of collaborative conversations (one-on-one, in groups, and teacher-led) with diverse partners on Grades 11-12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively. a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas. b. Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed. c. Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives. d. Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.
SL.11-12.2	Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
SL.11-12.3	Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.
PRESENTATION OF KNOWLEDGE AND IDEAS	
SL.11-12.4	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
SL.11-12.5	Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
SL.11-12.6	Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate. (See Grades 11-12 Language standards 1 and 3 for specific expectations.)

LANGUAGE	
IDENTIFIER ▼	STANDARD ▼
CONVENTIONS OF STANDARD ENGLISH	
L.11-12.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested. b. Resolve issues of complex or contested usage, consulting references (e.g., Merriam-Webster's Dictionary of English Usage, Garner's Modern American Usage) as needed.
L.11-12.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Observe hyphenation conventions. b. Spell correctly.
KNOWLEDGE OF LANGUAGE	
L.11-12.3	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening. a. Vary syntax for effect, consulting references (e.g., Tufte's Artful Sentences) for guidance as needed; when analyzing complex texts, demonstrate an understanding of how syntax contributes to the purpose or meaning of the text.
VOCABULARY ACQUISITION AND USE	
L.11-12.4	Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on Grades 11-12 reading and content, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. b. Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., conceive, conception, conceivable). c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its standard usage. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

L.11-12.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Interpret figures of speech (e.g., hyperbole, paradox) in context and analyze their role in the text. b. Analyze nuances in the meaning of words with similar denotations.
L.11-12.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

ELA ELECTIVES

FOUNDATIONS OF JOURNALISM

Grades 9-12

.5 or 1 English Credit

Foundations of Journalism is intended as a general course to enhance students' communication and media literacy skills. It is a prerequisite for subsequent journalism courses. This course is designed to help students produce a factual, journalistically-sound piece of writing from interviews they conducted. By the end of this course, students should be able to produce a factual, journalistically-sound piece of writing from interviews they conducted. Students should also be able to create at least one accompanying visual element (photo/video) and publish their work (story + visual) to the web.

JOURNALISM	
IDENTIFIER	STANDARD
FOUNDATIONS OF JOURNALISM	
1	Develop an awareness of the history and role of journalism in Mississippi and in American society. a. Trace the historical development of media through American history, including but not limited to the following events/periods. • First newspaper in America • The Civil War and the rise of the telegraph • Yellow Journalism • Orson Welles and the power of radio • Kennedy/Nixon debate and the power of television • Cable News Network (CNN) starts 24-hour news cycle • Newspapers start websites and the rise of bloggers • Facebook, Twitter, and the social media revolution b. Identify famous Mississippi journalists/newspapers and their historical significance. c. Identify careers related to the field of journalism and new media.
2	Develop skills in gathering and evaluating information. a. Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text. (RL.9-10.2) b. Determine two or more themes or central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to produce a complex account; provide an objective summary of the text. (RL.11-12.2) c. Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text. (RI.9-10.2) d. Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account. (RI.9-10.7) e. Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning. (RI.9-10.8) f. Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem. (RI.11-12.7) g. Develop techniques in interviewing and note-taking, and interview sources from a list of developed questions. h. Develop techniques in researching and gathering background information for written reports.

3	Develop journalistic writing skills. a. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. (W.9-10.1) b. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence. (W.9-10.1a) c. Develop claim(s) and counterclaims fairly, supplying evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level and concerns. (W.9-10.1b) d. Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. (W.9-10.1c) e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. (W.9-10.1d) f. Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. (W.9-10.2) g. Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. (W.9-10.2a) h. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. (W.9-10.2b) i. Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. (W.9-10.2c) j. Use precise language and domain-specific vocabulary to manage the complexity of the topic. (W.9-10.12d) k. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. (W.9-10.2e) l. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation. (W.9-10.8) m. Identify news, elements of news, and news sources. n. Present facts without editorializing. o. Write stories with effective leads. p. Write stories that answer who, what, when, where, why, and how of a topic, using the basic inverted-pyramid structure of a news story. q. Recognize and develop categories of specialized writing including opinion, features, sports, blog posts, captions, broadcast reports, headlines, and yearbook. r. Use copy symbols and stylebook to proofread/copyedit writing for errors in content, organization, grammar, and accuracy.

4	Identify the legal and ethical principles associated with practicing media. a. Examine the Society of Professional Journalists' Code of Ethics. b. Identify court decisions and understand how they are relevant to student media, including but not limited to *Tinker vs. Des Moines School District (1969)* and *Hazelwood School District vs. Kuhlmeier (1988).* c. Understand the legal parameters of libel, slander, and copyright law.
5	Demonstrate use of video, photography, and design in media. a. Understand basic rules of layout and page design, including typography. b. Develop skills in photo journalism. c. Explore the basics of filming and video editing for journalism.
6	Demonstrate digital publishing and linking. a. Examine the ways that online content differs from print content. b. Publish stories in a digital format, such as blog. c. Insert links into online stories that add context or depth to coverage.
7	Demonstrate the role of advertising. a. Understand the role of advertising in the communications media. b. Understand professional techniques in writing and designing advertisements. c. Produce sample advertisements for local businesses.

ELA ELECTIVES

BROADCAST JOURNALISM

Grades 9-12

.5 or 1 English Credit

The Broadcast Journalism course provides students with quality academic instruction in television, radio, and video production by providing training in operating equipment, reporting and scriptwriting, as well as planning, directing, and producing video projects. This course is designed to help students produce a broadcast news show that includes anchor segments, field reports and feature segments. Students should select all content, write all scripts, and film and edit all video. Show(s) should be published to the web and available to the public.

Foundations of Journalism is a prerequisite for this class.

JOURNALISM	
IDENTIFIER	STANDARD
BROADCAST JOURNALISM	
1	Work individually and as a member of a team to produce original video/radio shows for school/community. a. Establish production parameters/vision and organize a plan for deadlines, division of labor, etc. b. Understand concepts of basic set design for a small studio news show. c. Assume a given role, such as reporter/writer, videographer, director/editor, producer, etc. d. Brainstorm ideas for coverage based on news value and assign projects accordingly. e. Deliver news show to students/community.
2	Plan and produce factual and informative audio/video packages for broadcast. a. Brainstorm, research, and storyboard packages before filming/writing. b. Film on-camera interviews and B-roll that capture all angles of a story. c. Use a combination of standard camera shots (close-up, medium, wide, establishing, cut-in, cut-away, etc.) d. Edit raw footage and audio into a meaningful sequence of events that complements a spoken, non-biased narration. e. Compose graphics and special effects that enhance (not distract from) reporting.
3	Write quality, informative scripts for broadcasts and packages. a. Distinguish between newspaper/magazine writing and broadcast writing (writing to be read vs. writing to be heard). b. Focus scriptwriting on informing an audience. Eliminate generalities and unnecessary words. Use short, simple, conversational narration that employs proper usage of Standard English. c. Identify people by title and full name on first reference. Use only last names in subsequent mentions. d. Speak coherently (verbally and non-verbally) and in harmony with the tone of the report, and continually refine presentation skills (voice quality, articulation, body language, and stage presence).
4	Operate basic video/audio production equipment. a. Explain the function of each type of production equipment. b. Operate and exhibit the correct use of cameras, tripods, hand-held/lavaliere microphones, audio mixers, graphics generators, and video editing software. c. Execute basic camera movements using a tripod. d. Use the basic structure of small studio lighting. e. Use relevant broadcasting terminology and establish it as the common language of studio. f. Demonstrate the concepts of headroom, nose room, lead room, and the Rule of Thirds.

5	Use industry-standard marketing techniques to sell advertisements and advance the publication's brand. a. Work with local groups and businesses to deign advertisements based on the customer's needs. b. Develop a marketing campaign for publication (with both digital and print elements).
6	Engage audience through the web, social media. a. Publish work to the web via streaming sites such as Vimeo, TeacherTube or YouTube, via podcast or on the school web site. b. Engage audience through social media, including but not limited to links to student content, breaking news reports, polls, and requests for feedback.
7	Evaluate broadcasts to determine areas for growth and improvement. a. Critique works of other students. b. Encourage other students, community members, and industry professionals to submit feedback.

ELA ELECTIVES

PRINT JOURNALISM

Grades 9-12

.5 or 1 English Credit

The Print Journalism course provides students with quality academic instruction in newspaper/yearbook/news-site production by providing training in reporting, writing, photography, design and equipment operation, as well as in leadership and management skills (necessary to plan and execute the publication process). This course is designed to help students produce a newspaper, news magazine, news website or yearbook that informs a defined audience of school and community news in a timely manner. Students should select all content, write all copy, photograph/design visual elements and manage their own website/social media accounts. Works should be published in some form (print or digital) and available to the public, either for free or for purchase.

JOURNALISM	
IDENTIFIER	STANDARD
PRINT JOURNALISM	
1	Work individually and as a member of a team to produce original student-run publications for the school/community. a. Establish production parameters/vision and organize a plan for deadlines, division of labor, etc. b. Assume a given role, such as reporter/writer, photographer, editor, etc. c. Identify ideas for coverage based on news value and assign work accordingly. d. Operate within parameters of standard legal and ethical practices.
2	Identify local topics of student interest/concern and gather information that informs/educates the audience. a. Gather background information via books, reports, the web, etc. b. Formulate a list of big-idea questions that need answering and seek out human sources that can answer them. c. Interview sources using a list of pre-prepared questions; eliminating items, adding others, and asking follow-up/clarifying questions as needed.
3	Demonstrate journalistic writing and editing skills through factual, non-biased coverage of events relevant to students. a. Structure stories as an inverted pyramid, with the major facts at the top of the story. Leads should be succinct and engaging. b. Focus writing on informing an audience. Eliminate generalities and unnecessary words. Use short, simple, conversational writing that employs proper usage of Standard English. c. Properly attribute quotes (direct and indirect) from outside sources. d. Demonstrate ability to clearly articulate opinions in staff editorials, columns, and reviews. These stories should be clearly marked as opinion/commentary. e. Use copy symbols and stylebook to proofread/copyedit writing for errors in content, organization, grammar, and accuracy.
4	Produce quality, consistent visual elements that advance the overall readability of the story, publication. a. Take quality photographs that capture the action and /or emotion of the event/topic. All photographs should be accompanied by an identifying caption. b. Develop a consistent layout/design that reflects the identify/theme of the online/print publication. This includes typography, artwork, modules, and copy.
5	Use industry-standard marketing techniques to sell advertisements and the publication’s brand. a. Work with local groups and businesses to design advertisements that meet the customer’s needs. b. Develop a marketing campaign for a publication (with both digital and print elements).

6	Engage audience through the web, social media. a. Publish work to the web via an independent staff site (recommended) or on the school web site. b. Engage audience through social media, including but not limited to links to student content, breaking news reports, polls, and requests for feedback.
7	Evaluate publications to identify areas for growth and improvement. a. Critique the work of other students. b. Encourage other students, community members, and industry professionals to submit feedback.

ELA ELECTIVES

MISSISSIPPI WRITERS

Grades 9-12

.5 or 1 English Credit

The Mississippi Writers course focuses on the state's rich literary heritage through the study of poetry, fiction, nonfiction, and drama. The course identifies major sources and themes of twentieth century and contemporary Mississippi writing. The student will recognize the contribution of Mississippi writers, such as William Faulkner, Eudora Welty, Richard Wright, Willie Morris, Anne Moody, etc., to twentieth century American writing and recognize that Mississippi writing is an expression of a particular place that achieves universality.

READING LITERATURE	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RL.11-12.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
RL.11-12.2	Determine two or more themes or central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to produce a complex account; provide an objective summary of the text.
RL.11-12.3	Analyze the impact of the author's choices regarding how to develop and relate elements of a story or drama (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed).
CRAFT AND STRUCTURE	
RL.11-12.4	Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful.
RL.11-12.5	Analyze how an author's choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact.
RL.11-12.6	Analyze a case in which grasping a point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement).
INTEGRATION OF KNOWLEDGE AND IDEAS	
RL.11-12.7	Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play or recorded novel or poetry), evaluating how each version interprets the source text.
RL.11-12.9	Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RL.11-12.10	By the end of Grade 12, read and comprehend literature, including stories, dramas, and poems, at the high end of the Grades 11-12 text complexity band independently and proficiently.

READING INFORMATIONAL TEXT	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RI.11-12.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
RI.11-12.2	Determine two or more central ideas of a text and analyze in detail their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an accurate summary of the text based upon this analysis.
RI.11-12.3	Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.
CRAFT AND STRUCTURE	
RI.11-12.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).
RI.11-12.5	Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.
RI.11-12.6	Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness, or beauty of the text.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RI.11-12.7	Integrate and evaluate multiple sources of information presented in different media or formats (e.g. visually, quantitatively) as well as in words in order to address a question or solve a problem.
RI.11-12.8	Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g. The Federalist, presidential addresses).
RI.11-12.9	Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance for their themes, purposes, and rhetorical features. Such documents might include The Declaration of Independence, the Preamble to the Constitution, the Bill of Rights, and Lincoln's Second Inaugural Address.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RI.11-12.10	By the end of Grade 12, read and comprehend literary nonfiction at the high end of the Grades 11-12 text complexity band independently and proficiently.

WRITING	
IDENTIFIER	STANDARD
TEXT TYPES AND PURPOSES	
W.11-12.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases. c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. e. Provide a concluding statement or section that follows from and supports the argument presented.
W.11-12.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. a. Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. c. Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. d. Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic. e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

W.11-12.3	Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences. a. Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events. b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters. c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution). d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters. e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.
PRODUCTION AND DISTRIBUTION OF WRITING	
W.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1-3 above).
W.11-12.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language Standards 1-3 up to and including Grades 11-12).
W.11-12.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
W.11-12.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and weaknesses of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

W.11-12.9	Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply Grades 11-12 Reading standards to literature (e.g., “Demonstrate knowledge of eighteenth-, nineteenth-, and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics”). b. Apply Grades 11-12 Reading standards to literary nonfiction and/or informational texts (e.g., “Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., The Federalist, presidential addresses]”).
RANGE OF WRITING	
W.11-12.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

ELA ELECTIVES

ORAL COMMUNICATION

Grades 9-12

.5 or 1 English Credit

This course includes instruction in how to acquire, analyze, and evaluate information in order to make decisions and establish satisfying relationships. Skill in oral communication helps the student to think logically, clearly, and creatively.

WRITING

IDENTIFIER	STANDARD
TEXT TYPES AND PURPOSES	
W.11-12.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases. c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. e. Provide a concluding statement or section that follows from and supports the argument presented.
W.11-12.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. a. Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. c. Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. d. Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic. e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

W.11-12.3	Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences. a. Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events. b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters. c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution). d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters. e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.
PRODUCTION AND DISTRIBUTION OF WRITING	
W.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1-3 above).
W.11-12.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language Standards 1-3 up to and including Grades 11-12).
W.11-12.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
W.11-12.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and weaknesses of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

W.11-12.9	Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply Grades 11-12 Reading standards to literature (e.g., “Demonstrate knowledge of eighteenth-, nineteenth-, and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics”). b. Apply Grades 11-12 Reading standards to literary nonfiction and/or informational texts (e.g., “Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., The Federalist, presidential addresses]”).
RANGE OF WRITING	
W.11-12.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

SPEAKING AND LISTENING

IDENTIFIER	STANDARD
COMPREHENSION AND COLLABORATION	
SL.11-12.1	Initiate and participate effectively in a range of collaborative conversations (one-on-one, in groups, and teacher-led) with diverse partners on Grades 11-12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively. a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas. b. Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed. c. Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives. d. Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.
SL.11-12.2	Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
SL.11-12.3	Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.
PRESENTATION OF KNOWLEDGE AND IDEAS	
SL.11-12.4	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
SL.11-12.5	Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
SL.11-12.6	Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate. (See Grades 11-12 Language standards 1 and 3 for specific expectations.)

ELA ELECTIVES

SURVEY OF AFRICAN AMERICAN WRITING

Grades 9-12

.5 or 1 English Credit

The Survey of African American Writing course is a survey course that draws upon a compilation of genres, themes, styles, and language used by various writers of African-American descent. The student will recognize and appreciate contributions of selected authors through reading, speaking, and viewing selected works and by researching and writing.

READING LITERATURE

IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RL.11-12.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
RL.11-12.2	Determine two or more themes or central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to produce a complex account; provide an objective summary of the text.
RL.11-12.3	Analyze the impact of the author's choices regarding how to develop and relate elements of a story or drama (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed).
CRAFT AND STRUCTURE	
RL.11-12.4	Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful.
RL.11-12.5	Analyze how an author's choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact.
RL.11-12.6	Analyze a case in which grasping a point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement).
INTEGRATION OF KNOWLEDGE AND IDEAS	
RL.11-12.7	Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play or recorded novel or poetry), evaluating how each version interprets the source text.
RL.11-12.9	Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RL.11-12.10	By the end of Grade 12, read and comprehend literature, including stories, dramas, and poems, at the high end of the Grades 11-12 text complexity band independently and proficiently.

READING INFORMATIONAL TEXT	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RI.11-12.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
RI.11-12.2	Determine two or more central ideas of a text and analyze in detail their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an accurate summary of the text based upon this analysis.
RI.11-12.3	Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.
CRAFT AND STRUCTURE	
RI.11-12.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).
RI.11-12.5	Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.
RI.11-12.6	Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness, or beauty of the text.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RI.11-12.7	Integrate and evaluate multiple sources of information presented in different media or formats (e.g. visually, quantitatively) as well as in words in order to address a question or solve a problem.
RI.11-12.8	Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g. The Federalist, presidential addresses).
RI.11-12.9	Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance for their themes, purposes, and rhetorical features. Such documents might include The Declaration of Independence, the Preamble to the Constitution, the Bill of Rights, and Lincoln's Second Inaugural Address.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RI.11-12.10	By the end of Grade 12, read and comprehend literary nonfiction at the high end of the Grades 11-12 text complexity band independently and proficiently.

WRITING

IDENTIFIER	STANDARD
TEXT TYPES AND PURPOSES	
W.11-12.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases. c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. e. Provide a concluding statement or section that follows from and supports the argument presented.
W.11-12.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. a. Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. c. Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. d. Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic. e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

W.11-12.3	Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences. a. Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events. b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters. c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution). d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters. e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.
PRODUCTION AND DISTRIBUTION OF WRITING	
W.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1-3 above).
W.11-12.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language Standards 1-3 up to and including Grades 11-12).
W.11-12.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
W.11-12.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and weaknesses of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

W.11-12.9	Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply Grades 11-12 Reading standards to literature (e.g., “Demonstrate knowledge of eighteenth-, nineteenth-, and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics”). b. Apply Grades 11-12 Reading standards to literary nonfiction and/or informational texts (e.g., “Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., The Federalist, presidential addresses]”).
RANGE OF WRITING	
W.11-12.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

ELA ELECTIVES

SURVEY OF TWENTIETH CENTURY WRITING

Grades 9-12

.5 or 1 English Credit

The Survey of Twentieth Century Writing course covers major writers and themes in the Americas and Western Europe for the period from World War I to the present time. The student will recognize major themes present in twentieth century writing and will draw parallels to history and present day concerns. As a result of this course, students will have a greater awareness of events and writings that have shaped and been part of the ideas and culture of the twentieth century.

READING LITERATURE

IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RL.11-12.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
RL.11-12.2	Determine two or more themes or central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to produce a complex account; provide an objective summary of the text.
RL.11-12.3	Analyze the impact of the author's choices regarding how to develop and relate elements of a story or drama (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed).
CRAFT AND STRUCTURE	
RL.11-12.4	Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful.
RL.11-12.5	Analyze how an author's choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact.
RL.11-12.6	Analyze a case in which grasping a point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement).
INTEGRATION OF KNOWLEDGE AND IDEAS	
RL.11-12.7	Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play or recorded novel or poetry), evaluating how each version interprets the source text.
RL.11-12.9	Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RL.11-12.10	By the end of Grade 12, read and comprehend literature, including stories, dramas, and poems, at the high end of the Grades 11-12 text complexity band independently and proficiently.

READING INFORMATIONAL TEXT	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RI.11-12.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
RI.11-12.2	Determine two or more central ideas of a text and analyze in detail their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an accurate summary of the text based upon this analysis.
RI.11-12.3	Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.
CRAFT AND STRUCTURE	
RI.11-12.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).
RI.11-12.5	Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.
RI.11-12.6	Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness, or beauty of the text.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RI.11-12.7	Integrate and evaluate multiple sources of information presented in different media or formats (e.g. visually, quantitatively) as well as in words in order to address a question or solve a problem.
RI.11-12.8	Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g. The Federalist, presidential addresses).
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RI.11-12.10	By the end of Grade 12, read and comprehend literary nonfiction at the high end of the Grades 11-12 text complexity band independently and proficiently.

WRITING	
IDENTIFIER	STANDARD
TEXT TYPES AND PURPOSES	
W.11-12.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases. c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. e. Provide a concluding statement or section that follows from and supports the argument presented.
W.11-12.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. a. Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. c. Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. d. Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic. e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

W.11-12.3	Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences. a. Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events. b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters. c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution). d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters. e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.
PRODUCTION AND DISTRIBUTION OF WRITING	
W.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1-3 above).
W.11-12.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language Standards 1-3 up to and including Grades 11-12).
W.11-12.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
W.11-12.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and weaknesses of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

W.11-12.9	Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply Grades 11-12 Reading standards to literature (e.g., "Demonstrate knowledge of eighteenth-, nineteenth-, and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics"). b. Apply Grades 11-12 Reading standards to literary nonfiction and/or informational texts (e.g., "Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., The Federalist, presidential addresses]").
RANGE OF WRITING	
W.11-12.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

ELA ELECTIVES

TECHNICAL AND WORKPLACE WRITING

Grades 9-12

.5 or 1 English Credit

The Technical and Workplace Writing course focuses on the various kinds of written communication currently occurring in a variety of workplaces and careers. In this course, students examine actual examples of written materials produced to communicate within the workplace as well as outside the workplace for the customer and general public. Through reviewing examples and through instruction, students will gain a sense of general principles of communication, learn how audience and purpose shape the form and content of the written piece, and discern how organization, wording, accuracy and specificity of details, typography, visuals, design, grammar, usage, and mechanics contribute to effective communication.

Students will apply what they have learned by creating a variety of kinds of written communication. Since conveying information is at the heart of much of workplace and technical writing, students will practice gathering information through research as well as communicate information through various kinds of writing.

The course should be taught so that it offers challenge. Writings should include pieces requiring more sophistication or complexity: delivering or justifying news or a stance, persuading or manipulating the reader's opinions or emotions, and explaining complex processes. Students will produce individual pieces as well as participate in group review of their writings. Through these experiences of working with others, they will practice the language skills of explaining, persuading, and negotiating, and learn the importance and effect of their words.

READING INFORMATIONAL TEXT

IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RI.11-12.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
RI.11-12.2	Determine two or more central ideas of a text and analyze in detail their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an accurate summary of the text based upon this analysis.
RI.11-12.3	Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.
CRAFT AND STRUCTURE	
RI.11-12.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).
RI.11-12.5	Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.
RI.11-12.6	Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness, or beauty of the text.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RI.11-12.7	Integrate and evaluate multiple sources of information presented in different media or formats (e.g. visually, quantitatively) as well as in words in order to address a question or solve a problem.
RI.11-12.8	Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g. The Federalist, presidential addresses).
RI.11-12.9	Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance for their themes, purposes, and rhetorical features. Such documents might include The Declaration of Independence, the Preamble to the Constitution, the Bill of Rights, and Lincoln's Second Inaugural Address.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RI.11-12.10	By the end of Grade 12, read and comprehend literary nonfiction at the high end of the Grades 11-12 text complexity band independently and proficiently.

WRITING	
IDENTIFIER	STANDARD
TEXT TYPES AND PURPOSES	
W.11-12.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases. c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. e. Provide a concluding statement or section that follows from and supports the argument presented.
W.11-12.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. a. Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. c. Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. d. Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic. e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

PRODUCTION AND DISTRIBUTION OF WRITING	
W.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1-3 above).
W.11-12.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language Standards 1-3 up to and including Grades 11-12).
W.11-12.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
W.11-12.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and weaknesses of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
W.11-12.9	Draw evidence from literary or informational texts to support analysis, reflection, and research. b. Apply Grades 11-12 Reading standards to literary nonfiction and/or informational texts (e.g., “Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., The Federalist, presidential addresses]”).
RANGE OF WRITING	
W.11-12.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

LANGUAGE	
IDENTIFIER	STANDARD
CONVENTIONS OF STANDARD ENGLISH	
L.11-12.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested. b. Resolve issues of complex or contested usage, consulting references (e.g., Merriam-Webster's Dictionary of English Usage, Garner's Modern American Usage) as needed.
L.11-12.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Observe hyphenation conventions. b. Spell correctly.
KNOWLEDGE OF LANGUAGE	
L.11-12.3	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening. a. Vary syntax for effect, consulting references (e.g., Tufte's Artful Sentences) for guidance as needed; when analyzing complex texts, demonstrate an understanding of how syntax contributes to the purpose or meaning of the text.
VOCABULARY ACQUISITION AND USE	
L.11-12.4	Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on Grades 11-12 reading and content, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. b. Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., conceive, conception, conceivable). c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its standard usage. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

L.11-12.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Interpret figures of speech (e.g., hyperbole, paradox) in context and analyze their role in the text. b. Analyze nuances in the meaning of words with similar denotations.
L.11-12.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

ELA ELECTIVES

WORLD LITERATURE

Grades 9-12

.5 or 1 English Credit

The World Literature course is an examination of literary works that have contributed significantly to the thinking of humankind and have contributed greatly to various cultures. In this course, students will read a variety of masterpieces and influential literary works. The course may be organized by theme, genre, or chronology. The one-semester World Literature course may focus mainly on one time period or span centuries to show the range of literary heritage, whereas the one-year course will require reading of literature from the ancient classical period to the twentieth century. In either case, the teacher will need to determine whether the course will include mainly one or two genres or cover many genres, such as plays, poetry, novels, and short stories. The teacher also has the freedom to determine the particular countries and cultures that the works will represent. In the one-semester course, however, at least one work should be chosen to represent the literature of each: (a) Classical Greece or Rome, (b) Great Britain, (c) Europe, (d) the Americas, and (e) either Asia or Africa.

READING LITERATURE	
IDENTIFIER	STANDARD
KEY IDEAS AND DETAILS	
RL.9-10.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RL.9-10.2	Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.
RL.9-10.3	Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme.
CRAFT AND STRUCTURE	
RL.9-10.4	Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone).
RL.9-10.5	Analyze how an author's choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise.
RL.9-10.6	Analyze a particular point of view or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature.
INTEGRATION OF KNOWLEDGE AND IDEAS	
RL.9-10.7	Analyze the representation of a subject or a key scene in two different artistic mediums, including what is emphasized or absent in each treatment (e.g., Auden's "Musée des Beaux Arts" and Breughel's Landscape with the Fall of Icarus).
RL.9-10.9	Analyze how an author draws on and transforms source material in a specific work (e.g. how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare).
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY	
RL.9-10.10	By the end of Grade 9, read and comprehend literature, including stories, dramas, and poems, in the Grades 9-10 text complexity band proficiently, with scaffolding as needed at the high end of the range.

WRITING	
IDENTIFIER	STANDARD
TEXT TYPES AND PURPOSES	
W.9-10.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. a. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counterclaims fairly, supplying evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level and concerns. c. Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. e. Provide a concluding statement or section that follows from and supports the argument presented.
W.9-10.2	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. a. Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. c. Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. d. Use precise language and domain-specific vocabulary to manage the complexity of the topic. e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
W.9-10.3	Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences. a. Engage and orient the reader by setting out a problem, situation, or observation, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events. b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.

	c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole. d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters. e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.
PRODUCTION AND DISTRIBUTION OF WRITING	
W.9-10.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1-3 above).
W.9-10.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language Standards 1-3 up to and including Grades 9-10).
W.9-10.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.
RESEARCH TO BUILD AND PRESENT KNOWLEDGE	
W.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.9-10.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
W.9-10.9	Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply grades 9–10 Reading standards to literature (e.g., "Analyze how an author draws on and transforms source material in a specific work [e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare]").
RANGE OF WRITING	
W.9-10.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

SREB COURSES

SREB ESSENTIALS FOR COLLEGE LITERACY

Grade 12

1 English Credit

The Southern Region Education Board (SREB) Essentials for College Literacy Course is a one-credit course for students classified as seniors, with an ACT sub-score of **15-18** in English or Reading. An exception may be made for students classified as juniors who are planning to graduate prior to the spring of their senior year.

The Readiness Courses are designed to assist students who are preparing for postsecondary education—meaning they do not reach the state's college- and career-readiness benchmarks on either the ACT, SAT, or other assessment—to become prepared and reach those benchmarks.

This course is best suited for the middle range of students, not those who can succeed in Advanced Placement courses or who are severely behind. The course is built with rigor, innovative instructional strategies, and a concentration on contextual learning that departs from procedural memorization and focuses on engaging the students in a real-world context. The course provides literacy strategies that allow students to read and comprehend all manner of texts and genres in every core discipline. In short, this course targets students with weaknesses and college-ready skill gaps and re-educate them in new ways to ensure they are prepared for postsecondary-level pursuits.

The course is available free of charge to any district, school or teacher who wishes to download it from the SREB website, after a simple registration process. The full course and additional resources, including informational publications, policy briefs, state information and slide presentations, is also available on the website at SREB.org/Ready.

For additional information pertaining specifically to this course, see the *Essentials for College Math and Essentials for College Literacy Requirements MS State Board Policy Manual*: *Rule 28.6*, *and the Mississippi Institutions for Higher Learning Policy 608*.

SREB LITERACY READY

Grade 12

1 English Credit

The Southern Region Education Board (SREB) Literacy Ready Course is a one-credit course for students classified as seniors, with an ACT sub-score **below 15** in English or Reading. An exception may be made for students classified as juniors who are planning to graduate prior to the spring of their senior year.

The Readiness Courses are designed to assist students who are preparing for postsecondary education—meaning they do not reach the state's college- and career-readiness benchmarks on either the ACT, SAT, or other assessment—to become prepared and reach those benchmarks.

This course is best suited for students who are severely behind. The course is built with rigor, innovative instructional strategies, and a concentration on contextual learning that departs from procedural memorization and focuses on engaging the students in a real-world context. The course provides literacy strategies that allow students to read and comprehend all manner of texts and genres in every core discipline. In short, this course targets students with weaknesses and college-ready skill gaps and re-educate them in new ways to ensure they are prepared for postsecondary-level pursuits.

The course is available free of charge to any district, school or teacher who wishes to download it from the SREB website, after a simple registration process. The full course and additional resources, including informational publications, policy briefs, state information and slide presentations, is also available on the website at *https://SREB.org/Ready* .

SREB READY FOR HIGH SCHOOL LITERACY

Grades 8-9

1 English Credit

The Southern Region Education Board (SREB) Ready for High School Literacy Course is a one-credit course for students classified as eighth or ninth graders,

The Ready for High School Literacy Course is designed to strengthen underprepared students as they enter high school, setting them on the path to success and increasing their prospects for graduation.

This course utilizes a disciplinary literacy approach that teaches students strategies for reading and understanding complex texts in different subject areas. Students learn to develop and defend ideas, both orally and in writing, in high school-level subjects such as English, history, and science. The unit structure conforms to the framework of the Literacy Design Collaborative, which addresses college- and career-readiness standards.

The course is available free of charge to any district, school or teacher who wishes to download it from the SREB website, after a simple registration process. The full course and additional resources, including informational publications, policy briefs, state information and slide presentations, is also available on the website at *https://SREB.org/Ready* .

ADVANCED PLACEMENT

AP: ENGLISH LANGUAGE AND COMPOSITION

Grades 10-12

1 English Credit

The College Board, a national organization, sponsors this course, through which college credit may be earned if the student chooses to take and passes the AP examination and if the college in question accepts the credit.

The AP English Language and Composition course will satisfy requirements for English III.

An AP Course in English Language and Composition engages students in becoming skilled readers of prose written in a variety of rhetorical contexts, and in becoming skilled writers who compose for a variety of purposes. Both their writing and their reading should make students aware of the interactions among a writer's purposes, audience expectations, and subjects, as well as the way genre conventions and the resources of language contribute to effectiveness in writing.

To teach this course for the first time or for information, teachers should contact their principal, guidance counselor, or AP coordinator at their school.

For more information on this course, visit *https://apcentral.collegeboard.org/courses/ap-english-language-and-composition*.

AP: ENGLISH LITERATURE AND COMPOSITION

Grades 10-12

1 English Credit

The College Board, a national organization, sponsors this course, through which college credit may be earned if the student chooses to take and passes the AP examination and if the college in question accepts the credit.

The AP English Language and Composition course will satisfy requirements for English IV.

An AP Course in English Language and Composition engages students in the careful reading and critical analysis of imaginative literature. Through the close reading of selected texts, students deepened their understanding of the ways writers use language to provide both meaning and pleasure for their readers. As they read, students consider a work's structure, style and themes, as well as such smaller-scale elements as the use of figurative language, imagery, symbolism, and tone.

To teach this course for the first time or for information, teachers should contact their principal, guidance counselor, or AP coordinator at their school.

For more information on this course, visit *https://apcentral.collegeboard.org/courses/ap-english-literature-and-composition*.

DUAL CREDIT

DUAL CREDIT COURSES

Grades 11-12

1 English Credit

The purpose of the Dual Enrollment and Dual Credit Program is to offer structured opportunities for qualified high school students to simultaneously enroll in college courses at Mississippi (public) Institutions of Higher Learning (IHLs) or Mississippi Community or Junior Colleges (CJCs) that provide pathways leading to academic or career and technical postsecondary credit. (see *Mississippi Code Title* 37, *§ 37-15-38*)

A student enrolled in a community college or state institution of higher learning while enrolled in high school, a "dual credit student", receives both high school and postsecondary credit for coursework regardless of the course location (high school campus, postsecondary campus, or online). One three-hour postsecondary course is equal to one high school Carnegie unit.

Dual credit courses must be credit-bearing courses at both the high school and postsecondary institution with a minimum of three (3) semester hours credit and shall be limited to the list of articulated courses found in Appendix V of the current *Procedures Manual of the State of Mississippi Dual Enrollment and Accelerated Programs* document.

For the most current guidelines for student and program eligibility for Dual Enrollment and Dual Credit programs, visit:

https://mdek12.org/secondaryeducation/accelerated-programs/

http://www.mississippi.edu/cjc/dual_enrollment.asp

Procedures Manual for the State of Mississippi Dual Enrollment and Accelerated Programs

English Language Arts Dual Credit Course Options

The following ELA courses are identified in the list of articulated courses in Appendix V of the *Procedures Manual of the State of Mississippi Dual Enrollment and Accelerated Programs (2024-2025)*. Additional courses may be available, based on local offerings. For specifics on Dual Credit and Dual Enrollment options, contact the local partnering postsecondary institution for detailed student learning outcomes and course syllabus information.

ENG 1113 – English Composition I

ENG 1113 – English Composition II

ENG 2223 – American Literature I

ENG 2233 – American Literature II

ENG 2323 – British Literature I

ENG 2333 – British Literature II

ENG 2423 – World Literature I

ENG 2433 – World Literature II

ENG 2523 – African American Literature I

SPT 1113 – Speech

SUPPLEMENTAL ENGLISH

SUPPLEMENTAL ENGLISH I

.5 or 1 English Credit

This course, previously known as Compensatory English I, is for students in need of instructional support, intervention, or remediation. Students may be enrolled in the Supplemental English I course under the following stipulations:

The Supplemental course:

1. Must be taken in concert with MS CCRS English I;
2. Includes content supportive of the accompanying English I course, and;
3. May be taken as an elective, but will not satisfy the number of Carnegie units in English required for graduation.

SUPPLEMENTAL ENGLISH II

.5 or 1 English Credit

This course, previously known as Compensatory English II, is for students in need of instructional support, intervention, or remediation. Students may be enrolled in the Supplemental English I course under the following stipulations:

The Supplemental course:

1. Must be taken in concert with MS CCRS English II;
2. Includes content supportive of the accompanying English II course, and;
3. May be taken as an elective, but will not satisfy the number of Carnegie units in English required for graduation.

SUPPLEMENTAL ENGLISH III

.5 or 1 English Credit

This course, previously known as Compensatory English III, is for students in need of instructional support, intervention, or remediation. Students may be enrolled in the Supplemental English I course under the following stipulations:

The Supplemental course:

1. Must be taken in concert with MS CCRS English III;
2. Includes content supportive of the accompanying English I course or other credit bearing English course, and;
3. May be taken as an elective, but will not satisfy the number of Carnegie units in English required for graduation.

SUPPLEMENTAL ENGLISH IV

.5 or 1 English Credit

This course, previously known as Compensatory English IV, is for students in need of instructional support, intervention, or remediation. Students may be enrolled in the Supplemental English I course under the following stipulations:

The Supplemental course:

1. Must be taken in concert with MS CCRS English IV;
2. Includes content supportive of the accompanying English IV or other credit bearing English course, and;
3. May be taken as an elective, but will not satisfy the number of Carnegie units in English required for graduation.

2025
MS CCRS
ENGLISH LANGUAGE ARTS

▶ APPENDICES

APPENDIX A

GLOSSARY	
TERM	**DEFINITION**
A	
Absolute phrase	A noun phrase with one modifier, often a participial phrase, following the noun headword; an absolute phrase can explain a cause or condition: Ex: The temperature having dropped suddenly, we decided to build a fire in the fireplace, Or it can add a detail or a point of focus: Ex: The children rushed out the schoolhouse door, their voices filling the playground with shouts of freedom.
Adages/proverbs	Short sayings that describe what is perceived to be an important fact or familiar wisdom.
Adjectival	Any structure (word, phrase, or clause) that fills the role of an adjective and functions as an adjective normally does, modifying a noun. Ex: <u>The</u> <u>house on the corner</u> is new.
Adverbial	Any structure (word, phrase, or clause) that functions as a modifier of a verb and fills the role of an adverb. Ex: We drove <u>to the airport to pick up Uncle Louie</u>. *To the airport* is an adverbial prepositional phrase and *to pick up Uncle Louie* is an adverbial infinitive phrase, both modifying the verb *drove*.
Affix	A morpheme or a meaningful part of a word that is attached before or after a root to modify its meaning; a category that includes prefixes, suffixes, and infixes.
Alliteration	The repetition of initial consonant sounds in words such as *Peter Piper picked*.
Allusion	Reference to a mythological, literary, or historical person, place, or thing.
Alternate claim	A statement that supports the same overall concept as the original claim but with a different goal.
Analogy	Comparison of two things to illustrate common aspects.

Anecdote	A short and interesting story or an amusing event delivered to demonstrate a point and make readers or listeners laugh.
Aphorism	A statement of some general principle expressed memorably by condensing a large amount of wisdom into very few words. Ex: "Give a man a mask and he will tell you the truth" (Wilde).
Argument	A logical way of presenting a belief, conclusion, or stance. Effective arguments are supported by reasoning and evidence.
Audience	A writer's targeted reader or readers.
Author's purpose	An author's main reason for writing. A writer's purpose may be to entertain, to inform, to persuade, to teach a moral lesson, or to reflect on an experience. An author may have more than one purpose for writing.
Autobiography	A written account of an author's own life.
B	
Biography	An account of a person's life written by another person.
Blending	Combining parts of a spoken word into a whole representation of the word. For example, /p/ /oo/ /l/ can be blended together to form the word pool.
C	
Cause and effect	Text structure in which the author presents one or more causes and then describes the resulting effects.
Central message (central idea)	The main idea of a fictional text; the central message may be directly stated or implied.
Chronology	Text structure in which the author uses numerical or chronological order to present items or events.
Claim	An arguable statement that a writer asks a reader to accept.
Clause	A word group consisting of a subject and predicate.
Coherence	Continuity of meaning that enables others to make sense of a text.
Collaborative conversations	Opportunities for students to interact with a wide range of their peers to reflect on their own ideas, to reflect on the ideas of others, and to practice using academic language.
Comparative adjectives and adverbs	Adjectives or adverbs used to compare one person, thing, or group with another person, thing, or group.
Comparison and contrast	Text structure in which the author compares and contrasts two or more similar events, topics, or objects.

Concrete words and phrases	Words or phrases used to describe characteristics and/or qualities that can be perceived through the senses.
Conflict	A struggle or clash between opposing characters, forces, or emotions.
Conjunctive adverb	A conjunction with an adverbial emphasis that connects two clauses. Common conjunctive adverbs are *however, therefore, nevertheless, and moreover*. Ex: Chocolate is delicious; <u>however</u>, I try my best to stay away from it.
Connotation	Implicit rather than explicit meaning of a word. It consists of the suggestions, associations, and emotional overtones attached to a word.
Consonant-Vowel-Consonant (CVC) words	An example of a continuum of word type classified according to the level of decoding difficulty. CVC words are easily decodable. Ex: bat, mat, dog, pig.
Context	The language that surrounds a given word or phrase (linguistic context) or the field of meaningful associations that surround a given word or phrase (experiential context).
Conventions	The surface features of writing, including mechanics, usage, and sentence formation.
Coordinating conjunction	Used to show a relationship between words, phrases, or clauses. Ex: 1) The flag was red, white, <u>and</u> blue; 2) Small <u>but</u> strong, Jamie won first place.
Correlative conjunction	Conjunction used to join words, phrases, or clauses. Ex: <u>Either</u> Mary <u>or</u> Tori will cook dinner.
D	
Decoding	Using knowledge of the conventions of spelling-sound relationships and knowledge about pronunciation of irregular words to derive a pronunciation of written words.
Demonstratives	Demonstrative pronouns and demonstrative adjectives modify nouns. Demonstrative adjectives indicate exactly which noun the speaker is referencing and where it is relative to the position of the speaker. Ex: <u>These</u> shoes are uncomfortable. Demonstrative pronouns take the place of a noun phrase. Ex: The bread you are eating is made from wheat. →<u>That</u> is made from wheat.
Denotation	Exact, literal definition of a word independent of any emotional association or secondary meaning.
Dependent clause	A clause that fills a role in a sentence (such as adverbial, adjectival, or nominal) and that cannot stand independently as a sentence. Ex: *He climbed <u>until he was exhausted</u>* (adverbial clause); *I wonder <u>where I put my keys</u>* (nominal clause functioning as a direct object).
Derivational suffix	A type of bound morpheme; a suffix, such as –ity, -ive, and – ly, that can change the part of speech of the root or base word to which it is added.

Description	Text structure that presents a topic, along with the attributes, specifics, or setting information that describes that topic.
Detail	Fact revealed by the author or speaker that supports the attitude or tone in a piece of poetry or prose. In informational texts, details provide information to support the author's main point.
Determiner	A structure-class word that marks or signals a noun; appears as the first word in a noun phrase before the noun and before any modifiers in the phrase. Ex: The telephone is a necessary invention.
Dialect	A distinctive variety of a language spoken by members of an identifiable regional group, nation, etc.
Dialogue	Spoken exchanges between characters in a dramatic or literary work, usually between two or more speakers.
Dictating	The process of writing down what someone else has said; a way for a parent or teacher to record a child's ideas when the writing demands surpass the child's writing skills.
Domain specific vocabulary	Words that are specific to a domain or field of study and key to understanding a new concept within a text. These words are often referred to as Tier Three words.
Drama	The general term for performances in which actors impersonate the actions and speech of fictional or historical characters (or non-human entities) for the entertainment of an audience, either on a stage or by means of a broadcast.
E	
Emergent literacy and emergent reader texts	The skills, knowledge, and attitudes that are developmental precursors to conventional forms of reading and writing; emergent reader texts support the acquisition of these skills.
Euphemism	A mild or indirect word or expression substituted for one considered to be too harsh or blunt when referring to something unpleasant or embarrassing.
Evidence	Supporting information a writer or speaker uses to prove a claim.
Explicit textual evidence	Information that is directly stated in a text.
Exposition	One of the classifications of discourse whose function is to inform, to instruct, or to present ideas and general truths. Exposition presents information, provides explanations and definitions, and compares and contrasts.
F	
Fable	Brief story that teaches a moral or practical lesson about life.

Fantasy	Story employing imaginary characters living in fictional settings where the rules of the real world are altered for effect.
Fiction	Imaginative literary works representing invented rather than actual persons, places, and/or events.
Figurative language	An expression that departs from the accepted literal sense or from the normal order of words; an extension of this definition includes the use of sound for emphasis, including onomatopoeia, alliteration, assonance, and consonance.
Firsthand account	An event or topic based on an author's personal experience. Examples include diaries, autobiographies, and letters.
Firsthand narration	Narration in which the narrator is either involved in or witnesses the events in a story.
Flashback	Scene that interrupts the action of a work to show a previous event.
Fluency	In reading, fluency refers to the ability to read with sufficient speed to support understanding.
Folktale	Short story from the oral tradition that reflects the mores and beliefs of a particular culture.
Formal English	A writing or speaking style characterized by traditional grammatical structure and conservative vocabulary.
G	
Genre	Category used to classify literary and other works by form, technique, or content.
Grammar:	The system and structure of a language.
Grapheme	A letter or letter combination that spells a phoneme; can be one, two, three, or four letters in English. (Ex: e, ei, igh, eigh).
Graphic	Pictorial representation of data or ideas using columns, matrices, or other formats.
H	
High frequency words	A small group of words (300-500) that account for a large percentage of the words in print and can be regular or irregular words (i.e., Dolch or Fry). Often, they are referred to as "sight words" since automatic recognition of these words is required for fluent reading.

I	
Idiom	a phrase or expression that differs from the literal meaning of the words. Ex: It's time to let the cat out of the bag.
Imagery	Multiple words or a continuous phrase that a writer uses to represent persons, objects, actions, feelings, and ideas descriptively by appealing to the senses.
Independent clause	A clause that can stand by itself as a simple sentence, can be combined with one or more independent clauses in a compound sentence, and can serve as the main clause in a complex sentence**.** **Ex:** **The roof leaks.** **The roof leaks, and the floor sags. Whenever it rains, the roof leaks.**
Inflection	A type of bound morpheme; a grammatical ending that does not change the part of speech of a word but marks its tense, number, or degree in English (e.g., -s, -ed, -ing).
Inference	Act or process of deriving logical conclusions from premises known or assumed to be true; the conclusions drawn from this process.
Informal discourse	Language characterized by non-technical vocabulary, simple sentence structure, and less formal language.
Informational texts	Nonfiction texts that contain facts and information; also referred to as expository texts.
Introductory elements	Clauses, phrases, and words that appear before the main clause in a sentence.
Irony	Tension that arises from the discrepancy, either between what one says and what one means (verbal irony), between what a character believes and what a reader knows (dramatic irony), or between what occurs and what one expects to occur (situational irony).
Irregular verb	A verb that does not form its past tense and past participle by adding –ed, -d, or –t, as regular verbs do. Ex: sing, sang, sung; go, went, gone.
L	
Literary heritage	Works by authors whose writing influenced and continues to influence the public language, thinking, history, literary culture, and politics of a nation. These works comprise the literary and intellectual capital drawn on by later writers.

Letter sound correspondence (also sound symbol correspondences):	The rules and patterns by which letters and letter combinations represent speech sounds.
Literary nonfiction	Text that conveys factual information. The text may or may not employ a narrative structure and characteristics such as dialogue. Additionally, literary nonfiction may also persuade, inform, explain, describe, or amuse.
M	
Main idea	The central thought of a nonfiction text.
Memoir	Type of autobiography that usually focuses on a single time period or historical event.
Metaphor	A thing, idea, or action referred to by a word or expression normally reserved for another thing, idea, or action to suggest a common quality shared between the two. Ex: “All the world’s a stage…”
Meter	The measured pattern of rhythmic accents in poems.
Modal auxiliary verb	A verb that combines with another verb to indicate mood or tense. Ex: I will go to the doctor next week.
Mood (a):	The form of a verb that indicates the writer’s attitude toward a statement as it is made. Ex: I wish I could go.
Mood (b):	Atmosphere or predominant emotion in a literary work.
Morphology	The study of the meaningful units in a language and how they are combined in word formation.
Motivation	Circumstance or set of circumstances that prompt a character to act a certain way or that determine the outcome of a situation.
Multi-syllabic words	Words with more than one syllable. The average number of syllables in the words students read should increase steadily throughout the grades.
Myth	Traditional story accepted as history, which serves to explain the worldview of a people, usually in supernatural or imaginative terms.
Mythology	A body of related myths most often regarded as fictional stories containing deeper truths.

N	
Narration	The process of relating a sequence of events.
Narrative	A story about fictional or real events.
Narrator	One who tells, or is assumed to be telling, the story in a given narrative.
Nuance	A subtle difference in meaning, expression, or sound.
O	
Onset-rime	The natural division of a syllable into two parts, the onset coming before the vowel and the rime including the vowel and what follows it (e.g., pl-an, shr-ill).
Opinion piece	Writing in which a personal opinion is expressed about a topic. As grade levels progress, the writer must support a point of view with reasons and/or information.
Opposing claim	A statement that is the opposite of an original claim.
Oxymoron	A figure of speech that combines two usually contradictory terms in a compressed paradox, as in the word *bittersweet* or the phrase *living death*.
P	
Pace	The speed and rhythm at which the events unfold in a story or scene. A variety of devices, such as structure and word choice, are used to control the speed and rhythm of a story or scene, and how quickly the story unfolds depends upon the needs of the story. A story unfolds more quickly during more intense scenes and within short stories or adventure stories.
Paradox	A statement or expression so surprisingly self-contradictory as to provoke the reader into seeking another sense or context in which it would be true. Wordsworth's line "the Child is the father of the Man" and Shakespeare's "the truest poetry is the most feigning" are literary examples.
Parallel plots	Correspondences between larger elements of dramatic or narrative works, such as the relation of a subplot, usually involving characters of lesser importance (and often of lower social status), to the main plot.
Parallel structure/Parallelism	Two or more of the same grammatical structures that are coordinated and given equal weight.
Paraphrase	A reader's own version of a writer's essential information.
Participial	A present or past participle together with its subject or complements and/or modifiers. Ex: <u>*Still clutching their pizza in their hands*</u>, *the kids left the room.*

Participle	The verb forms that appear in verb phrases after the auxiliary verbs *to be*, as in *I was* *eating* (present participle), and *to have*, as in *I have eaten* (past participle). Participle is also the term used to refer to the present or past participle in its role as an adjectival, as a modifier in a noun phrase. *The band members, wearing their snazzy new uniforms, proudly marched onto the field*.
Personification	Metaphor that gives inanimate objects or abstract ideas human characteristics.
Perspective	Position, stance, or viewpoint from which something is considered or evaluated.
Persuasion (persuasive writing):	Form of discourse whose function is to convince an audience or to prove or refute a point of view of an issue.
Phoneme	A speech sound that combines with others in a language system to make words; English has 40 to 44 phonemes, according to various linguists.
Phoneme isolation	Recognizing individual sounds in a word (e.g., /p/ is the first sound in the word *pan*).
Phonemic awareness	The ability to notice, think about, or manipulate the individual phonemes (sounds) in words. It is the ability to understand that sounds in spoken language work together to make words. This term is used to refer to the highest level of phonological awareness: awareness of individual phonemes in words.
Phonetic spelling	The process of listening for each sound in a word and representing each sound with a letter or combination of letters.
Phonics	The study of the relationships between letters and the sounds they represent; the term is also used as a descriptor for code-based instruction in reading.
Phonological awareness	One's sensitivity to, or explicit awareness of, the phonological structure of words in one's language. This is an "umbrella" term that is used to refer to a student's sensitivity to any aspect of phonological structure in language. It encompasses awareness of individual words in sentences, syllables, and onset-rime segments as well as awareness of individual phonemes.
Plagiarism	The theft of ideas (such as the plots of narrative or dramatic works) or of written passages or works, where these are passed off as one's own work without acknowledgement of their true origin. Plagiarism is not easily separable from imitation, adaptation, or pastiche, but is usually distinguished by its dishonest intention.
Plot	Sequence of events or actions in a short story, novel, or narrative poem.

Point of View	Perspective or vantage point from which a literary work is told or the way in which the author reveals characters, actions, and ideas.
Precise language	Vivid, descriptive words that describe a topic.
Prefix	A morpheme that precedes a root and that contributes to or modifies the meaning of a word.
Problem/Solution	Text structure in which the main ideas are organized into two parts: a problem and a subsequent solution that responds to the problem, or a question and an answer that responds to the question.
Procedural text	Text that conveys information in the form of directions for accomplishing a task. A distinguishing characteristic of this text type is that it is composed of discrete steps to be performed in a strict sequence with an implicit end product or goal.
Progressive verb form	A verb form that indicates a continuing action or one that was in progress when something else occurred; consists of some form of the auxiliary verb *be* followed by a verb with *ing* on the end.
Prompting	Questions posed during reading to check for understanding.
Prose	A form of language that has no formal metrical structure. It applies a natural flow of speech rather than rhythmic structure.
Pronoun-antecedent agreement	Correspondence in gender and number between a pronoun and the word or word group to which a pronoun refers.
Purpose	Specific reason or reasons for writing. Purpose conveys what the readers have to gain by reading the selection; it is also the objective or the goal that the writer wishes to establish.
R	
Rate	The speed at which a person reads.
Reason	The logical support behind an argument.
Relative adverbs	Adverbs that introduce relative clauses. The most common relative adverbs are <u>where</u>, <u>when</u>, and <u>why</u>.
Relative clause	A dependent clause that provides more information about a noun.
Relative pronouns	Pronouns that introduce relative clauses. The most common relative pronouns are <u>who</u>, <u>whom</u>, <u>whose</u>, <u>which</u>, and <u>that</u>.
Regular verb	A verb that forms its past tense and participle by the addition of –d or –ed to the present tense form.
Retelling	Recalling the content of what was read or heard.

Repetition	Deliberate use of any element of language more than once: sound, word, phrase, sentence, grammatical pattern, or rhythmical pattern.
Rhetoric	The art of using words to persuade in writing or speaking. Writers frequently use three modes of persuasion: **ethos** (persuasive appeal based on the character and credibility of the writer or speaker) **pathos** (persuasion by an appeal to emotion), and **logos** (persuasion by an appeal to logic).
Rhetorical devices and features	Techniques used by a writer to persuade an audience.
Rhyme	Repetition of sounds in two or more words or phrases that appear close to each other in a poem. *End rhyme* occurs at the end of lines; *internal rhyme* occurs within a line; *Slant rhyme* is approximate rhyme; a *rhyme scheme* is the pattern of end rhymes.
Rhyming words	Sharing identical or at least similar medial and final phonemes in the last syllable. Because English has a writing system with a deep orthography, words can rhyme without sharing similar orthography (e.g. *suite* and *meet*).
Rhythm	Regular recurrence and speed of sound and stresses in a poem or work of prose.
Root	A bound morpheme, usually of Latin origin, that cannot stand alone but is used to form a family of words with related meanings.
Register	A variety of language used in specified kinds of formal and informal situations.
S	
Sarcasm	The use of verbal irony in which a person appears to be praising something but is actually insulting it.
Satire	Prose in which witty language is used to convey insults or scorn.
Scaffolding	Refers to the support that is given to students in order for them to arrive at the correct answer. Scaffolding may be embedded in the features of the instructional design such as starting with simpler skills and building progressively to more difficult skills. The ultimate goal of scaffolding is to lead students to greater independence.
Scene	In a drama, scenes represent actions happening in one place at one time. In narrative works, the term applies to a dramatic method of narration that presents events at roughly the same pace at which they are supposed to occur.
Secondhand account	An event or topic based on an author's research rather than on personal experience.

Segmentation	Breaking down a spoken word into word parts by inserting a pause between each part. Words can be segmented at the word level (in the case of compound words), at the syllable level, at the onset-rime level, and at the phoneme level.
Sensory details	Words or phrases that can be recognized or described through sight, sound, touch, smell, or taste.
Setting	The time and place in which events in a short story, novel, or narrative poem take place.
Sequence	Text structure in which ideas are grouped on the basis of order or time.
Shades of meaning	Small differences in meaning between words that are similar.
Simile	An explicit comparison between two different things, actions, or feelings using the words like or as. Ex: He was as quiet as a mouse.
Soliloquy	A dramatic speech uttered by one character speaking aloud while alone (or under the impression of being alone). The speaker reveals his or her inner thoughts to the audience through either direct address or self-communication.
Sonnet	Fourteen-line lyric poem, usually written in iambic pentameter.
Spatial words	Signal words that emphasize location.
Spelling patterns and generalizations	The generalizing principles and recognizable patterns that aid in learning to spell.
Stage directions	Words in a dramatic script that define an actor's actions, movements, and attitudes.
Standard English	The most widely accepted and understood form of expression in English in the United States.
Stanza	A division of a poem that is composed of two or more lines.
Style	A writer's characteristic manner of employing language.
Subordinating conjunction	A word or phrase used to introduce a subordinate clause.
Suffix	A derivational morpheme (added to a root or base word) that often changes the word's part of speech and modifies its meaning.
Summary	A condensed version of a larger reading in which a writer uses his or her own words to express the main idea and relevant details of the text.
Superlative adjectives or adverbs	Adjectives or adverbs used to compare one person, thing, or group with all others in its class.
Syllable	The unit of pronunciation that is organized around a vowel; it may or may not have consonants before or after the word.

Symbol	Object, person, place, or action that has both a meaning in itself and that stands for something larger than itself, such as a quality, attitude, belief, or value.
Syntax	Arrangement of words and order of grammatical elements in a sentence.
T	
Technical meaning	Words or groups of words that relate to a specific process or activity.
Temporal words and phrases	Signal words or phrases used to refer to time or sequence of events.
Tension	The feeling or experience of the reader or audience as a story unfolds, especially the closer the reader or audience approaches the climax of a story. The feelings and experience can include increased involvement or interest, dread, anticipation, thrill, or uncertainty. An author may create tension through pacing, foreshadowing, actions, word choice, sentence or text structure, dramatic irony, and other techniques and devices.
Text complexity band	Readability levels assigned to determine text difficulty after using a formula to calculate factors such as sentence and word length and frequency of unfamiliar words.
Text features	Additional information about a text, including headings, captions, illustrations, boldface words, graphs, diagrams, and glossaries that help readers comprehend a text.
Textual evidence	Support lifted directly from a text to support inferences, claims, and assertions. Using textual evidence demands that readers engage with the text and share the specific aspects of the text that influence their thinking.
Theme	Central meaning of a literary work. A literary work can have more than one theme.
Third person narration	Narration in which the narrator stands outside the events in a story.
Tone	A writer's or speaker's attitude toward a subject, character, or audience conveyed through the author's choice of words and detail. Tone can be serious, humorous, sarcastic, objective, etc.
Traditional literature	The songs, stories, myths, and proverbs of a people handed down orally before they were written.
Transitional words and phrases	Words and phrases used to create logical links between ideas expressed in writing.
Trait	Distinguishing feature, as of a person's character.

U	
Understatement	A kind of irony that deliberately represents something as being much less that it really is; the opposite of hyperbole or overstatement.
V	
Verse:	Any single, long line of a poetry composition. Verse can, however, also refer to a stanza or any other part of a poem.
Voice	Distinctive style or manner of expression of an author or of a character.

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APPENDIX B

MS CCRS 2016 & 2025 COMPARISON GUIDE		
STANDARD	**2016 MS CCRS**	**2025 MS CCRS**
KINDERGARTEN		
RF.K.3a	Demonstrate basic knowledge of one-to-one letter-sound correspondences by producing the primary sound or many of the most frequent sounds for each consonant.	Demonstrate basic knowledge of one-to-one letter sound correspondences by producing the primary sound for each consonant.
L.K.1a	Print many upper- and lowercase letters.	Print all upper- and lowercase letters
L.K.2c	Write a letter or letters for most consonant and short-vowel sounds (phonemes).	Write the letter or letters that correspond to the correct consonant and short-vowel sounds (phonemes).
GRADE 1		
RF.1.3g	Recognize and read grade-appropriate irregularly spelled words.	Apply letter-sound knowledge to recognize and read irregularly spelled words.
GRADE 7		
RL.7.5	Analyze how a drama's or poem's form or structure (e.g., soliloquy, sonnet) contributes to its meaning.	Analyze how a literary text's form or structure (e.g. soliloquy, sonnet) contributes to its meaning.
GRADE 8		
RL.8.7	Analyze the extent to which a filmed or live production of a story or drama stays faithful to or departs from the text or script, evaluating the choices made by the director or actors.	Analyze the extent to which an adaptation of a story or drama stays faithful to or departs from the text or script, using non-text content (e.g., images, video, audio) to evaluate the choices made by the director or actors.

APPENDIX C

SUGGESTIONS FOR COURSE SEQUENCING

To help students meet College- and Career-Readiness ACT/SAT benchmarks in their junior year, the following course sequencing is recommended for English Language Arts.

CCR English I and CCR English II are required courses for all students. Two additional ELA credits are required, but these courses may be chosen based on students' selected diploma endorsements and/or postsecondary plans.

09 Grade	10 Grade	11 Grade	12 Grade
CCR English I	CCR English II	CCR English III **OR** AP English Language & Composition	CCR English IV **OR** AP English Literature & Composition **OR** Essentials for College Literacy **OR** Dual Credit English Composition I

SECONDARY COURSE SEQUENCE OPTIONS

The options listed below are the most commonly used courses for secondary level students.

For additional English Language Arts course offerings, please refer to the *MSIS Course Codes Search Portal*.

LEVEL	OPTION 1	OPTION 2	OPTION 3
GRADE 9	CCR English I	CCR English I	CCR English I
GRADE 10	CCR English II	CCR English II	CCR English II
GRADE 11	CCR English III	AP English Language & Composition or Approved Dual Credit/Dual Enrollment English Language Arts Course	**This sequence is not recommended for postsecondary enrollment.** Creative Writing Debate Foundations of Journalism Broadcast Journalism Print Journalism Mississippi Writers Oral Communication Survey of African American Writing Survey of Twentieth Century Writing Technical and Workplace Writing World Literature
GRADE 12	CCR English IV or SREB Essentials for College Literacy	AP English Literature & Composition or Approved Dual Credit/Dual Enrollment English Language Arts Course	**This sequence is not recommended for postsecondary enrollment.** Creative Writing Debate Foundations of Journalism Broadcast Journalism Print Journalism Mississippi Writers Oral Communication Survey of African American Writing Survey of Twentieth Century Writing Technical and Workplace Writing World Literature SREB Literacy Ready

APPENDIX D

MS CCRS NAVIGATOR

Comprehensive Support for Instructional Preparation

The primary purpose of the 2025 Mississippi College- and Career-Readiness Standards Navigators (MS CCRS Navigators, formerly known as the MS CCRS Scaffolding Documents) is to equip teachers with a deeper understanding of the Standards, enabling them to effectively prepare for classroom instruction. Grounded in the 2025 Mississippi College- and Career-Readiness Standards for English Language Arts, these documents provide a detailed analysis of what is required for student mastery in an effort to help teachers prepare to deliver high-quality, intentional instruction that aligns with the rigor of the Standards.

Organization of the 2025 MS CCRS Navigator

The 2025 MS CCRS Navigator is divided by grade level. Within each grade level, the Navigator is separated into the four strands identified in the MS CCR Standards for ELA: Reading, Writing, Speaking and Listening, and Language. Each standard is broken down into three categories to guide instructional preparation:

- **Prerequisite Knowledge** – This column lists the skills that students should have previously mastered to engage with and work towards mastery of the grade-specific standard. It details what students need to **KNOW** to build a strong foundation for learning.
- **Conceptual Understanding** – This column explains the deeper understanding of concepts – not just actions or skills – required for mastery. It details what students need to **UNDERSTAND** to fully grasp the grade-specific standard.
- **Evidence of Knowledge** – This column describes how student mastery is demonstrated, including the work students produce to exhibit understanding. It specifies what students need to **DO** to show that they have achieved mastery of the standard.

The document also notes key academic vocabulary related to each standard, which include the ideas, concepts, and verbs that are necessary for mastery of the standard. The MS CCRS Navigators for ELA and Mathematics for all grades may be accessed at *https://mdek12.org/secondaryeducation/ccr/.*

MISSISSIPPI DEPARTMENT OF EDUCATION

Ensuring a bright future for every child

2025 ~~2016~~ Mississippi College- and Career-Readiness Standards for Mathematics

Effective Date: 2025-2026 ~~2016-2017~~ School Year

2025 ~~2016~~

Mississippi College- and Career-Readiness Standards for Mathematics

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Acknowledgements

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NOTE: This page was moved to follow the Table of Contents.

READOPTION PROCESS

2025 MS CCR STANDARDS FOR MATHEMATICS

The 2016 Mississippi College- and Career-Readiness Standards (MS CCRS) were reviewed through a stakeholder survey, as no national updates necessitated a full-scale revision. The survey aimed to validate the standards or identify specific areas for review to ensure continued relevance and alignment with educational goals.

The survey included three sections:

1. **Demographics**: Collected data on respondents' congressional district, grade levels taught, teaching experience, role, highest degree, and notable achievements.
2. **Standards Rating**: Used a Likert scale to evaluate perceptions of the MS CCRS, assessing clarity, grade-level progression, relevance to real-world skills, and alignment with workplace competencies like problem-solving and collaboration.
3. **Standards Review (Optional)**: Allowed respondents to submit specific standards for review, focusing on clarity, grade-level appropriateness, learning progression, and content accuracy, accompanied by actionable feedback.

The survey yielded 418 responses, with 77 submissions of a K-12 Mathematics standard for review.

The mathematics review committee included a diverse group of veteran educators from all congressional districts with specific grade band experience, aided by 6 MDE employees serving as facilitators or note-takers. Each mathematics review committee comprised seven members for each grade band, K–5, 6–8, and 9–12. The committee reviews resulted in 15 total edits to the mathematics standards: five in grades K–5, three in grades 6–8, and seven in the high school courses.

For a full list of edits, refer to the *2016 and 2025 Standards Comparison Guide* in Appendix C.

Introduction

Mission Statement

The Mississippi Department of Education is dedicated to student success including the improvement of student achievement in mathematics in order to produce citizens who are capable of making complex decisions, solving complex problems, and communicating fluently in a technological society. The *2025* ~~*2016*~~ *Mississippi College- and Career-Readiness Standards for Mathematics* ("The Standards") provide a consistent, clear understanding of what students are expected to know and be able to do by the end of each grade level and course. The standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills that students need for success in college and careers and to compete in the global economy.

Purpose

In an effort to closely align instruction for students who are progressing toward postsecondary study and the workforce, the *2025* ~~*2016*~~ *Mississippi College- and Career-Readiness Standards for Mathematics* include grade- and course-specific standards for K-12 mathematics.

The primary purpose of this document is to provide a basis for curriculum development for Grades K-12 mathematics teachers, outlining what students should know and be able to do by the end of each grade level and course. Courses for grades K-12 are based on the *Mississippi College- and Career-Readiness Standards (MS CCRS) for Mathematics*. Mississippi-specific courses ~~that were~~ revised or developed ~~to~~ in alignment with the (*MS CCRS) for Mathematics*
include Foundations of Algebra, Advanced Technical Mathematics, Advanced Mathematics Plus, Algebra III (formerly Pre-Calculus) ~~Pre-Calculus (renamed Algebra III)~~ and Calculus.

The Southern Regional Education Board (SREB) Ready for High School Math serves as a transition course to high school mathematics, while the Essentials for College Math and SREB Math Ready course ~~is included~~ act as ~~a~~ transition courses to college mathematics ~~courses~~.

~~The content of this document is centered on the mathematics domains of **Counting and Cardinality** (Grade K), **Operations and Algebraic Thinking; Numbers and Operations in Base Ten** (Grades K-5); **Numbers and Operations—Fractions** (Grades 3-5); **Measurement and Data** (Grades K-5); **Ratios and Proportional Relationships** (Grades 6-7); **the Number System, Expressions & Equations, Geometry, Statistics & Probability** (Grades 6-8); **Functions** (Grade 8); and the high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling**, **Geometry**, and **Statistics & Probability**. Instruction in these domains and conceptual categories should be designed to expose students to experiences, which reflect the value of mathematics, to enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.~~

Implementation

The required year for the *2025* ~~*2016*~~ *Mississippi College- and Career-Readiness Standards for Mathematics* is school year 2025-2026 ~~2016-2017~~.

NOTE: This content has been updated and is addressed in the Mathematics Framework's NCTM Position Statements section.

~~Technology~~

~~The Mississippi Department of Education (MDE) strongly encourages the use of technology in all mathematics classrooms. Technology is essential in teaching and learning mathematics; it influences the mathematics that is taught and enhances students' learning.~~

~~The appropriate use of instructional technology is integrated throughout the *2016 Mississippi College- and Career-Readiness Standards for Mathematics.* Teaching strategies at each grade level and in every secondary course incorporate technology in the form of calculators, software, or on-line internet resources. The graphing calculator is an integral part of mathematics courses beginning with Grade 6.~~

~~The MDE believes strongly in the Principles and Standards for School Mathematics Technology Principle of the National Council for Teachers of Mathematics (NCTM):~~

> ~~"Calculators and computers are reshaping the mathematical landscape, and school mathematics should reflect those changes. Students can learn more mathematics more deeply with the appropriate and responsible use of technology. They can make and test conjectures. They can work at higher levels of generalization or abstraction. In the mathematics classrooms envisioned in *Principles and Standards*, every student has access to technology to facilitate his or her mathematics learning. Technology also offers options for students with special needs. Some students may benefit from the more constrained and engaging task situations possible with computers. Students with physical challenges can become much more engaged in mathematics using special technologies. Technology cannot replace the mathematics teacher, nor can it be used as a replacement for basic understandings and intuitions. The teacher must make prudent decisions about when and how to use technology and should ensure that the technology is enhancing students' mathematical thinking."~~
> ~~(NCTM, 2013, **http://www.nctm.org**.)~~

~~Acknowledgements~~

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~~The Mississippi Department of Education gratefully acknowledges the following individuals who provided feedback in developing the *2016 Mississippi College- and Career-Readiness Standards for Mathematics*.~~

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MISSISSIPPI DEPARTMENT OF EDUCATION

Ensuring a bright future for every child

~~College- and Career-Readiness Standards for Mathematics Overview~~

~~College- and Career-Readiness Standards for Mathematics~~ Overview

For over a decade, research studies of mathematics education in high-performing countries have pointed to the conclusion that the mathematics curriculum in the United States must become substantially more focused and coherent in order to improve mathematics achievement in this country. To deliver on the promise of common standards, the standards must address the problem of a curriculum that is "a mile wide and an inch deep." These Standards are a substantial answer to that challenge. Aiming for clarity and specificity, these Standards endeavor to follow a design that not only stresses conceptual understanding of key ideas, but also by continually returning to organizing principles such as place value or the laws of arithmetic to structure those ideas.

2025 MS CCRS IN MATHEMATICS INSTRUCTIONAL FRAMEWORK

VISION FOR MATHEMATICS EDUCATION

The instructional framework for the *2025 Mississippi College- and Career-Readiness Standards* (MS CCRS) in Mathematics encapsulates the vision for ensuring that all Mississippi students are equipped with the mathematical knowledge and skills necessary to access higher education opportunities, thrive in professional careers, and become informed citizens capable of understanding and influencing the world around them.

This framework is a dynamic, interconnected approach to mathematics education that integrates the *Instructional Shifts for Mathematics*, *Standards for Mathematical Content*, *Standards for Mathematical Practice*, *Effective Mathematics Teaching Practices*, and the *National Council of Teachers of Mathematics (NCTM) Position Statements*. These elements collectively contribute to the development of a **mathematically proficient individual.** The cyclical structure of the framework emphasizes that all components are essential and interconnected. This continuous integration of practices, standards, and values ensures a robust and coherent mathematics education program for Mississippi's public schools.

INSTRUCTIONAL SHIFTS FOR MATHEMATICS

The Instructional Shifts for Mathematics emphasize changes in mathematics teaching to improve student outcomes. These shifts, grounded in the MS CCRS, promote:

1. **Focus**: *Focus* where the Standards *focus*.

The MS CCRS calls for a greater focus in mathematics. Focus means significantly narrowing the scope of content in each grade so that students achieve at higher levels and experience more deeply that which remains. Rather than racing to cover many topics in a mile-wide, inch-deep curriculum, the MS CCRS are intentionally designed with a clear focus on key concepts and skills at each grade level. This instructional shift requires teachers to narrow and deepen significantly the way time and energy is spent in the classroom. With a greater focus on fewer topics, instruction is directed toward deeply engaging with the major work of each grade level as follows:

- In grades K–2: Concepts, skills, and problem solving related to addition, subtraction, and place value
- In grades 3–5: Concepts, skills, and problem solving related to multiplication and division of whole numbers and fractions
- In grade 6: Ratios and proportional relationships, and early algebraic expressions and equations
- In grade 7: Ratios and proportional relationships, and arithmetic of rational numbers
- In grade 8: Linear algebra and linear functions
- In HS courses: CCRS content Widely Applicable as Prerequisites for a Range of College Majors, Postsecondary Programs and Careers[1]

The strong focus of the Standards in early grades is arithmetic, along with the components of measurement that support it. That includes the concepts underlying arithmetic, the skills of arithmetic computation, and the ability to apply arithmetic to solve problems and put arithmetic to engaging uses. Arithmetic in the K–5 standards is an important life skill, as well as a thinking subject and a rehearsal for algebra in the middle grades. This focus will help students gain strong foundations, including a solid understanding of concepts, a high degree of procedural skill and fluency, and the ability to apply the math they know to solve problems inside and outside the classroom.

Focus remains important through the middle and high school grades in order to prepare students for college and careers. National surveys have repeatedly concluded that postsecondary instructors value greater mastery of a smaller set of prerequisites over shallow exposure to a wide array of topics so that students can build on what they know and apply what they know to solve substantial problems. Therefore, a college- and career-ready curriculum should devote most of the high school students' time to building the knowledge and skills that are the essential prerequisites for a wide range of college majors, postsecondary programs, and careers.

2. **Coherence**: Think across grades/courses and link to major topics within each grade/course.

Coherence is about making math make sense. Mathematics is not a list of disconnected topics, tricks, or mnemonics; it is a coherent body of knowledge made up of interconnected concepts. Ensuring coherence involves attending to connections between topics, where the learning connects across grades and links to major mathematical ideas, ensuring a logical progression of concepts. Consequently, the Standards are designed around coherent progressions that build and expand knowledge from grade to grade.

To achieve coherence, vertical connections are crucial: these are the links from one grade to the next that allow students to progress in their mathematical education. For example, a kindergarten student might add two numbers using a "count all" strategy, but grade 1 students are expected to use "counting on" and more sophisticated strategies. In 4th grade, students must "apply and extend previous understandings of multiplication to multiply a fraction by a whole number" (Standard 4.NF.4). This extends to 5th grade, when students are expected to build on that skill to "apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction" (Standard 5.NF.4). Each standard is not a new event, but an extension of previous learning. Therefore, it is critical for teachers to think across grades and examine the progressions in the standards to see how major content develops over time.

Coherence across grades relies on the careful, deliberate, and progressive development of ideas within each grade level. This intentional progression ensures that foundational concepts are solidified before moving to more complex ideas.[2] In high school, a lack of coherence often leads to students memorizing too many isolated techniques without understanding the underlying structure that connects them. Emphasizing coherence reduces this clutter in the curriculum. For instance, recognizing that the distance formula and the trigonometric identity $\sin^2(t) + \cos^2(t) = 1$ are both rooted in the Pythagorean theorem helps students understand and reconstruct these concepts rather than merely memorizing them.

It should also be noted that the Standards do not specify the progression of material within a single grade, but connections at a single grade level can be used to improve focus by closely linking secondary topics to the major work of the grade. For example, in grade 3, bar graphs are not "just another topic to cover." Rather, the standard about bar graphs asks students to use information presented in bar graphs to solve word problems using the four operations of arithmetic. Instead of allowing bar graphs to detract from the focus on arithmetic, the Standards are showing how bar graphs can be positioned in support of the major work of the grade. In this way, coherence can also support focus.

To help identify coherence, the Standards within each domain, or conceptual categories in high school, are organized under cluster headings. These cluster headings play a vital role in connecting related concepts, building on prior knowledge, and extending learning to future concepts.

3. **Rigor**: Maintain Pursue conceptual understanding, procedural skill and fluency, and application with equal intensity.

Rigor refers to a deep, authentic command of mathematical concepts, not making math harder or introducing topics at earlier grades. To help students meet the expectations of the Standards, educators will need to pursue, with equal intensity, three aspects of rigor in the major work of each grade: (1) conceptual understanding, (2) procedural skill and fluency, and (3) applications.

Conceptual understanding: The standards call for conceptual understanding of key concepts, such as place value and ratios. Students must be able to access concepts from a number of perspectives in order to see math as more than a set of mnemonics or discrete procedures.

Procedural skills and fluency: The standards call for speed and accuracy in calculation. Students must practice core functions, such as single-digit multiplication, in order to have access to more complex concepts and procedures. Fluency must be addressed in the classroom or through supporting materials, as some students might require more practice than others.

> ***NOTE:*** *The Standards for Mathematical Practice set expectations for using mathematical language and representations to reason, solve problems, and model. These expectations are related to fluency: precision in the use of language, seeing structure in expressions, and reasoning from the concrete to the abstract correspond to high orders of fluency in the acquisition of mathematical language, especially in the form of symbolic expressions and graphs. Though the High School content standards do not set explicit expectations for fluency, fluency is important in high school mathematics. High School mathematics builds new and more sophisticated fluencies on top of the*

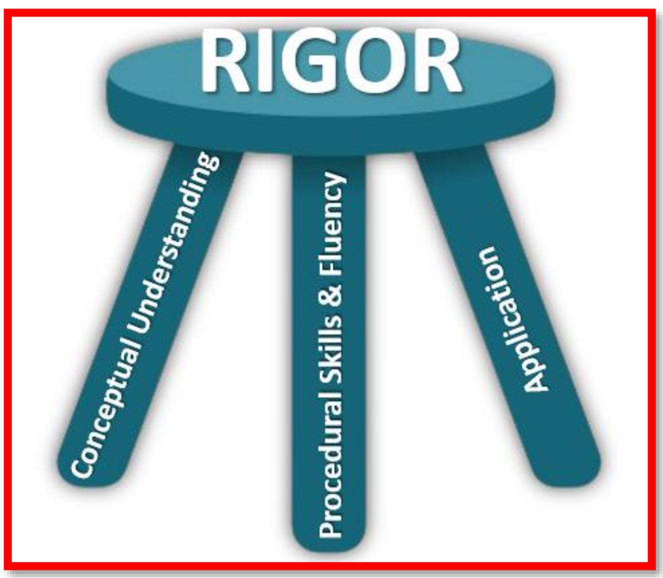
earlier fluencies from K-8 that centered on numerical calculation.

Application: The standards call for students to use math in situations that require mathematical knowledge. Correctly applying mathematical knowledge depends on students having a solid conceptual understanding and procedural fluency.

Identifying the aspect of Rigor called for by the Standard:

The language of the Standards provides clear clues to the specific aspect of rigor being emphasized, guiding educators in aligning instruction to the intended focus. Words such as "understand" are used in the Standards to set explicit expectations for conceptual understanding, and those such as "fluently" are used to set explicit expectations for fluency. Phrases like "real-world problems" are used to highlight opportunities for application, while the star symbol (*) flags opportunities for modeling. (Modeling is both a Standard for Mathematical Practice and a content category in High School.)

The image of a three-legged stool effectively represents the instructional shift of rigor, illustrating how students' mathematical proficiency and mastery of content rely on three essential components: conceptual understanding, procedural skill and fluency, and application. Just as a stool cannot stand with one leg removed, a student's mathematical foundation becomes unstable if any one of these components is neglected, underscoring the importance of maintaining balance and emphasis on all three to fully support student success.



Instruction that overemphasizes one aspect of rigor at the expense of others should be avoided. For example, stressing fluency in computation without incorporating conceptual understanding undermines students' ability to make sense of algorithms and learn them effectively. Similarly, focusing solely on conceptual understanding without dedicating time to developing fluency fails to prepare students for practical applications. Overemphasizing pure mathematics neglects the motivational and practical benefits of real-world applications, while a focus solely on applications disregards the foundational understanding necessary for deeper mathematical learning. Such imbalances place unnecessary strain on teachers and students. Instead, instruction should aim to integrate and balance all three components of rigor—conceptual understanding, fluency, and application—within the major work of each grade.

[1] See Table 6, Appendix C.
[2] See the MS CCRS Progressions Document, *https://mathematicalmusings.org/* .

~~Understanding Mathematics~~ STANDARDS FOR MATHEMATICAL CONTENT

These Standards define what students should understand and be able to do in their study of mathematics. Asking a student to understand something means asking a teacher to assess whether the student has understood it. But what does mathematical understanding look like? One hallmark of mathematical understanding is the ability to justify, in a way appropriate to the student's mathematical maturity, why a particular mathematical statement is true or where a mathematical rule comes from. There is a world of difference between a student who can summon a mnemonic device to expand a product such as $(a + b)(x + y)$ and a student who can explain where the mnemonic comes from. The student who can explain the rule understands the mathematics, and may have a better chance to succeed at a less familiar task such as expanding $(a + b + c)(x + y)$. Mathematical understanding and procedural skill are equally important, and both are assessable using mathematical tasks of sufficient richness.

The Standards set grade-specific expectations but do not define the intervention methods or materials necessary to support students who are well below or well above grade-level expectations. It is also beyond the scope of the Standards to define the full range of supports appropriate for English language learners and for students with special needs. At the same time, all students must have the opportunity to learn and meet the same high standards if they are to access the knowledge and skills necessary for college and/or careers. The Standards should be read as allowing for the widest possible range of students to participate fully from the outset, along with appropriate accommodations to ensure maximum participation of students with special education needs. For example, for students with reading disabilities the use of Braille, screen reader technology, or other assistive devices should be made available. In addition, while writing, these students should have access to a scribe, computer, or speech-to-text technology in their classroom. In a similar vein, speaking and listening should be interpreted broadly to include sign language. No set of grade-specific standards can fully reflect the great variety in abilities, needs, learning rates, and achievement levels of students in any given classroom. However, the Standards do provide clear signposts along the way to the goal of College- and Career-Readiness for all students.

Standards for Mathematical Practice

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important "processes and proficiencies" with longstanding importance in mathematics education. The first of these are the NCTM process standards of problem solving, reasoning and proof, communication, representation, and connections. The second are the strands of mathematical proficiency specified in the National Research Council's report *Adding It Up*: adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one's own efficacy).

1. Make sense of problems and persevere in solving them.

Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.

2. Reason abstractly and quantitatively.

Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to *decontextualize*—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to *contextualize*, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

3. Construct viable arguments and critique the reasoning of others.

Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

4. Model with mathematics.

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

5. Use appropriate tools strategically.

Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.

6. Attend to precision.

Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.

7. Look for and make use of structure.

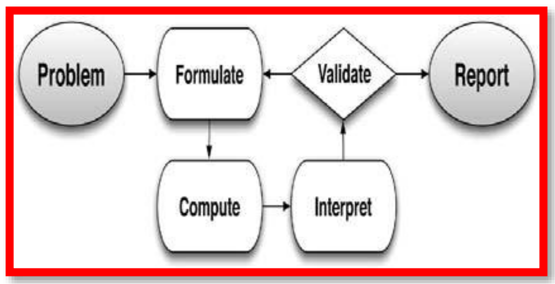
Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7×8 equals the well-remembered $7 \times 5 + 7 \times 3$, in preparation for learning about the distributive property. In the expression $x^2 + 9x + 14$, older students can see the 14 as 2×7 and the 9 as $2 + 7$. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, they can see $5 - 3(x - y)^2$ as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers x and y.

8. Look for and express regularity in repeated reasoning.

Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $(y - 2)/(x - 1) = 3$. Noticing the regularity in the way terms cancel when expanding $(x - 1)(x + 1)$, $(x - 1)(x^2 + x + 1)$, and $(x - 1)(x^3 + x^2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.

Modeling (High School Courses only)

Modeling standards are noted throughout the high school courses with an asterisk (*). *Modeling* links classroom mathematics and statistics to everyday life, work, and decision- making. *Modeling* is the process of choosing and using appropriate mathematics and statistics to analyze empirical situations, to understand them better, and to improve decisions. Quantities and their relationships in physical, economic, public policy, social, and everyday situations can be modeled using mathematical and statistical methods. When making mathematical models, technology is valuable for varying assumptions, exploring consequences, and comparing predictions with data.



Making mathematical models is a Standard for Mathematical Practice, and specific *Modeling* standards appear throughout the high school standards. The basic modeling cycle above involves (1) identifying variables in the situation and selecting those that represent essential features, (2) formulating a model by creating and selecting geometric, graphical, tabular, algebraic, or statistical representations that describe relationships between the variables, (3) analyzing and performing operations on these relationships to draw conclusions, (4) interpreting the results of the mathematics in terms of the original situation, (5) validating the conclusions by comparing them with the situation, and then either improving the model or, if it is acceptable, (6) reporting on the conclusions and the reasoning behind them. Choices, assumptions, and approximations are present throughout this cycle.

Connecting the Standards for Mathematical Practice to the *2016* ~~Mississippi College- and Career-Readiness~~ Standards for Mathematical~~s~~ Content

The Standards for Mathematical Practice describe ways in which developing student practitioners of the discipline of mathematics increasingly ought to engage with the subject matter as they grow in mathematical maturity and expertise throughout the elementary, middle and high school years. Designers of curricula, assessments, and professional development should all attend to the need to connect the mathematical practices to the Standards in mathematics instruction.

The Standards are a balanced combination of procedure and understanding. Expectations that begin with the word “understand” are often especially good opportunities to connect the practices to the content. Students who lack understanding of a topic may rely on procedures too heavily. Without a flexible base from which to work, they may be less likely to consider analogous problems, represent problems coherently, justify conclusions, apply the mathematics to practical situations, use technology mindfully to work with the mathematics, explain the mathematics accurately to other students, step back for an overview, or deviate from a known procedure to find a shortcut. In short, a lack of understanding effectively prevents a student from engaging in the mathematical practices.

In this respect, those content standards which set an expectation of understanding are potential “points of intersection” between the Standards for Mathematical Content and the Standards for Mathematical Practice. These points of intersection are intended to be weighted toward central and generative concepts in the school mathematics curriculum that most merit the time, resources, innovative energies, and focus necessary to qualitatively improve the curriculum, instruction, assessment, professional development, and student achievement in mathematics.

~~**Modeling (High School Courses only)**~~

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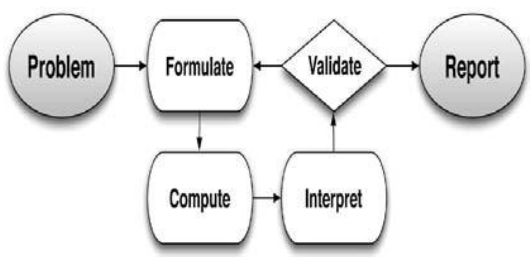

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THE EFFECTIVE MATHEMATICS TEACHING PRACTICES

An excellent mathematics program requires effective teaching that engages students in meaningful learning through individual and collaborative experiences that promote their ability to make sense of mathematical ideas and reason mathematically (National Council of Teachers of Mathematics [NCTM], 2014).

The eight Effective Mathematics Teaching Practices (EMTPs) provide a framework for strengthening the teaching and learning of mathematics. This research-informed framework of teaching and learning identifies these eight Mathematics Teaching Practices, which represent a core set of high-leverage practices and essential teaching skills necessary to promote deep mathematics learning.

1. Establish mathematics goals to focus learning.

Effective teaching of mathematics establishes clear goals for the mathematics that students are learning, situates goals within learning progressions, and uses the goals to guide instructional decisions.

2. Implement tasks that promote reasoning and problem solving.

Effective teaching of mathematics engages students in solving and discussing tasks that promote mathematical reasoning and problem solving and allow multiple entry points and varied solution strategies.

3. Use and Connect Mathematical Representations.

Effective teaching of mathematics engages students in making connections among mathematical representations to deepen understanding of mathematics concepts and procedures and as tools for problem solving.

4. Facilitate Meaningful Mathematical Discourse.

Effective teaching of mathematics facilitates discourse among students to build a shared understanding of mathematical ideas by analyzing and comparing student approaches and arguments.

5. Pose Purposeful Questions

Effective teaching of mathematics uses purposeful questions to assess and advance students' reasoning and sense making about important mathematical ideas and relationships.

6. Build Procedural Fluency from Conceptual Undestanding

Effective teaching of mathematics builds fluency with procedures on a foundation of conceptual understanding so that students, over time, become skillful in using procedures flexibly as they solve contextual and mathematical problems.

7. Support Productive Struggle in Learning Mathematics

Effective teaching of mathematics consistently provides students, individually and collectively, with opportunities and supports to engage in productive struggle as they grapple with mathematical ideas and relationships.

8. Elicit and Use Evidence of Student Thinking

Effective teaching of mathematics uses evidence of student thinking to assess progress toward mathematical understanding and to adjust instruction continually in ways that support and extend learning.

CONNECTING THE EFFECTIVE MATHEMATICS TEACHING PRACTICES TO THE STANDARDS FOR MATHEMATICAL PRACTICES

The **Effective Mathematics Teaching Practices (EMTPs)**, as outlined by the National Council of Teachers of

Mathematics (NCTM), provide actionable strategies for educators to facilitate meaningful mathematics instruction. The **Standards for Mathematical Practice (SMPs)**, embedded in the Mississippi College- and Career-Readiness Standards (MS CCRS), describe the mathematical behaviors and dispositions students should develop. Aligning the EMTPs with the SMPs creates a coherent framework that ensures teaching practices elicit and cultivate the desired practices in students. Below, is a sample of how the EMTPs can be connected to corresponding SMPs to illustrate how teachers can use high-leverage strategies to promote these behaviors.

EMTP 1 Establish Mathematics Goals to Focus Learning ↔ EMTP 8: Elicit and Use Evidence of Student Thinking

Establishing clear, specific mathematical goals provides instruction focus and direction, ensuring that teachers and students have a shared understanding of the intended learning outcomes. These goals create a framework for teachers to identify and assess evidence of student thinking during lessons. By eliciting and using this evidence, teachers can monitor student progress toward the learning goals, make informed instructional adjustments, and provide targeted feedback. Together, these practices create a cohesive system where goals guide learning, and evidence ensures that the learning is meaningful, precise, and aligned with the desired outcomes.

EMTP 2: Implement Tasks That Promote Reasoning and Problem Solving ↔ SMP 2: Reason abstractly and quantitatively

High-quality tasks encourage students to reason abstractly by analyzing the relationships between quantities and engage quantitatively by contextualizing problems, fostering a balance between intuition and logic.

EMTP 4 Facilitate Meaningful Mathematical Discourse and EMTP 5: Pose Purposeful Questions ↔ SMP: Construct viable arguments and critique the reasoning of others

Meaningful discourse and purposeful questioning provide students opportunities to articulate their reasoning, critique the logic of peers, and build strong arguments, creating a collaborative and reflective mathematical culture.

EMTP 3: Use and Connect Mathematical Representations ↔ SMP 4: Model with mathematics and SMP 5 Use appropriate tools strategically

By engaging students in varied representations, teachers help them model real-world situations effectively and make strategic decisions about which tools and representations best support their problem-solving processes.

EMTP 6: Build Procedural Fluency from Conceptual Understanding ↔ SMP 7: Look for and make use of structure and SMP 8: Look for and express regularity in repeated reasoning

Building fluency from conceptual understanding ensures students recognize patterns and structures, enabling them to approach problems efficiently and with a strong conceptual foundation that supports long-term success.

EMTP 7: Support Productive Struggle in Learning Mathematics ↔ SMP 1: Make sense of problems and persevere in solving them and SMP 6: Attend to precision

Encouraging productive struggle allows students to grapple with challenging tasks, promoting perseverance and careful attention to detail as they refine their understanding and develop mathematical resilience.

The alignment between EMTPs and SMPs emphasizes the interdependence of effective teaching practices and student mathematical behaviors. By leveraging these connections, educators can create dynamic and responsive instructional environments that foster both procedural skill and conceptual understanding, ensuring all students are equipped for success in mathematics and beyond.

NCTM POSITION STATEMENTS

ACCESS AND EQUITY IN MATHEMATICS EDUCATION

The Mississippi Department of Education (MDE) strongly advocates for fostering access and equity in all mathematics classrooms to ensure that every student can succeed.

Achieving access and equity in mathematics education requires maintaining high expectations, providing access to high-quality curriculum and instruction, allocating adequate learning time, and employing differentiated strategies to effectively engage all students. Educators must believe in the potential of every student and focus on creating opportunities for growth through challenging curriculum, innovative technologies, extracurricular offerings, and tailored supports. Collaboration among teachers and specialists is crucial for addressing diverse student needs, fostering growth mindsets, and implementing equitable teaching practices. High-quality professional development is essential to equip educators with the skills and knowledge needed to support success for all learners.

The **Access and Equity in Mathematics Education** Position of the National Council of Teachers of Mathematics (NCTM) states:

> *"Creating, supporting, and sustaining a culture of access and equity require being responsive to students' backgrounds, experiences, cultural perspectives, traditions, and knowledge when designing and implementing a mathematics program and assessing its effectiveness. Acknowledging and addressing factors that contribute to differential outcomes among groups of students are critical to ensuring that all students routinely have opportunities to experience high-quality mathematics instruction, learn challenging mathematics content, and receive the support necessary to be successful. Addressing equity and access includes both ensuring that all students attain mathematics proficiency and increasing the numbers of students from all racial, ethnic, linguistic, gender, and socioeconomic groups who attain the highest levels of mathematics achievement." (NCTM, 2014,* ***http://www.nctm.org****.)*

TEACHING MATHEMATICS TO STUDENTS WITH DISABILITIES

The MDE strongly advocates for ensuring that students with disabilities receive the necessary supports to succeed in mathematics.

Students with disabilities have the right to equitable access and appropriate support that enable them to succeed with grade- or course-level mathematics content. High-quality instruction, aligned with rigorous academic standards and targeted interventions, is crucial for their achievement. Additionally, it is essential that educators believe in the abilities of all students, creating a supportive learning environment where students with disabilities are empowered to reach their full potential in mathematics.

The **Teaching Mathematics to Students with Disabilities** Position of the National Council for Teachers of Mathematics (NCTM) and the Council for Exceptional Children (CEC) states:

> *" The National Council of Teachers of Mathematics (NCTM) and the Council for Exceptional Children (CEC) jointly recognize the important role of educators in ensuring students with disabilities have access to and success with grade/course-level standards, receive high-quality instruction and are supported by systems that believe in their abilities." (NCTM, 2024,* ***http://www.nctm.org****.)*

HIGH EXPECTATIONS

The MDE strongly advocates for maintaining high expectations in mathematics education by fostering mathematical communities focused on ensuring all students have access to challenging tasks and curricula that emphasize reasoning, problem-solving, and real-world applications.

Students bring diverse mathematical understandings and backgrounds to the classroom, which can be leveraged to enhance learning for all. These differences highlight individual strengths in various mathematical problems and topics, supporting their identity as accomplished learners. To maintain high expectations, it is essential to foster classroom experiences that create a mathematical community—one focused on problem-solving, communication, and making sense of mathematics. Engaging students in challenging tasks that require effort and perseverance builds motivation and strengthens their mathematical reasoning and problem-solving skills.

The **High Expectations** Position of the National Council for Teachers of Mathematics (NCTM) states:

> *"To teach mathematics with high expectations means that teachers (1) recognize that each and every student, from prekindergarten through college, is able to solve challenging mathematical tasks successfully; (2) build in each student a positive mathematical identity and a sense of agency; (3) design instruction that builds on students' prior knowledge and experiences; (4) teach in ways that ensure that each and every student is reasoning and making sense of mathematics on a daily basis; and (5) reflect on ways that tasks and teaching can be improved to provide greater access, challenge, and support for every learner. " (NCTM, 2016,* **http://www.nctm.org***.)*

PROCEDURAL FLUENCY: REASONING AND DECISION-MAKING, NOT ROTE APPLICATION OF PROCEDURES

The MDE emphasizes the importance of the effective development of procedural fluency. Procedural fluency is the ability to apply mathematical procedures efficiently, flexibly, and accurately, transfer them to different contexts, and recognize when a particular strategy is more appropriate. It goes beyond simple memorization of algorithms and includes relational thinking and strategic reasoning. Ensuring that conceptual understanding precedes procedural instruction and that both are explicitly connected meaningfully is crucial. Students should be exposed to various strategies and taught basic facts using number relationships rather than rote memorization. Effective assessment methods attend to efficiency and flexibility, avoiding timed tests that may hinder students. High-quality teaching of procedural fluency positions students as capable learners with reasoning and decision-making skills at the core, fostering mathematical agency.

The **Procedural Fluency: Reasoning and Decision-Making, Not Rote Application of Procedures** Position of the National Council for Teachers of Mathematics (NCTM) states:

> "Procedural fluency is an essential component of equitable teaching and is necessary to developing mathematical proficiency and mathematical agency. Each and every student must have access to teaching that connects concepts to procedures, explicitly develops a reasonable repertoire of strategies and algorithms, provides substantial opportunities for students to learn to choose from among the strategies and algorithms in their repertoire, and implements assessment practices that attend to all components of fluency." *(NCTM, 2023,* ***http://www.nctm.org****.)*

CURRICULAR COHERENCE

The Mississippi Department of Education (MDE) strongly advocates for the adoption and implementation of a high-quality mathematics curriculum in all schools.

A well-articulated, high-quality, and coherent mathematics curriculum is essential for establishing clear learning goals, supporting teachers in understanding students' pathways through mathematical progressions, and fostering conceptual understanding. As described in *Principles and Standards for School Mathematics* (NCTM, 2000), such a curriculum emphasizes the development of key mathematical ideas across grades, specifying when concepts and skills should be introduced and mastered. High-quality curricula situate mathematics in problem-solving contexts, promoting students' understanding and reasoning while linking topics within and across mathematical domains to present mathematics as a unified discipline. Schools, districts, and publishers play a critical role by providing resources, professional learning communities (PLCs), and time for collaboration, ensuring teachers can adopt consistent instructional strategies, assessments, and tools that create a cohesive learning environment with clear and consistent expectations for all students.

The **Curriculum Coherence and Open Education Resources** Position of the National Council for Teachers of Mathematics (NCTM) states:

> *"A coherent, well-articulated curriculum is an essential tool for guiding teacher collaboration, goal-setting, analysis of student thinking, and implementation. In a time when open educational resources are increasingly available, it is imperative that teachers be provided with curricular materials that clearly lay out well-reasoned organizations of student learning progressions with regard to mathematical content and reasoning. " (NCTM, 2016,* ***http://www.nctm.org****.)*

EQUITABLE INTEGRATION OF TECHNOLOGY FOR MATHEMATICS

The MDE strongly advocates for the use of technology in all mathematics classrooms and recognizes its pivotal role in advancing mathematics education. It enables students to identify, interpret, evaluate, and critique the mathematics embedded in various social, scientific, commercial, and political contexts. Technology influences the mathematics that is taught and enhances students' learning.

As a catalyst for change and innovation, technological advancements allow for the creation of mathematical models and the exploration of large data sets, fundamentally transforming how mathematics is taught and learned. It is essential that these technological developments are thoughtfully integrated into mathematics programs and classrooms to keep the focus on effective and meaningful student learning experiences.
The appropriate use of instructional technology is to be integrated throughout the 2025 Mississippi College- and Career-Readiness Standards for Mathematics. Teaching strategies at each grade level course incorporate technology in the form of instructional software, physical or virtual manipulatives, online resources, and calculators in grades 6-12.

The **Equitable Integration of Technology for Mathematics Learning** Position of the National Council for Teachers of Mathematics (NCTM) states:

> *" Using the capabilities of technology is essential for educators and learners to inform and transform how they learn, experience, communicate, assess, and do mathematics. Technology should be used to develop and deepen learner understanding, stimulate interest in the mathematics being learned, and increase mathematical proficiency. When technology is used strategically, it provides more equitable access and opportunities for each and every learner to actively engage and participate in the learning of mathematics."*
> *(NCTM, 2023,* ***http://www.nctm.org****.)*

ARTIFICIAL INTELLIGENCE AND MATHEMATICS TEACHING

The MDE strongly advocates for the equitable integration of technology in all mathematics classrooms. With widely available technology tools, it is crucial for educators to consider the capabilities, benefits, risks, and ethical ramifications associated with using Artificial Intelligence (AI).

Historical context shows that mathematics educators have long grappled with the integration of knowledge-generating tools like calculators and search engines, and now AI tools. While these tools offer computational assistance, they do not replace the need for teaching math fundamentals and problem-solving skills. AI outputs can be biased or inaccurate, so it is crucial to educate students on verifying and using primary sources. The use of AI tools encourages a shift from shallow assessments to those that blend computational skills with creative problem solving, emphasizing a deeper understanding of mathematical concepts. AI tools can also facilitate personalized learning by reducing the need for creating multiple test versions, streamlining the assessment process while maintaining focus on core learning goals.

The **Artificial Intelligence and Mathematics Teaching** Position of the National Council for Teachers of Mathematics

(NCTM) states:

" Artificial Intelligence (AI)-driven tools can respond to students' thinking and interests in ways that previous tools could not. By drawing from large language sets, AI has the potential to adjust application-based problems to student interests and identify the sense students have made even in their incorrect answers. Students will continue to need teachers' mathematical, pedagogical, and relational expertise, though teachers are also likely to benefit from AI-driven tools. In some cases, AI may serve as a teaching assistant, but students will need teachers to help them create a bridge between prior knowledge, new knowledge, and shared knowledge. Teachers must tell students to be very skeptical about AI results, especially about the unique challenges of using tools that may have been trained on biased datasets. This skepticism can be woven into existing pedagogical and assessment techniques. Knowing this, educators need to be involved in developing and testing AI tools in math education to stay up to date with current AI trends to best prepare students for an AI future. Contrary to some popular opinions, this effort will require teachers with even deeper knowledge of math instruction and assessment—math teachers with more experience, not less.." (NCTM, 2024, ***http://www.nctm.org****.)*

DOCUMENT ORGANIZATION

The MS CCRS encompass all currently available mathematics course options for grades K–12 and is organized into grade bands: Lower and Upper Elementary (K–5), Middle School (6–8), and High School (9–12).

- **For grades K–8**, the standards are grouped by **conceptual domains**, which are further broken down into smaller clusters.
- **For high school**, the standards are organized by **major conceptual categories**, which are then divided into domains and clusters.

To provide a visual reference, the conceptual domains and categories are color-coded to highlight the progression of content across grades K–12. *Refer to the Mathematics Conceptual Progression Diagram on page 31*.

The domains and conceptual categories for each grade level are as follows:

- **Grade K:** Counting and Cardinality
- **Grades K–5:** Operations and Algebraic Thinking; Numbers and Operations in Base Ten; Numbers and Operations—Fractions (Grades 3–5); Measurement and Data
- **Grades 6–8:** Ratios and Proportional Relationships (Grades 6–7); The Number System; Expressions and Equations; Geometry; Statistics and Probability; Functions (Grade 8)
- **High School:** Number and Quantity; Algebra; Functions; Modeling; Geometry; Statistics and Probability

The following two pages provide guidance on **how to read the standards**, offering clarity for interpretation. After the standards, the appendices include a **Glossary**, **Tables**, and **Additional Resources**.

HOW TO READ K-8 GRADE LEVEL STANDARDS

Conceptual Domain[1]

Standard Identifier

- Grade Level
- Conceptual Domain
- Standard Number

Cluster Heading[2]

Standards Cluster[2]

Standards[3]

Footnote[4]

COUNTING AND CARDINALITY (CC)	
MS CCR STANDARD IDENTIFIER ▼	MS CCR STANDARD ▼
	KNOW NUMBER NAMES AND THE COUNT SEQUENCE
K.CC.1	a. Count to 100 by ones. b. Count to 100 by tens.
K.CC.2	Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
K.CC.3	Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).
	COUNT TO TELL THE NUMBER OF OBJECTS
K.CC.4	Understand the relationship between numbers and quantities; connect counting to cardinality. a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted. c. Understand that each successive number name refers to a quantity that is one larger.
K.CC.5	Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.
	COUNT TO TELL THE NUMBER OF OBJECTS
K.CC.6	Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.[1]
K.CC.7	Compare two numbers between 1 and 20 presented as written numerals.

[1] Conceptual domains are larger groups of related standards. Standards from different domains may sometimes be closely related.

[2] Clusters are groups of related standards within a domain. Note that standards from different clusters may sometimes be closely related, because mathematics is a connected subject.

[3] Standards define what students should understand and be able to do.

[4] Footnotes provide additional information or clarification about specific standards or concepts. They often include explanations, examples, or references to related standards to support deeper understanding or application.

These Standards do not dictate curriculum or teaching methods. *For example, just because topic A appears before topic B in the standards for a given grade, does not necessarily mean that topic A must be taught before topic B.*

HOW TO READ HIGH SCHOOL COURSE STANDARDS

Conceptual Domain [2]

Standard Identifier [5]

- Conceptual Category
- Conceptual Domain
- Standard Number

NUMBER AND QUANTITY	
MS CCR STANDARD IDENTIFIER ▼	MS CCR STANDARD ▼
THE REAL NUMBER SYSTEM (N-RN)	
USE PROPERTIES OF RATIONAL AND IRRATIONAL NUMBERS	
N-RN.3	Explain why: • the sum or product of two rational numbers is rational; • the sum of a rational number and an irrational number is irrational; and • the product of a nonzero rational number and an irrational number is irrational.
QUANTITIES (N-Q) *	
REASON QUANTITATIVELY AND USE UNITS TO SOLVE PROBLEMS	
N-Q.1	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. *
N-Q.2	Define appropriate quantities for the purpose of descriptive modeling. * [Refer to *Quantities* section of the High School *Number and Quantity* Conceptual Category in the previous pages of this document.]
N-Q.3	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. *

Cluster Heading [3]

Standards Cluster [3]

Standards [4]

Modeling Standards [6]

[1] Conceptual categories portray a coherent view of high school mathematics and cross a number of traditional course boundaries, potentially up through and including calculus.

[2] Conceptual domains are larger groups of related standards within a conceptual category. Standards from different conceptual domains may sometimes be closely related.

[3] Clusters are groups of related standards within a domain. Note that standards from different clusters may sometimes be closely related because mathematics is a connected subject.

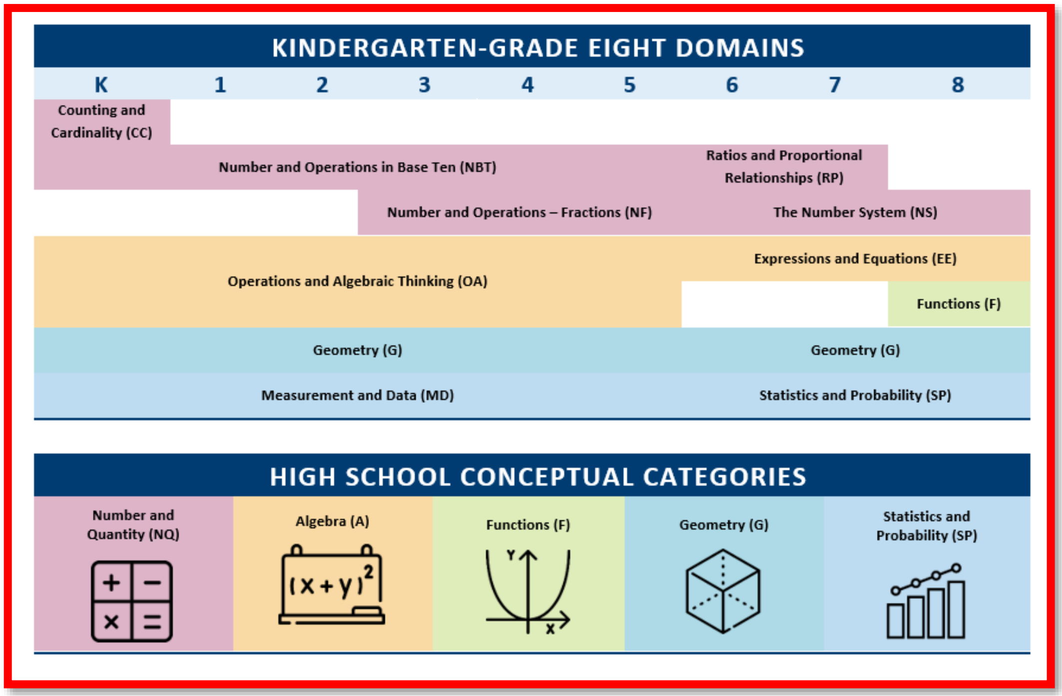
[4] Standards define what students should understand and be able to do.

[5] Standards Identifiers for courses Foundations of Algebra, Advanced Technical Math, Advanced Mathematics Plus, and Calculus follow the identification of Course Name. Conceptual Category.Standard Number (*i.e., the Calculus course, Conceptual Category Algebra, standard one would read as C.A.1*).

[6] Modeling Standards appear throughout the high school standards indicated by a star symbol (*). The star symbol sometimes appears on the heading for a group of standards; in that case, it should be understood to apply to all standards in that group.

These Standards do not dictate curriculum or teaching methods. *For example, just because topic A appears before topic B in the standards for a given grade, does not necessarily mean that topic A must be taught before topic B.*

MATHEMATICS CONCEPTUAL PROGRESSION



~~College- and Career-Readiness Standards for Mathematics Scaffolding Document~~

~~2016 Mississippi College- and Career-Readiness Standards Scaffolding Document~~

~~Purpose~~

~~The primary purpose of the 2016 Mississippi College- and Career-Readiness Standards Scaffolding Document is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career-Readiness Standards for Mathematics, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery. The Scaffolding Document is located at **http://www.mde.k12.ms.us/ESE/ccr.**~~

~~Organization of the 2016 Mississippi College- and Career-Standards Scaffolding Document~~

~~The 2016 Mississippi College- and Career-Readiness Standards Scaffolding Document is divided by grade level. Within each grade level, the Scaffolding Document is separated into the mathematical domains **Counting and Cardinality** (Grade K), **Operations and Algebraic Thinking** (Grades K-5); **Numbers and Operations in Base Ten** (Grades K-5); **Numbers and Operations—Fractions** (Grades 3-5); **Measurement and Data** (Grades K-5); **Ratios and Proportional Relationships** (Grades 6-7); **the Number System, Expressions & Equations, Geometry, Statistics & Probability** (Grades 6-8); **Functions** (Grade 8), and the high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions, Geometry**, and **Statistics & Probability**.~~

~~Each standard is then broken down into three categories: Prerequisite Knowledge, Conceptual Understanding, and Evidence of Knowledge. The Prerequisite Knowledge column lists the skills that students should have mastered in previous grades in order to work towards mastery of the grade-specific standard. In other words, this column details what a student needs to *KNOW* before mastering the grade-specific standard. The Conceptual Understanding column explains the deeper understanding of concepts—not actions or skills—that are required for mastery of the grade specific standard. In other words, this column explains what a student needs to *UNDERSTAND* before mastering the grade-specific standard. The last column, Evidence of Knowledge, explains what student mastery looks like, including what work a student produces to exhibit mastery of the grade-specific standard. In other words, this column describes what a student needs to *DO* to show mastery of the grade-specific standard.~~

Lower and Upper Elementary School ~~College- and Career-Readiness Standards for Mathematics (~~Grades K-5~~)~~

NOTE: Because “Fluency” is prevalent throughout K-12 mathematics, this definition has been updated and addressed within the Position Statements above.

~~Fluency/Fluently Defined~~

~~Throughout the 2016 Mississippi College- and Career-Readiness Standards for Mathematics Grades K-5 standards, the words fluency and fluently will appear in bold, italicized, and underlined font (for example: fluently). With respect to student performance and effective inclass instruction, the expectations for mathematical fluency are explained below:~~

~~Fluency is not meant to come at the expense of understanding, but is an outcome of a progression of learning and sufficient thoughtful practice. It is important to provide the conceptual building blocks that develop understanding in tandem with skill along the way to fluency; the roots of this conceptual understanding often extend one or more grades earlier in the standards than the grade when fluency is finally expected.~~

~~Wherever the word fluently appears in a MS CCR content standard, the word means quickly and accurately. It is important to understand that this is not explicitly tied to assessment purposes, but means more or less the same as when someone is said to be fluent in a foreign language. To be fluent is to flow: Fluent isn’t halting, stumbling, or reversing oneself.~~

~~A key aspect of fluency in this sense is that it is not something that happens all at once in a single grade but requires attention to student understanding along the way. It is important to ensure that sufficient practice and extra support are provided at each grade to allow all students to meet the standards that call explicitly for fluency~~

~~Grade K~~ CCR Math Kindergarten

In Kindergarten, instruction should focus on two critical areas: (1) representing, relating, and operating on whole numbers- initially with sets of objects; and (2) describing shapes and space. More learning time in Kindergarten should be devoted to number than to other topics. Each critical area is described below.

(1) Students use numbers, including written numerals, to represent quantities and to solve quantitative problems, such as counting objects in a set; counting out a given number of objects; comparing sets or numerals; and modeling simple joining and separating situations with sets of objects, or eventually with equations such as 5 + 2 = 7 and 7 – 2 = 5. (Kindergarten students should see addition and subtraction equations, and student writing of equations in kindergarten is encouraged, but it is not required.) Students choose, combine, and apply effective strategies for answering quantitative questions, including quickly recognizing the cardinalities of small sets of objects, counting and producing sets of given sizes, counting the number of objects in combined sets, or counting the number of objects that remain in a set after some are taken away.

(2) Students describe their physical world using geometric ideas (e.g., shape, orientation, spatial relations) and vocabulary. They identify, name, and describe basic two-dimensional shapes, such as squares, triangles, circles, rectangles, and hexagons, presented in a variety of ways (e.g., with different sizes and orientations), as well as three-dimensional shapes such as cubes, cones, cylinders, and spheres. They use basic shapes and spatial reasoning to model objects in their environment and to construct more complex shapes.

The content within ~~of~~ this grade level ~~document~~ is centered on the mathematics domains of **Counting and Cardinality** (Grade K), **Operations and Algebraic Thinking; Numbers and Operations in Base Ten** (Grades K-5); ~~**Numbers and Operations—Fractions** (Grades 3-5);~~ **Measurement and Data** (Grades K-5); ~~**Ratios and Proportional Relationships** (Grades 6- 7); **the Number System, Expressions & Equations,**~~ and **Geometry** (Grades K-8)~~**., Statistics & Probability** (Grades 6-8); **Functions** (Grade 8), and the high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling**, **Geometry**, and **Statistics & Probability**~~. Instruction in these domains ~~and conceptual categories~~ should be designed to expose students to experiences, which reflect the value of mathematics, ~~to~~ enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

~~Grade K~~

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER ▼	MS CCR STANDARD ▼
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
K.SMP.1	Make sense of problems and persevere in solving them.
K.SMP.2	Reason abstractly and quantitatively.
K.SMP.3	Construct viable arguments and critique the reasoning of others.
K.SMP.4	Model with mathematics.
K.SMP.5	Use appropriate tools strategically.
K.SMP.6	Attend to precision.
K.SMP.7	Look for and make use of structure.
K.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

~~Grade K~~

Counting and Cardinality (CC)

Know number names and the count sequence	
K.CC.1	a. Count to 100 by ones ~~and by tens~~. b. Count to 100 by ~~ones and by~~ tens.
K.CC.2	Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
K.CC.3	Write numbers from 0 to 20. Represent a number of objects with a written numeral 0– 20 (with 0 representing a count of no objects).
Count to tell the number of objects	
K.CC.4	Understand the relationship between numbers and quantities; connect counting to cardinality. a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted. c. Understand that each successive number name refers to a quantity that is one larger.
K.CC.5	Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.
Compare numbers	
K.CC.6	Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.[1]
K.CC.7	Compare two numbers between 1 and 20 presented as written numerals.

Operations and Algebraic Thinking (OA)

Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from	
K.OA.1	Represent addition and subtraction, *in which all parts and whole of the problem are within 10,* with objects, fingers, mental images, drawings[2], sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
K.OA.2	Solve addition and subtraction word problems *within 10 involving situations of adding to, taking from, putting together and taking apart with unknowns in all positions* by using objects or drawings to represent the problem.

~~Grade K~~

K.OA.3	Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1).
K.OA.4	For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.
K.OA.5	a. ***Fluently*** add ~~and subtract~~ within 5. b. ***Fluently*** ~~add and~~ subtract within 5.

Number and Operations in Base Ten (NBT)

Work with numbers 11-19 to gain foundations for place value

K.NBT.1	Compose and decompose numbers from 11 to 19 into ten ones and some further ones to understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., 18 = 10 + 8).

Measurement and Data (MD)

Describe and compare measurable attributes

K.MD.1	Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
K.MD.2	Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. *For example, directly compare the heights of two children and describe one child as taller/shorter.*

Classify objects and count the number of objects in each category

K.MD.3	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.[3]

Geometry (G)

Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres)

K.G.1	Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above, below, beside, in front of, behind*, and *next to.*
K.G.2	Correctly name shapes regardless of their orientations or overall size.
K.G.3	Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").

Analyze, compare, create, and compose shapes

~~**Grade K**~~

K.G.4	Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/“corners”) and other attributes (e.g., having sides of equal length).
K.G.5	Model objects in the world by drawing two-dimensional shapes and building three-dimensional shapes.
K.G.6	Compose simple shapes to form larger shapes. For example, “Can you join these two triangles with full sides touching to make a rectangle?”

[1] Include groups with up to ten objects.

[2] Drawings need not show details, but should show the mathematics in the problem. (This applies wherever drawings are mentioned in the Standards.)

[3] Limit category counts to be less than or equal to 10.

Additional Resource

~~2016 Mississippi College- and Career-Standards Scaffolding Document~~

~~The primary purpose of the *2016 Mississippi College- and Career-Readiness Standards Scaffolding Document* is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career- Readiness Standards for Mathematics, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery. The Scaffolding Document can be found at **http://www.mde.k12.ms.us/ESE/ccr**.~~

Standards for Mathematical Practice

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

NOTE: Standards for Mathematical Practice have been assigned Standard Numbers for each grade-level and course and precede the content standards for that grade level or course.

CCR Math Grade 1

In Grade 1, instruction should focus on four critical areas: (1) developing understanding of addition, subtraction, and strategies for addition and subtraction within 20; (2) developing understanding of whole number relationships and place value, including grouping in tens and ones; (3) developing understanding of linear measurement and measuring lengths as iterating length units; and (4) reasoning about attributes of, and composing and decomposing geometric shapes. Each critical area is described below.

(1) Students develop strategies for adding and subtracting whole numbers based on their prior work with small numbers. They use a variety of models, including discrete objects and length-based models (e.g., cubes connected to form lengths), to model add-to, take-from, put-together, take-apart, and compare situations to develop meaning for the operations of addition and subtraction, and to develop strategies to solve arithmetic problems with these operations. Students understand connections between counting and addition and subtraction (e.g., adding two is the same as counting on two). They use properties of addition to add whole numbers and to create and use increasingly sophisticated strategies based on these properties (e.g., "making tens") to solve addition and subtraction problems within 20. By comparing a variety of solution strategies, children build their understanding of the relationship between addition and subtraction.

(2) Students develop, discuss, and use efficient, accurate, and generalizable methods to add within 100 and subtract multiples of 10. They compare whole numbers (at least to 100) to develop understanding of and solve problems involving their relative sizes. They think of whole numbers between 10 and 100 in terms of tens and ones (especially recognizing the numbers 11 to 19 as composed of a ten and some ones). Through activities that build number sense, they understand the order of the counting numbers and their relative magnitudes.

(3) Students develop an understanding of the meaning and processes of measurement, including underlying concepts such as iterating (the mental activity of building up the length of an object with equal-sized units) and the transitivity principle for indirect measurement.[1]

(4) Students compose and decompose plane or solid figures (e.g., put two triangles together to make a quadrilateral) and build understanding of part-whole relationships as well as the properties of the original and composite shapes. As they combine shapes, they recognize them from different perspectives and orientations, describe their geometric attributes, and determine how they are alike and different, to develop the background for measurement and for initial understandings of properties such as congruence and symmetry.

~~Grade 1~~ ~~(continued)~~

The content within ~~of~~ this grade level ~~document~~ is centered on the mathematics domains of ~~**Counting and Cardinality** (Grade K),~~ **Operations and Algebraic Thinking; Numbers and Operations in Base Ten** (Grades K-5); ~~**Numbers and Operations—Fractions** (Grades 3-5);~~ **Measurement and Data** (Grades K-5); ~~**Ratios and Proportional Relationships** (Grades 6- 7); **the Number System, Expressions & Equations,**~~ and **Geometry** (Grades K-8)**.**~~**, Statistics & Probability** (Grades 6-8); **Functions** (Grade 8), and the high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling**, **Geometry**, and **Statistics & Probability**~~. Instruction in these domains ~~and conceptual categories~~ should be designed to expose students to experiences, which reflect the value of mathematics, ~~to~~ enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

[1] Students should apply the principle of transitivity of measurement to make indirect comparisons, but they need not use this technical term.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
1.SMP.1	Make sense of problems and persevere in solving them.
1.SMP.2	Reason abstractly and quantitatively.
1.SMP.3	Construct viable arguments and critique the reasoning of others.
1.SMP.4	Model with mathematics.
1.SMP.5	Use appropriate tools strategically.
1.SMP.6	Attend to precision.
1.SMP.7	Look for and make use of structure.
1.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

~~Grade 1~~

Operations and Algebraic Thinking (OA)

Represent and solve problems involving addition and subtraction	
1.OA.1	Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.[2]
1.OA.2	Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
Understand and apply properties of operations and the relationship between addition and subtraction	
1.OA.3	Apply properties of operations as strategies to add and subtract.[3] *Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.)*
1.OA.4	Understand subtraction as an unknown-addend problem. *For example, subtract 10 – 8 by finding the number that makes 10 when added to 8.*
Add and subtract within 20	
1.OA.5	Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
1.OA.6	Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).
Work with addition and subtraction equations	
1.OA.7	Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 – 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.*
1.OA.8	Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = □ – 3, 6 + 6 = □.*

~~Grade 1~~

Number and Operations in Base Ten (NBT)	
Extend the counting sequence	
1.NBT.1	Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
Understand place value	
1.NBT.2	Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: a. 10 can be thought of as a bundle of ten ones — called a "ten." b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).
1.NBT.3	Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.
Use place value understanding and properties of operations to add and subtract	
1.NBT.4	Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.
1.NBT.5	Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.
1.NBT.6	Subtract multiples of 10 in the range 10–90 from multiples of 10 in the range 10–90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
Measurement and Data (MD)	
Measure lengths indirectly and by iterating length units	
1.MD.1	Order three objects by length; compare the lengths of two objects indirectly by using a third object.
1.MD.2	Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps*.

Tell and write time with respect to a clock and a calendar	
1.MD.3a	Tell and write time in hours and half-hours using analog and digital clocks.
1.MD.3b	Identify the days of the week and the number of days in a week~~, and the number of weeks in each month~~.
1.MD.3c	Identify the months of the year, the number of months in a year, and the number of weeks in a month.
Represent and interpret data	
1.MD.4	Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.
Work with money	
1.MD.5a	Identify the value of all U.S. coins (penny, nickel, dime, quarter, half-dollar, and dollar coins). Use appropriate cent and dollar notation (e.g., 25¢, $1).
1.MD.5b	Know the comparative values of all U.S. coins (e.g., a dime is of greater value than a nickel).
1.MD.5c	Count like U.S. coins up to the equivalent of a dollar.
1.MD.5d	Find the equivalent value for all greater value U.S. coins using like value smaller coins (e.g., 5 pennies equal 1 nickel; 10 pennies equal dime, but not 1 nickel and 5 pennies equal 1 dime).
Geometry (G)	
Reason with shapes and their attributes	
1.G.1	Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.
1.G.2	Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.[4]
1.G.3	Partition circles and rectangles into two and four equal shares, describe the shares using the words *halves, fourths*, and *quarters*, and use the phrases *half of, fourth of*, and *quarter of*. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.

[2] See Glossary, Table 1.

[3] Students need not use formal terms for these properties.

[4] Students do not need to learn formal names such as “right rectangular prism.”

~~Additional Resource~~

~~2016 Mississippi College- and Career-Standards Scaffolding Document~~

~~The primary purpose of the *2016 Mississippi College- and Career-Readiness Standards Scaffolding Document* is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career- Readiness Standards for Mathematics, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery. The Scaffolding Document can be found at **http://www.mde.k12.ms.us/ESE/ccr**.~~

~~Standards for Mathematical Practice~~

1. ~~Make sense of problems and persevere in solving them.~~
2. ~~Reason abstractly and quantitatively.~~
3. ~~Construct viable arguments and critique the reasoning of others.~~
4. ~~Model with mathematics.~~
5. ~~Use appropriate tools strategically.~~
6. ~~Attend to precision.~~
7. ~~Look for and make use of structure.~~
8. ~~Look for and express regularity in repeated reasoning.~~

NOTE: Standards for Mathematical Practice have been assigned Standard Numbers for each grade-level and course and precede the content standards for that grade level or course.

CCR Math Grade 2

In Grade 2, instruction should focus on four critical areas: (1) extending understanding of base-ten notation; (2) building fluency with addition and subtraction; (3) using standard units of measure; and (4) describing and analyzing shapes. Each critical area is described below.

(1) Students extend their understanding of the base-ten system. This includes ideas of counting in fives, tens, and multiples of hundreds, tens, and ones, as well as number relationships involving these units, including comparing. Students understand multi-digit numbers (up to 1000) written in base-ten notation, recognizing that the digits in each place represent amounts of thousands, hundreds, tens, or ones (e.g., 853 is 8 hundreds + 5 tens + 3 ones).

(2) Students use their understanding of addition to develop fluency with addition and subtraction within 100. They solve problems within 1000 by applying their understanding of models for addition and subtraction, and they develop, discuss, and use efficient, accurate, and generalizable methods to compute sums and differences of whole numbers in base-ten notation, using their understanding of place value and the properties of operations. They select and accurately apply methods that are appropriate for the context and the numbers involved to mentally calculate sums and differences for numbers with only tens or only hundreds.

(3) Students recognize the need for standard units of measure (centimeter and inch) and they use rulers and other measurement tools with the understanding that linear measure involves an iteration of units. They recognize that the smaller the unit, the more iterations they need to cover a given length.

(4) Students describe and analyze shapes by examining their sides and angles. Students investigate, describe, and reason about decomposing and combining shapes to make other shapes. Through building, drawing, and analyzing two- and three-dimensional shapes, students develop a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades.

The content within ~~of~~ this grade level ~~document~~ is centered on the mathematics domains of ~~**Counting and Cardinality** (Grade K),~~ **Operations and Algebraic Thinking; Numbers and Operations in Base Ten** (Grades K-5); ~~**Numbers and Operations—Fractions** (Grades 3-5);~~ **Measurement and Data** (Grades K-5); ~~**Ratios and Proportional Relationships** (Grades 6- 7); **the Number System, Expressions & Equations,**~~ and **Geometry** (Grades K-8)~~**., Statistics & Probability** (Grades 6-8); **Functions** (Grade 8), and the high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling**, **Geometry**, and **Statistics & Probability**~~. Instruction in these domains ~~and conceptual categories~~ should be designed to expose students to experiences, which reflect the value of mathematics, ~~to~~ enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER ▼	MS CCR STANDARD ▼
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
2.SMP.1	Make sense of problems and persevere in solving them.
2.SMP.2	Reason abstractly and quantitatively.
2.SMP.3	Construct viable arguments and critique the reasoning of others.
2.SMP.4	Model with mathematics.
2.SMP.5	Use appropriate tools strategically.
2.SMP.6	Attend to precision.
2.SMP.7	Look for and make use of structure.
2.SMP.8	Look for and express regularity in repeated reasoning.

NOTE
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~~Grade 2~~

Operations and Algebraic Thinking (OA)	
Represent and solve problems involving addition and subtraction	
2.OA.1	Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.[1]
Add and subtract within 20	
2.OA.2	Fluently add and subtract within 20 using mental strategies[2]. By end of Grade 2, know from memory all sums of two one-digit numbers.
Work with equal groups of objects to gain foundations for multiplication	
2.OA.3	Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.
2.OA.4	Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.
Number and Operations in Base Ten (NBT)	
Understand place value	
2.NBT.1	Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: a. 100 can be thought of as a bundle of ten tens — called a "hundred." b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).
2.NBT.2	Count within 1000; skip-count by 5s starting at any number ending in 5 or 0. Skip-count by 10s and 100s starting at any number.
2.NBT.3	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
2.NBT.4	Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.
Use place value understanding and properties of operations to add and subtract	
2.NBT.5	***Fluently*** add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction..
2.NBT.6	Add up to four two-digit numbers using strategies based on place value and properties of operations.

Grade 2

2.NBT.7	Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.
2.NBT.8	Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.
2.NBT.9	Explain why addition and subtraction strategies work, using place value and the properties of operations.[3]
Measurement and Data (MD)	
Measure and estimate lengths in standard units	
2.MD.1	Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
2.MD.2	Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.
2.MD.3	Estimate lengths using units of inches, feet, centimeters, and meters.
2.MD.4	Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.
Relate addition and subtraction to length	
2.MD.5	Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.
2.MD.6	Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.
Work with time with respect to a clock and a calendar, and work with money	
2.MD.7	Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
2.MD.8a	Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. *Example: If you have 2 dimes and 3 pennies, how many cents do you have?*
2.MD.8b	Fluently use a calendar to answer simple real world problems such as “How many weeks are in a year?” or “James gets a $5 allowance every 2 months, how much money will he have at the end of each year?”
Represent and interpret data	
2.MD.9	Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.

Grade 2

2.MD.10	Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems[4] using information presented in a bar graph.
Geometry (G)	
Reason with shapes and their attributes	
2.G.1	Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.[5] Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.
2.G.2	Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.
2.G.3	Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words *halves, thirds, half of, a third of*, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.

[1] See Glossary, Table 1.

[2] See standard 1.OA.6 for a list of mental strategies.

[3] Explanations may be supported by drawings or objects.

[4] See Glossary, Table 1.

[5] Sizes are compared directly or visually, not compared by measuring.

~~Additional Resource~~

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~~Standards for Mathematical Practice~~

1. ~~Make sense of problems and persevere in solving them.~~
2. ~~Reason abstractly and quantitatively.~~
3. ~~Construct viable arguments and critique the reasoning of others.~~
4. ~~Model with mathematics.~~
5. ~~Use appropriate tools strategically.~~
6. ~~Attend to precision.~~
7. ~~Look for and make use of structure.~~
8. ~~Look for and express regularity in repeated reasoning.~~

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CCR Math Grade 3

In Grade 3, instruction should focus on four critical areas: (1) developing understanding of multiplication and division and strategies for multiplication and division within 100; (2) developing understanding of fractions, especially unit fractions (fractions with a numerator of 1); (3) developing understanding of the structure of rectangular arrays and of area; and (4) describing and analyzing two-dimensional shapes. Each critical area is described below.

(1) Students develop an understanding of the meanings of multiplication and division of whole numbers through activities and problems involving equal-sized groups, arrays, and area models; multiplication is finding an unknown product, and division is finding an unknown factor in these situations. For equal-sized group situations, division can require finding the unknown number of groups or the unknown group size. Students use properties of operations to calculate products of whole numbers, using increasingly sophisticated strategies based on these properties to solve multiplication and division problems involving single-digit factors. By comparing a variety of solution strategies, students learn the relationship between multiplication and division.

(2) Students develop an understanding of fractions, beginning with unit fractions. Students view fractions in general as being built out of unit fractions, and they use fractions along with visual fraction models to represent parts of a whole. Students understand that the size of a fractional part is relative to the size of the whole. For example, 1/2 of the paint in a small bucket could be less paint than 1/3 of the paint in a larger bucket, but 1/3 of a ribbon is longer than 1/5 of the same ribbon because when the ribbon is divided into 3 equal parts, the parts are longer than when the ribbon is divided into 5 equal parts. Students are able to use fractions to represent numbers equal to, less than, and greater than one. They solve problems that involve comparing fractions by using visual fraction models and strategies based on noticing equal numerators or denominators.

(3) Students recognize area as an attribute of two-dimensional regions. They measure the area of a shape by finding the total number of same-size units of area required to cover the shape without gaps or overlaps, a square with sides of unit length being the standard unit for measuring area. Students understand that rectangular arrays can be decomposed into identical rows or into identical columns. By decomposing rectangles into rectangular arrays of squares, students connect area to multiplication, and justify using multiplication to determine the area of a rectangle.

(4) Students describe, analyze, and compare properties of two-dimensional shapes. They compare and classify shapes by their sides and angles, and connect these with definitions of shapes. Students also relate their fraction work to geometry by expressing the area of part of a shape as a unit fraction of the whole.

Grade 3 (continued)

The content within ~~of~~ this grade level ~~document~~ is centered on the mathematics domains of ~~**Counting and Cardinality** (Grade K),~~ **Operations and Algebraic Thinking; Numbers and Operations in Base Ten** (Grades K-5); **Numbers and Operations—Fractions** (Grades 3-5); **Measurement and Data** (Grades K-5); ~~**Ratios and Proportional Relationships** (Grades 6- 7); **the Number System, Expressions & Equations,**~~ and **Geometry** (Grades K-8)~~., **Statistics & Probability** (Grades 6-8); **Functions** (Grade 8), and the high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling**, **Geometry**, and **Statistics & Probability**~~. Instruction in these domains ~~and conceptual categories~~ should be designed to expose students to experiences, which reflect the value of mathematics, ~~to~~ enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
3.SMP.1	Make sense of problems and persevere in solving them.
3.SMP.2	Reason abstractly and quantitatively.
3.SMP.3	Construct viable arguments and critique the reasoning of others.
3.SMP.4	Model with mathematics.
3.SMP.5	Use appropriate tools strategically.
3.SMP.6	Attend to precision.
3.SMP.7	Look for and make use of structure.
3.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

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~~Grade 3~~

Operations and Algebraic Thinking (OA)

Represent and solve problems involving multiplication and division	
3.OA.1	Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.*
3.OA.2	Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.*
3.OA.3	Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.[1]
3.OA.4	Determine the unknown whole number in a multiplication or division equation relating three whole numbers, with factors 0-10. *For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = ? ÷ 3, 6 × 6 = ?.*
Understand properties of multiplication and the relationship between multiplication and division	
3.OA.5	Apply properties of operations as strategies to multiply and divide.[2] *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)*
3.OA.6	Understand division as an unknown-factor problem, where a remainder does not exist. For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8 with no remainder
Multiply and divide within 100	
3.OA.7	***Fluently*** multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. Know from memory all products of two one-digit numbers; and fully understand the concept when a remainder does not exist under division.
Solve problems involving the four operations, and identify and explain patterns in arithmetic	
3.OA.8	Solve two-step (two operational steps) word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding[3]. Include problems with whole dollar amounts

Grade 3

3.OA.9	Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*
Number and Operations in Base Ten (NBT)	
Use place value understanding and properties of operations to perform multi-digit arithmetic [4]	
3.NBT.1	Use place value understanding to round whole numbers to the nearest 10 or 100.
3.NBT.2	Fluently add and subtract (including subtracting across zeros) within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. Include problems with whole dollar amounts.
3.NBT.3	Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.
Number and Operations—Fractions [5] (NF)	
Develop understanding of fractions as numbers	
3.NF.1	Understand a fraction 1/*b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a/b* as the quantity formed by *a* parts of size 1/*b*.
3.NF.2	Understand a fraction as a number on the number line; represent fractions on a number line diagram. a. Represent a fraction 1/*b* on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size 1/*b* and that the endpoint of the part based at 0 locates the number 1/*b* on the number line. b. Represent a fraction *a/b* on a number line diagram by marking off *a* lengths 1/*b* from 0. Recognize that the resulting interval has size *a/b* and that its endpoint locates the number *a/b* on the number line.
3.NF.3	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. Recognize that comparisons are valid only when the two fractions refer to the same whole. b. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3. Explain why the fractions are equivalent, e.g., by using a visual fraction model. c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.* d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

Grade 3

Measurement and Data (MD)

Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects	
3.MD.1	Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.
3.MD.2	Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).[6] Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.[7]
Represent and interpret data	
3.MD.3	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*
3.MD.4	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.
Geometric measurement: understand concepts of area and relate area to multiplication and to addition	
3.MD.5	Recognize area as an attribute of plane figures and understand concepts of area measurement. a. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area. b. A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.
3.MD.6	Measure areas by counting unit squares (square cm, square *m*, square *in*, square *ft*, and improvised units).
3.MD.7	Relate area to the operations of multiplication and addition. a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. b. Multiply side lengths to find areas of rectangles with whole-number side lengths (where factors can be between 1 and 10, inclusively) in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning. c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning. d. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems. Recognize area as additive.

Grade 3

Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures	
3.MD.8	Solve real world and mathematical problems involving perimeters of polygons, including: finding the perimeter given the side lengths, finding an unknown side length, and exhibiting (including, but not limited to: modeling, drawing, designing, and creating) rectangles with the same perimeter and different areas or with the same area and different perimeters.
Geometry (G)	
Reason with shapes and their attributes	
3.G.1	Understand that shapes in different categories (e.g., rhombuses, rectangles, circles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.
3.G.2	Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape*.

[1] See Glossary, Table 2.

[2] Students need not use formal terms for these properties.

[3] This standard is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations).

[4] A range of algorithms may be used.

[5] Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.

[6] Excludes compound units such as cm^3 and finding the geometric volume of a container.

[7] Excludes multiplicative comparison problems (problems involving notions of "times as much"; see Glossary, Table 2).

~~Additional Resource~~

~~2016 Mississippi College- and Career-Standards Scaffolding Document~~

~~The primary purpose of the *2016 Mississippi College- and Career-Readiness Standards Scaffolding Document* is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career- Readiness Standards for Mathematics, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery. The Scaffolding Document can be found at **http://www.mde.k12.ms.us/ESE/ccr**.~~

~~Standards for Mathematical Practice~~

1. ~~Make sense of problems and persevere in solving them.~~
2. ~~Reason abstractly and quantitatively.~~
3. ~~Construct viable arguments and critique the reasoning of others.~~
4. ~~Model with mathematics.~~
5. ~~Use appropriate tools strategically.~~
6. ~~Attend to precision.~~
7. ~~Look for and make use of structure.~~
8. ~~Look for and express regularity in repeated reasoning.~~

NOTE: Standards for Mathematical Practice have been assigned Standard Numbers for each grade-level and course and precede the content standards for that grade level or course.

CCR Math Grade 4

In Grade 4, instruction should focus on three critical areas: (1) developing understanding and fluency with multi-digit multiplication, and developing understanding of dividing to find quotients involving multi-digit dividends; (2) developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers; and (3) understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry. Each critical area is described below.

(1) Students generalize their understanding of place value to 1,000,000, understanding the relative sizes of numbers in each place. They apply their understanding of models for multiplication (equal-sized groups, arrays, and area models), place value, and properties of operations, in particular the distributive property, as they develop, discuss, and use efficient, accurate, and generalizable methods to compute products of multi-digit whole numbers. Depending on the numbers and the context, they select and accurately apply appropriate methods to estimate or mentally calculate products. They develop fluency with efficient procedures for multiplying whole numbers; understand and explain why the procedures work based on place value and properties of operations; and use them to solve problems. Students apply their understanding of models for division, place value, properties of operations, and the relationship of division to multiplication as they develop, discuss, and use efficient, accurate, and generalizable procedures to find quotients involving multi-digit dividends. They select and accurately apply appropriate methods to estimate and mentally calculate quotients, and interpret remainders based upon the context.

(2) Students develop understanding of fraction equivalence and operations with fractions. They recognize that two different fractions can be equal (e.g., 15/9 = 5/3), and they develop methods for generating and recognizing equivalent fractions. Students extend previous understandings about how fractions are built from unit fractions, composing fractions from unit fractions, decomposing fractions into unit fractions, and using the meaning of fractions and the meaning of multiplication to multiply a fraction by a whole number.

(3) Students describe, analyze, compare, and classify two-dimensional shapes. Through building, drawing, and analyzing two-dimensional shapes, students deepen their understanding of properties of two-dimensional objects and the use of them to solve problems involving symmetry.

~~Grade 4~~ ~~(continued)~~

The content ~~within of~~ this grade level ~~document~~ is centered on the mathematics domains of ~~**Counting and Cardinality** (Grade K),~~ **Operations and Algebraic Thinking; Numbers and Operations in Base Ten** (Grades K-5); **Numbers and Operations—Fractions** (Grades 3-5); **Measurement and Data** (Grades K-5); ~~**Ratios and Proportional Relationships** (Grades 6- 7); **the Number System, Expressions Equations,**~~ and **Geometry** (Grades K-8)**.** ~~**, Statistics & Probability** (Grades 6-8); **Functions** (Grade 8), and the high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling**, **Geometry**, and **Statistics & Probability**~~. Instruction in these domains ~~and conceptual categories~~ should be designed to expose students to experiences, which reflect the value of mathematics, ~~to~~ enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
4.SMP.1	Make sense of problems and persevere in solving them.
4.SMP.2	Reason abstractly and quantitatively.
4.SMP.3	Construct viable arguments and critique the reasoning of others.
4.SMP.4	Model with mathematics.
4.SMP.5	Use appropriate tools strategically.
4.SMP.6	Attend to precision.
4.SMP.7	Look for and make use of structure.
4.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

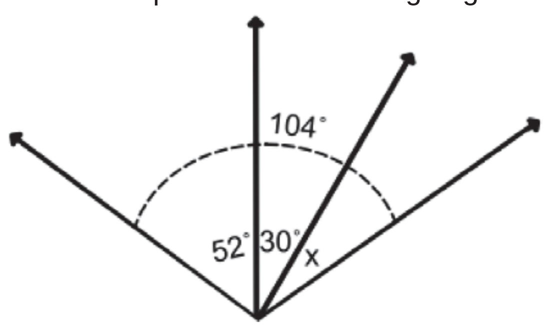
The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

~~Grade 4~~

Operations and Algebraic Thinking (OA)	
Use the four operations with whole numbers to solve problems	
4.OA.1	Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
4.OA.2	Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.[1]
4.OA.3	Solve multistep (two or more operational steps) word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
Gain familiarity with factors and multiples	
4.OA.4	Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.
Generate and analyze patterns	
4.OA.5	Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*
Number and Operations in Base Ten [2] (NBT)	
Generalize place value understanding for multi-digit whole numbers	
4.NBT.1	Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. *For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division.*
4.NBT.2	Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.
4.NBT.3	Use place value understanding to round multi-digit whole numbers to any place.

Use place value understanding and properties of operations to perform multi-digit arithmetic	
4.NBT.4	***Fluently*** add and subtract (including subtracting across zeros) multi-digit whole numbers using the standard algorithm.
4.NBT.5	Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
4.NBT.6	Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
Number and Operations—Fractions [3] (NF)	
Extend understanding of fraction equivalence and ordering	
4.NF.1	Recognizing that the value of “n” cannot be 0, explain why a fraction a/b is equivalent to a fraction (n × a)/ (n × b) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.
4.NF.2	Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.
Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers	
4.NF.3	Understand a fraction *a/b* with *a* > 1 as a sum of fractions 1/*b*. a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model (including, but not limited to: concrete models, illustrations, tape diagram, number line, area model, etc.). Examples: 3/8 = 1/8 + 1/8 + 1/8; 3/8 = 1/8 + 2/8; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8. c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.

4.NF.4	Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. a. Understand a fraction *a/b* as a multiple of *1/b*. *For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).* b. Understand a multiple of *a/b* as a multiple of *1/b* and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.)* c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers do you expect your answer to lie?
Understand decimal notation for fractions, and compare decimal fractions	
4.NF.5	Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.[4] *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.*
4.NF.6	Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram*.
4.NF.7	Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.
Measurement and Data (MD)	
Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit	
4.MD.1	Know relative sizes of measurement units within one system of units including km, m, cm, mm; kg, g, mg; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36),…
4.MD.2	Use the four operations to solve word problems involving • intervals of time • money • distances • liquid volumes • masses of objects including problems *involving simple fractions or decimals*, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

4.MD.3	Apply the area and perimeter formulas for rectangles in real world and mathematical problems. *For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor*.
Represent and interpret data	
4.MD.4	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*
Geometric measurement: understand concepts of angle and measure angles	
4.MD.5	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles. b. An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.
4.MD.6	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
4.MD.7	Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure. Example: Find the missing angle using an equation. 
Geometry (G)	
Draw and identify lines and angles, and classify shapes by properties of their lines and angles	
4.G.1	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

~~Grade 4~~

4.G.2	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. ~~Recognize right triangles as a category, and identify right triangles.~~ Categorize triangles by sides and angles (equilateral, isosceles, right, and scalene).
4.G.3	Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

[1] See Glossary, Table 2.

[2] Grade 4 expectations in this domain are limited to whole numbers less than or equal l to 1,000,000.

[3] Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.

[4] Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.

~~Additional Resource~~

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~~Standards for Mathematical Practice~~

1. ~~Make sense of problems and persevere in solving them.~~
2. ~~Reason abstractly and quantitatively.~~
3. ~~Construct viable arguments and critique the reasoning of others.~~
4. ~~Model with mathematics.~~
5. ~~Use appropriate tools strategically.~~
6. ~~Attend to precision.~~
7. ~~Look for and make use of structure.~~
8. ~~Look for and express regularity in repeated reasoning.~~

NOTE: Standards for Mathematical Practice have been assigned Standard Numbers for each grade-level and course and precede the content standards for that grade level or course.

CCR Math Grade 5

In Grade 5, instruction should focus on three critical areas: (1) developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions); (2) extending division to 2-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations; and (3) developing understanding of volume. Each critical area is described below.

(1) Students apply their understanding of fractions and fraction models to represent the addition and subtraction of fractions with unlike denominators as equivalent calculations with like denominators. They develop fluency in calculating sums and differences of fractions, and make reasonable estimates of them. Students also use the meaning of fractions, of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for multiplying and dividing fractions make sense. (Note: this is limited to the case of dividing unit fractions by whole numbers and whole numbers by unit fractions.)

(2) Students develop understanding of why division procedures work based on the meaning of base-ten numerals and properties of operations. They finalize fluency with multi-digit addition, subtraction, multiplication, and division. They apply their understandings of models for decimals, decimal notation, and properties of operations to add and subtract decimals to hundredths. They develop fluency in these computations, and make reasonable estimates of their results. Students use the relationship between decimals and fractions, as well as the relationship between finite decimals and whole numbers (i.e., a finite decimal multiplied by an appropriate power of 10 is a whole number), to understand and explain why the procedures for multiplying and dividing finite decimals make sense. They compute products and quotients of decimals to hundredths efficiently and accurately.

(3) Students recognize volume as an attribute of three-dimensional space. They understand that volume can be measured by finding the total number of same-size units of volume required to fill the space without gaps or overlaps. They understand that a 1- unit by 1-unit by 1-unit cube is the standard unit for measuring volume. They select appropriate units, strategies, and tools for solving problems that involve estimating and measuring volume. They decompose three-dimensional shapes and find volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes. They measure necessary attributes of shapes in order to determine volumes to solve real world and mathematical problems.

The content within ~~of~~ this grade level ~~document~~ is centered on the mathematics domains of ~~**Counting and Cardinality** (Grade K),~~ **Operations and Algebraic Thinking; Numbers and Operations in Base Ten** (Grades K-5); **Numbers and**

Operations—Fractions (Grades 3-5); **Measurement and Data** (Grades K-5); ~~**Ratios and Proportional Relationships** (Grades 6- 7); **the Number System, Expressions & Equations,**~~ and **Geometry** (Grades K-8)~~., **Statistics & Probability** (Grades 6-8); **Functions** (Grade 8), and the high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling**, **Geometry**, and **Statistics & Probability**~~. Instruction in these domains ~~and conceptual categories~~ should be designed to expose students to experiences, which reflect the value of mathematics, ~~to~~ enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER ▼	MS CCR STANDARD ▼
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
5.SMP.1	Make sense of problems and persevere in solving them.
5.SMP.2	Reason abstractly and quantitatively.
5.SMP.3	Construct viable arguments and critique the reasoning of others.
5.SMP.4	Model with mathematics.
5.SMP.5	Use appropriate tools strategically.
5.SMP.6	Attend to precision.
5.SMP.7	Look for and make use of structure.
5.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

~~Grade 5~~

Operations and Algebraic Thinking (OA)

Write and interpret numerical expressions	
5.OA.1	Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
5.OA.2	Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. *For example, express the calculation "add 8 and 7, then multiply by 2" as 2 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.*
Analyze patterns and relationships	
5.OA.3	Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. *For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.*

Number and Operations in Base Ten (NBT)

Understand the place value system	
5.NBT.1	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left (e.g., *"In the number 3.33, the underlined digit represents 3/10, which is 10 times the amount represented by the digit to its right (3/100) and is 1/10 the amount represented by the digit to its left (3))*.
5.NBT.2	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
5.NBT.3	Read, write, and compare decimals to thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000). b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.
5.NBT.4	Use place value understanding to round decimals to any place.
Perform operations with multi-digit whole numbers and with decimals to hundredths	
5.NBT.5	***Fluently*** multiply multi-digit whole numbers using the standard algorithm.
5.NBT.6	Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Grade 5

5.NBT.7	Add, subtract, multiply, and divide decimals to hundredths, using concrete models (to include, but not limited to: base ten blocks, decimal tiles, etc.) or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
Number and Operations—Fractions (NF)	
Use equivalent fractions as a strategy to add and subtract fractions	
5.NF.1	Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example, 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (In general, a/b + c/d = (ad + bc)/bd.)*
5.NF.2	Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. *For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.*
Apply and extend previous understandings of multiplication and division to multiply and divide fractions	
5.NF.3	Interpret a fraction as division of the numerator by the denominator (*a/b* = *a* ÷ *b*). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. *For example, interpret 3/4 as the result of dividing 3 by 4, noting that 3/4 multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size 3/4. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?*
5.NF.4	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. a. Interpret the product (*a/b*) × *q* as *a* parts of a partition of *q* into *b* equal parts; equivalently, as the result of a sequence of operations *a* × *q* ÷ *b*. *For example, use a visual fraction model to show (2/3) × 4 = 8/3, and create a story context for this equation. Do the same with (2/3) × (4/5) = 8/15. (In general, (a/b) × (c/d) = ac/bd.)* b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.
5.NF.5	Interpret multiplication as scaling (resizing), by: a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence *a/b* = (*n* × *a*)/(*n* × *b*) to the effect of multiplying *a/b* by 1.
5.NF.6	Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

Grade 5

5.NF.7	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.[1] a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. *For example, create a story context for (1/3) ÷ 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) ÷ 4 = 1/12 because (1/12) × 4 = 1/3*. b. Interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for 4 ÷ (1/5), and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 4 ÷ (1/5) = 20 because 20 × (1/5) = 4.* c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?*
Measurement and Data (MD)	
Convert like measurement units within a given measurement system	
5.MD.1	Convert among different-sized standard measurement units within a given measurement system (customary and metric) (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.
Represent and interpret data	
5.MD.2	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. *For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.*
Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition	
5.MD.3	Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume. b. A solid figure which can be packed without gaps or overlaps using *n* unit cubes is said to have a volume of *n* cubic units.
5.MD.4	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

Grade 5

5.MD.5	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication. b. Apply the formulas $V = l \times w \times h$ and $V = \cancel{b}\ B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems. c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.
Geometry (G)	
Graph points on the coordinate plane to solve real-world and mathematical problems	
5.G.1	Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).
5.G.2	Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.
Classify two-dimensional figures into categories based on their properties	
5.G.3	Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. *For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.*
5.G.4	Classify two-dimensional figures in a hierarchy based on properties.

[1] Students able to multiply fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division. But division of a fraction by a fraction is not a requirement at this grade.

~~Additional Resource~~

~~2016 Mississippi College- and Career-Standards Scaffolding Document~~

~~The primary purpose of the *2016 Mississippi College- and Career-Readiness Standards Scaffolding Document* is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career- Readiness Standards for Mathematics, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery. The Scaffolding Document can be found at~~ ~~**http://www.mde.k12.ms.us/ESE/ccr**~~.

~~Standards for Mathematical Practice~~

1. ~~Make sense of problems and persevere in solving them.~~
2. ~~Reason abstractly and quantitatively.~~
3. ~~Construct viable arguments and critique the reasoning of others.~~
4. ~~Model with mathematics.~~
5. ~~Use appropriate tools strategically.~~
6. ~~Attend to precision.~~
7. ~~Look for and make use of structure.~~
8. ~~Look for and express regularity in repeated reasoning.~~

NOTE: Standards for Mathematical Practice have been assigned Standard Numbers for each grade-level and course and precede the content standards for that grade level or course.

Supplemental Elementary School Math Courses

Supplemental Mathematics (Grades 1-4) and (Grades 5-6) courses, formerly Compensatory Mathematics, are designed to provide targeted interventions of core mathematics concepts.[1]
Students in need of instructional support, intervention, or remediation may be enrolled in a Supplemental Mathematics course under the following stipulations:

The Supplemental Mathematics course:

1. must be taken in concert with a credit-bearing course at the same grade level;
2. includes content supportive of the accompanying credit-bearing course;
3. should incorporate the Standards for Mathematical Practice (SMPs); and
4. may be taken as an elective, but will **not** satisfy the number of mathematics Carnegie units required for graduation.

Instruction within the supplemental mathematics courses should be designed to expose students to experiences, which reflect the value of mathematics, to enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

[1] Documentation of Tier II and III interventions is required. ***MS State Board Policy Manual:*** *Rule 41.1 intervention*.

Secondary and Middle School ~~College- and Career-Readiness Standards for Mathematic~~s ~~(~~Grades 6-8~~)~~

Middle School Overview

The *2025 Mississippi College- and Career-Readiness Standards* (MS CCRS) recognize grades 6-8 as the middle grades, with secondary education officially beginning in grade 7 and continuing through high school graduation. This distinction reflects the developmental transition during these years and aligns instructional expectations to prepare students for college and career pathways.

Evidence highlights the importance of foundational knowledge, skills, and practices acquired before advanced high school mathematics. Notably, Grades 6-8 provide some of the most critical concepts for college- and career-readiness. These include applying ratio reasoning to real-world and mathematical problems, computing fluently with positive and negative fractions and decimals, and solving problems involving angle measures, area, surface area, and volume.

Grade 7 serves as a critical bridge between middle and secondary education. At this stage, students can begin earning Carnegie units for coursework, marking the start of their progression toward meeting high school graduation requirements. This structure ensures a seamless and coherent development of skills and knowledge across educational levels.

CCR Math Grade 6

In Grade 6, instruction should focus on four critical areas: (1) connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems; (2) completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers; (3) writing, interpreting, and using expressions and equations; and (4) developing understanding of statistical thinking. Each critical area is described below.

(1) Students use reasoning about multiplication and division to solve ratio and rate problems about quantities. By viewing equivalent ratios and rates as deriving from, and extending, pairs of rows (or columns) in the multiplication table, and by analyzing simple drawings that indicate the relative size of quantities, students connect their understanding of multiplication and division with ratios and rates. Thus students expand the scope of problems for which they can use multiplication and division to solve problems, and they connect ratios and fractions. Students solve a wide variety of problems involving ratios and rates.

(2) Students use the meaning of fractions, the meanings of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for dividing fractions make sense. Students use these operations to solve problems. Students extend their previous understandings of number and the ordering of numbers to the full system of rational numbers, which includes negative rational numbers, and in particular negative integers. They reason about the order and absolute value of rational numbers and about the location of points in all four quadrants of the coordinate plane.

(3) Students understand the use of variables in mathematical expressions. They write expressions and equations that correspond to given situations, evaluate expressions, and use expressions and formulas to solve problems. Students understand that expressions in different forms can be equivalent, and they use the properties of operations to rewrite expressions in equivalent forms. Students know that the solutions of an equation are the values of the variables that make the equation true. Students use properties of operations and the idea of maintaining the equality of both sides of an equation to solve simple one-step equations. Students construct and analyze tables, such as tables of quantities that are in equivalent ratios, and they use equations (such as $3x = y$) to describe relationships between quantities.

(4) Building on and reinforcing their understanding of number, students begin to develop their ability to think statistically. Students recognize that a data distribution may not have a definite center and that different ways to measure center yield different values. The median measures center in the sense that it is roughly the middle value. The mean measures center in the sense that it is the value that each data point would take on if the total of the data values were redistributed equally, and also in the sense that it is a balance point. Students recognize that a measure of variability (interquartile range or mean absolute deviation) can also be useful for

summarizing data because two very different sets of data can have the same mean and median yet be distinguished by their variability. Students learn to describe and summarize numerical data sets, identifying clusters, peaks, gaps, and symmetry, considering the context in which the data were collected.

Students in Grade 6 also build on their work with area in elementary school by reasoning about relationships among shapes to determine area, surface area, and volume. They find areas of right triangles, other triangles, and special quadrilaterals by decomposing these shapes, rearranging or removing pieces, and relating the shapes to rectangles. Using these methods, students discuss, develop, and justify formulas for areas of triangles and parallelograms. Students find areas of polygons and surface areas of prisms and pyramids by decomposing them into pieces whose area they can determine. They reason about right rectangular prisms with fractional side lengths to extend formulas for the volume of a right rectangular prism to fractional side lengths. They prepare for work on scale drawings and constructions in Grade 7 by drawing polygons in the coordinate plane.

The content within ~~of~~ this grade level ~~document~~ is centered on the mathematics domains of ~~**Counting and Cardinality** (Grade K), **Operations and Algebraic Thinking; Numbers and Operations in Base Ten** (Grades K-5); **Numbers and Operations—Fractions** (Grades 3-5); **Measurement and Data** (Grades K-5);~~ **Ratios and Proportional Relationships** (Grades 6- 7); **the Number System, Expressions & Equations, Geometry** (Grades K-8)**,** and **Statistics & Probability** (Grades 6-8).~~; **Functions** (Grade 8), and the high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling**, **Geometry**, and **Statistics & Probability**~~. Instruction in these domains ~~and conceptual categories~~ should be designed to expose students to experiences, which reflect the value of mathematics, ~~to~~ enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER ▼	MS CCR STANDARD ▼
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
6.SMP.1	Make sense of problems and persevere in solving them.
6.SMP.2	Reason abstractly and quantitatively.
6.SMP.3	Construct viable arguments and critique the reasoning of others.
6.SMP.4	Model with mathematics.
6.SMP.5	Use appropriate tools strategically.
6.SMP.6	Attend to precision.
6.SMP.7	Look for and make use of structure.
6.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

~~Grade 6~~

Ratios and Proportional Relationships (RP)

Understand ratio concepts and use ratio reasoning to solve problems

6.RP.1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. *For example, “The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak.” “For every vote candidate A received, candidate C received nearly three votes.”*
6.RP.2	Understand the concept of a unit rate *a/b* associated with a ratio *a:b* with *b* ∗ 0, and use rate language in the context of a ratio relationship. *For example, “This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is 3/4 cup of flour for each cup of sugar.” “We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger.”*[1]
6.RP.3	Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. b. Solve unit rate problems including those involving unit pricing and constant speed. *For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?* c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent. d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

The Number System (NS)

Apply and extend previous understandings of multiplication and division to divide fractions by fractions

6.NS.1	Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (c/d) = ad/bc.) How much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 3/4-cup servings are in 2/3 of a cup of yogurt? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?*

Compute fluently with multi-digit numbers and find common factors and multiples

6.NS.2	***Fluently*** divide multi-digit numbers using the standard algorithm.
6.NS.3	***Fluently*** add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

~~Grade 6~~

6.NS.4	Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. *For example, express 36 + 8 as 4 (9 + 2).*
Apply and extend previous understandings of numbers to the system of rational numbers	
6.NS.5	Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.
6.NS.6	Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., -(-3) = 3, and that 0 is its own opposite. b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.
6.NS.7	Understand ordering and absolute value of rational numbers. a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. *For example, interpret –3 > –7 as a statement that –3 is located to the right of –7 on a number line oriented from left to right*. b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. *For example, write –3 ℃ >-7℃ to express the fact that –3 ℃ is warmer than -7℃*. c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. *For example, for an account balance of –30 dollars, write* |*–30*| *= 30 to describe the size of the debt in dollars.* d. Distinguish comparisons of absolute value from statements about order. *For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars.*
6.NS.8	Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

6.NS.9	Apply and extend previous understandings of addition and subtraction to add and subtract integers; represent addition and subtraction on a horizontal or vertical number line diagram. a. Describe situations in which opposite quantities combine to make 0. *For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged*. b. Understand $p + q$ as the number located a distance $\|q\|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of integers by describing real-world contexts. c. Understand subtraction of integers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two integers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. d. Apply properties of operations as strategies to add and subtract integers.

Expressions and Equations (EE)

Apply and extend previous understandings of arithmetic to algebraic expressions	
6.EE.1	Write and evaluate numerical expressions involving whole-number exponents.
6.EE.2	Write, read, and evaluate expressions in which letters stand for numbers. a. Write expressions that record operations with numbers and with letters standing for numbers. *For example, express the calculation "Subtract y from 5" as 5 – y.* b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. *For example, describe the expression 2 (8 + 7) as a product of two factors; view (8 + 7) as both a single entity and a sum of two terms.* c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). *For example, use the formulas* $V = s^3$ *and* $A = 6\ s^2$ *to find the volume and surface area of a cube with sides of length* $s = 1/2$.
6.EE.3	Apply the properties of operations to generate equivalent expressions. *For example, apply the distributive property to the expression 3 (2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6 (4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y.*
6.EE.4	Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). *For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for*.
Reason about and solve one-variable equations and inequalities	
6.EE.5	~~Understand solving~~ Solve an equation or inequality and understand the ~~as a~~ process ~~of~~ by answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
6.EE.6	Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

6.EE.7	Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.
6.EE.8	Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.

Represent and analyze quantitative relationships between dependent and independent variables	
6.EE.9	Use variables to represent two quantities in a real-world problem that change in relationship to one another. • Write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. • Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. *For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation $d = 65t$ to represent the relationship between distance and time.*
Geometry (G)	
Solve real-world and mathematical problems involving area, surface area, and volume	
6.G.1	Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.
6.G.2	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = lwh$ and $V = \cancel{b}Bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
6.G.3	Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.
6.G.4	Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.
Statistics and Probability (SP)	
Develop understanding of statistical variability	
6.SP.1	Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. *For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.*
6.SP.2	Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.
6.SP.3	Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.

~~Grade 6~~

Summarize and describe distributions	
6.SP.4	Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
6.SP.5	Summarize numerical data sets in relation to their context, such as by: a. Reporting the number of observations. b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

[1] Expectations for unit rates in this grade are limited to non-complex fractions.

Additional Resource

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CCR Math Grade 7

In Grade 7, instruction should focus on four critical areas: (1) developing understanding of and applying proportional relationships; (2) developing understanding of operations with rational numbers and working with expressions and linear equations; (3) solving problems involving scale drawings and informal geometric constructions, and working with two- and three-dimensional shapes to solve problems involving area, surface area, and volume; and (4) drawing inferences about populations based on samples. Each critical area is described below.

(1) Students extend their understanding of ratios and develop understanding of proportionality to solve single- and multi-step problems. Students use their understanding of ratios and proportionality to solve a wide variety of percent problems, including those involving discounts, interest, taxes, tips, and percent increase or decrease. Students solve problems about scale drawings by relating corresponding lengths between the objects or by using the fact that relationships of lengths within an object are preserved in similar objects. Students graph proportional relationships and understand the unit rate informally as a measure of the steepness of the related line, called the slope. They distinguish proportional relationships from other relationships.

(2) Students develop a unified understanding of number, recognizing fractions, decimals (that have a finite or a repeating decimal representation), and percents as different representations of rational numbers. Students extend addition, subtraction, multiplication, and division to all rational numbers, maintaining the properties of operations and the relationships between addition and subtraction, and multiplication and division. By applying these properties, and by viewing negative numbers in terms of everyday contexts (e.g., amounts owed or temperatures below zero), students explain and interpret the rules for adding, subtracting, multiplying, and dividing with negative numbers. They use the arithmetic of rational numbers as they formulate expressions and equations in one variable and use these equations to solve problems.

(3) Students continue their work with area from Grade 6, solving problems involving the area and circumference of a circle and surface area of three-dimensional objects. In preparation for work on congruence and similarity in Grade 8 they reason about relationships among two-dimensional figures using scale drawings and informal geometric constructions, and they gain familiarity with the relationships between angles formed by intersecting lines. Students work with three-dimensional figures, relating them to two-dimensional figures by examining cross-sections. They solve real-world and mathematical problems involving area, surface area, and volume of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes and right prisms.

(4) Students build on their previous work with single data distributions to compare two data distributions and address questions about differences between populations. They begin informal work with random sampling to generate data sets and learn about the importance of representative samples for drawing inferences.

~~Grade 7~~ ~~(continued)~~

The content within ~~of~~ this grade level ~~document~~ is centered on the mathematics domains of ~~**Counting and Cardinality** (Grade K), **Operations and Algebraic Thinking; Numbers and Operations in Base Ten** (Grades K-5); **Numbers and Operations—Fractions** (Grades 3-5); **Measurement and Data** (Grades K-5);~~ **Ratios and Proportional Relationships** (Grades 6- 7); **the Number System, Expressions & Equations, Geometry** (Grades K-8)**,** and **Statistics & Probability** (Grades 6-8).~~;~~ ~~**Functions** (Grade 8), and the high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling**, **Geometry**, and **Statistics & Probability**~~. Instruction in these domains ~~and conceptual categories~~ should be designed to expose students to experiences, which reflect the value of mathematics, ~~to~~ enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER ▼	MS CCR STANDARD ▼
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
7.SMP.1	Make sense of problems and persevere in solving them.
7.SMP.2	Reason abstractly and quantitatively.
7.SMP.3	Construct viable arguments and critique the reasoning of others.
7.SMP.4	Model with mathematics.
7.SMP.5	Use appropriate tools strategically.
7.SMP.6	Attend to precision.
7.SMP.7	Look for and make use of structure.
7.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

~~Grade 7~~

Ratios and Proportional Relationships (RP)

Analyze proportional relationships and use them to solve real-world and mathematical problems

7.RP.1	Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. *For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction* $^{1/2}/_{1/4}$ *miles per hour, equivalently 2 miles per hour.*
7.RP.2	Recognize and represent proportional relationships between quantities. a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. c. Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.* d. Explain what a point (*x, y*) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, *r*) where *r* is the unit rate.
7.RP.3	Use proportional relationships to solve multistep ratio and percent problems. *Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.*

The Number System (NS)

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers

7.NS.1	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. a. Describe situations in which opposite quantities combine to make 0. *For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged*. b. Understand $p + q$ as the number located a distance $\|q\|$ from *p*, in the positive or negative direction depending on whether *q* is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. c. Understand subtraction of rational numbers as adding the additive inverse, $p – q = p + (–q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. d. Apply properties of operations as strategies to add and subtract rational numbers.

7.NS.2	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(–1)(–1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts. c. Apply properties of operations as strategies to multiply and divide rational numbers. d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.
7.NS.3	Solve real-world and mathematical problems involving the four operations with rational numbers.[1]

Expressions and Equations (EE)

Use properties of operations to generate equivalent expressions

7.EE.1	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
7.EE.2	Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, $a + 0.05a = 1.05a$ means that "increase by 5%" is the same as "multiply by 1.05."*

Solve real-life and mathematical problems using numerical and algebraic expressions and equations

7.EE.3	Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making \$25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or \$2.50, for a new salary of \$27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.*
7.EE.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms ***<u>fluently</u>***. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? b. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. *For example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make, and describe the solutions.*

~~Grade 7~~

Geometry (G)	
Draw, construct, and describe geometrical figures and describe the relationships between them	
7.G.1	Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
7.G.2	Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.
7.G.3	Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.
Solve real-life and mathematical problems involving angle measure, area, surface area, and volume	
7.G.4	Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
7.G.5	Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
7.G.6	Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals and polygons including cubes, ~~and~~ right prisms, and pyramids.
Statistics and Probability (SP)	
Use random sampling to draw inferences about a population	
7.SP.1	Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.
7.SP.2	Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. *For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.*
Draw informal comparative inferences about two populations	
7.SP.3	Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability on either team; on a dot plot, the separation between the two distributions of heights is noticeable.

~~Grade 7~~

7.SP.4	Use measures of center and measures of variability (i.e. inter-quartile range) for numerical data from random samples to draw informal comparative inferences about two populations. For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.
Investigate chance processes and develop, use, and, evaluate probability models	
7.SP.5	Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.
7.SP.6	Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.*
7.SP.7	Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.* b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. *For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?*
7.SP.8	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. b. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., “rolling double sixes”), identify the outcomes in the sample space which compose the event. c. Design and use a simulation to generate frequencies for compound events. *For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?*

[1] Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

~~Additional Resource~~

~~2016 Mississippi College- and Career-Standards Scaffolding Document~~

~~The primary purpose of the *2016 Mississippi College- and Career-Readiness Standards Scaffolding Document* is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career-Readiness Standards for Mathematics, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery. The Scaffolding Document can be found at **http://www.mde.k12.ms.us/ESE/ccr**.~~

~~Standards for Mathematical Practice~~

1. ~~Make sense of problems and persevere in solving them.~~
2. ~~Reason abstractly and quantitatively.~~
3. ~~Construct viable arguments and critique the reasoning of others.~~
4. ~~Model with mathematics.~~
5. ~~Use appropriate tools strategically.~~
6. ~~Attend to precision.~~
7. ~~Look for and make use of structure.~~
8. ~~Look for and express regularity in repeated reasoning.~~

NOTE: Standards for Mathematical Practice have been assigned Standard Numbers for each grade-level and course and precede the content standards for that grade level or course.

CCR Math Grade 8

For Math Grade 8, a one-credit course, instruction should focus on 3 critical areas: (1) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations; (2) grasping the concept of a function and using functions to describe quantitative relationships; and (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean Theorem. Each critical area is described below.

(1) Students use linear equations and systems of linear equations to represent, analyze, and solve a variety of problems. Students recognize equations for proportions ($y/x = m$ or $y = mx$) as special linear equations ($y = mx + b$), understanding that the constant of proportionality (m) is the slope, and the graphs are lines through the origin. They understand that the slope (m) of a line is a constant rate of change, so that if the input or x-coordinate changes by an amount A, the output or y-coordinate changes by the amount $m \cdot A$. Students also use a linear equation to describe the association between two quantities in bivariate data (such as arm span vs. height for students in a classroom). At this grade, fitting the model, and assessing its fit to the data are done informally. Interpreting the model in the context of the data requires students to express a relationship between the two quantities in question and to interpret components of the relationship (such as slope and y-intercept) in terms of the situation.

Students strategically choose and efficiently implement procedures to solve linear equations in one variable, understanding that when they use the properties of equality and the concept of logical equivalence, they maintain the solutions of the original equation. Students solve systems of two linear equations in two variables and relate the systems to pairs of lines in the plane; these intersect, are parallel, or are the same line. Students use linear equations, systems of linear equations, linear functions, and their understanding of slope of a line to analyze situations and solve problems.

(2) Students grasp the concept of a function as a rule that assigns to each input exactly one output. They understand that functions describe situations where one quantity determines another. They can translate among representations and partial representations of functions (noting that tabular and graphical representations may be partial representations), and they describe how aspects of the function are reflected in the different representations.

(3) Students use ideas about distance and angles, how they behave under translations, rotations, reflections, and dilations, and ideas about congruence and similarity to describe and analyze two-dimensional figures and to solve problems. Students show that the sum of the angles in a triangle is the angle formed by a straight line, and that various configurations of lines give rise to similar triangles because of the angles created when a transversal cuts parallel lines. Students understand the statement of the Pythagorean Theorem and its converse, and can explain why the Pythagorean Theorem holds, for example, by decomposing a square

~~Grade 8~~ ~~(continued)~~

in two different ways. They apply the Pythagorean Theorem to find distances between points on the coordinate plane, to find lengths, and to analyze polygons. Students complete their work on volume by solving problems involving cones, cylinders, and spheres.

The content within ~~of~~ this grade level ~~document~~ is centered on the mathematics domains of ~~**Counting and Cardinality** (Grade K), **Operations and Algebraic Thinking; Numbers and Operations in Base Ten** (Grades K-5); **Numbers and Operations—Fractions** (Grades 3-5); **Measurement and Data** (Grades K-5); **Ratios and Proportional Relationships** (Grades 6- 7);~~ **the Number System, Expressions & Equations, Geometry** (Grades K-8)**, Statistics & Probability** (Grades 6-8); and **Functions** (Grade 8).~~, and the high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling**, **Geometry**, and **Statistics & Probability**~~. Instruction in these domains ~~and conceptual categories~~ should be designed to expose students to experiences, which reflect the value of mathematics, ~~to~~ enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
8.SMP.1	Make sense of problems and persevere in solving them.
8.SMP.2	Reason abstractly and quantitatively.
8.SMP.3	Construct viable arguments and critique the reasoning of others.
8.SMP.4	Model with mathematics.
8.SMP.5	Use appropriate tools strategically.
8.SMP.6	Attend to precision.
8.SMP.7	Look for and make use of structure.
8.SMP.8	Look for and express regularity in repeated reasoning.

NOTE
The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

~~Grade 8~~

The Number System (NS)

Know that there are numbers that are not rational, and approximate them by rational numbers

8.NS.1	Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.
8.NS.2	Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). *For example, by truncating the decimal expansion of* $\sqrt{2}$*, show that* $\sqrt{2}$ *is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.*

Expressions and Equations (EE)

Work with radicals and integer exponents

8.EE.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions. *For example,* $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.
8.EE.2	Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.
8.EE.3	Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. *For example, estimate the population of the United States as* 3×10^8 *and the population of the world as* 7×10^9*, and determine that the world population is more than 20 times larger.*
8.EE.4	Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.

Understand the connections between proportional relationships, lines, and linear equations

8.EE.5	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.*
8.EE.6	Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.

Analyze and solve linear equations and pairs of simultaneous linear equations	
8.EE.7	Solve linear equations in one variable. a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers). b. Solve linear equations and inequalities with rational number coefficients, including those whose solutions require expanding expressions using the distributive property and collecting like terms.
8.EE.8	Analyze and solve pairs of simultaneous linear equations. a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously. b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. *For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6.* c. Solve real-world and mathematical problems leading to two linear equations in two variables. *For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.*
Functions (F)	
Define, evaluate, and compare functions	
8.F.1	Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. [1]
8.F.2	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.*
8.F.3	Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. *For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.*
Use functions to model relationships between quantities	
8.F.4	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.

8.F.5	Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.
Geometry (G)	
Understand congruence and similarity using physical models, transparencies, or geometry software	
8.G.1	Verify experimentally the properties of rotations, reflections, and translations a. Lines are taken to lines, and line segments to line segments of the same length. b. Angles are taken to angles of the same measure. c. Parallel lines are taken to parallel lines.
8.G.2	Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
8.G.3	Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
8.G.4	Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.
8.G.5	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. *For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.*
Understand and apply the Pythagorean Theorem	
8.G.6	Explain a proof of the Pythagorean Theorem and its converse.
8.G.7	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
8.G.8	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.
Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres	
8.G.9	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.
Statistics and Probability (SP)	
Investigate patterns of association in bivariate data	
8.SP.1	Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.

~~**Grade 8**~~

8.SP.2	Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.
8.SP.3	Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. *For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.*
8.SP.4	Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. *For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?*

[1] Function notation is not required in Grade 8.

~~Additional Resource~~

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~~Acceleration in~~ Middle School~~—~~ Acceleration

~~There are some students who are able to move through the mathematics quickly. These students may choose to take high school mathematics beginning in eighth grade or earlier so they can take college-level mathematics in high school. Students who are capable of moving more quickly deserve thoughtful attention, both to ensure that they are challenged and that they are mastering the full range of mathematical content and skills—without omitting critical concepts and topics. Care must be taken to ensure that students master and fully understand all important topics in the mathematics curriculum, and that the continuity of the mathematics learning progression is not disrupted. In particular, the Standards for Mathematical Practice ought to continue to be emphasized in these cases.~~

~~To prepare students for high school mathematics in eighth grade, the MDE has developed a well-crafted sequence of **compacted courses**. The term "compacted" means to compress content, which requires a faster pace to complete, as opposed to skipping content. These compacted courses are designed for districts offering the Traditional Pathway (Algebra I – Geometry – Algebra II) high school sequence, and the other for districts using an Integrated Pathway sequence (Integrated Math I – Integrated Math II – Integrated Math III) which is commonly found internationally. A snapshot of the content standards in each Pathway is available on pages 135-136. Both Pathways are based on the idea that content should compact 3 years of content into 2 years, at most. As a result, Grades 7, 8, and 9 were compacted into Grades 7 and 8 (a 3:2 compaction). Whereas, some 8th grade content is addressed in the 7th grade courses, and high school content is addressed in 8th grade.~~

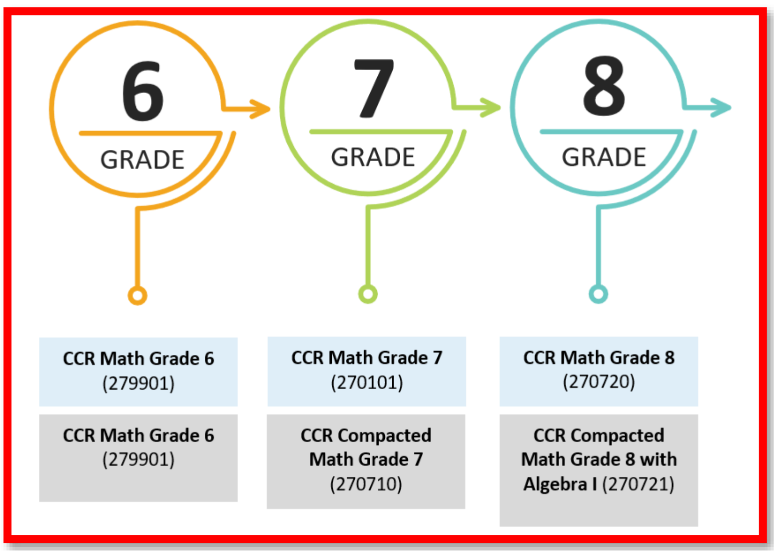
~~The Compacted Traditional sequence compacts MS CCRS Grade 7, MS CCRS Grade 8, and high school MS CCRS Algebra I into two years. Upon successful completion of this Pathway, students will be ready for MS CCRS Geometry or MS CCRS Algebra II in high school. The Compacted Integrated sequence compacts MS CCRS Grade 7, MS CCRS Grade 8, and MS CCRS Integrated Mathematics I into two years. At the end of 8th grade, these students will be ready for MS CCRS Integrated Mathematics II in high school. While the MS CCRS Grades K-7 effectively prepare students for algebra I in 8th grade, some standards from 8th grade have been placed in the Compacted Mathematics Grade 7 course to make the Compacted Mathematics Grade 8 courses more manageable- regardless of the Pathway chosen.~~

The Standards ensure students are prepared for Algebra I in 8th grade by incorporating the necessary prerequisites in grades K–7. Mastery of this content enables students to successfully engage in Algebra I, while the grade 8 standards provide rigorous algebraic concepts that seamlessly transition students into the Algebra I course. Some students can move through mathematics quickly. These students may take high school mathematics beginning in eighth grade or earlier to take college-level mathematics in high school.

Students capable of progressing more quickly deserve thoughtful attention to ensure they are both challenged and mastering the full range of mathematical content and skills without skipping critical concepts. It is essential to maintain continuity in the mathematics learning progression, ensuring students fully understand all important topics. To support this, the MDE has developed a carefully designed sequence of **compacted courses**.

> *The term "compacted" refers to condensing or streamlining content to allow students to progress through material more quickly, often at an accelerated pace. This approach, commonly used in gifted education or advanced programs, enables students to master standard curriculum topics efficiently, creating space for more advanced content. Unlike skipping content, compacting involves compressing material, requiring a faster pace to complete while ensuring all key concepts are covered.*

The Middle School Compacted Math Pathway compresses three courses—MS CCRS Grade 7, MS CCRS Grade 8, and MS CCRS Algebra I—into two years (a 3:2 compaction). The MS CCRS Compacted Grade 7 course covers all Grade 7 standards and part of Grade 8 standards, while the MS CCRS Compacted Grade 8 course includes the remaining Grade 8 standards and all MS CCRS Algebra I content.[1] *See the Suggested Middle School Math Pathways below.*



[1] The CCR Compacted Math Grade 8 with Algebra I course includes the High School Conceptual Categories (See pp. 155-163)

1. **Compacted courses should include the same Mississippi College- and Career-Readiness Standards as the non-compacted courses.**
   It is recommended to compact three years of material into two years, rather than compacting two years into one. The rationale is that mathematical concepts are likely to be omitted when trying to squeeze two years of material into one. This is to be avoided, as the standards have been carefully developed to define clear learning progressions through the major mathematical domains. Moreover, the compacted courses should not sacrifice attention to the Mathematical Practices Standard.

~~Acceleration in Middle School~~ ~~(continued)~~

2. **Decisions to accelerate students into the Mississippi College- and Career- Readiness Standards for high school mathematics before ninth grade should not be rushed.**
   Placing students into tracks too early should be avoided at all costs. It is not recommended to compact the standards before grade seven. ~~In this document, compaction begins in seventh grade for both the traditional and integrated (international) pathways~~.

3. **Decisions to accelerate students into high school mathematics before ninth grade should be based on solid evidence of student learning.**
   Research has shown discrepancies in the placement of students into "advanced" classes by race/ethnicity and socioeconomic background. While such decisions to accelerate are almost always a joint decision between the school and the family, serious efforts must be made to consider solid evidence of student learning in order to avoid unwittingly disadvantaging the opportunities of particular groups of students.

4. **A menu of challenging options should be available for students after their third year of mathematics—and all students should be strongly encouraged to take mathematics in all years of high school.**
   Traditionally, students taking high school mathematics in the eighth grade are expected to take ~~a Pre-Calculus or~~ Algebra III course in their junior years and then Calculus in their senior years. This is a good and worthy goal, but it should not be the only option for students. An array of challenging options will keep mathematics relevant for students and give them a new set of tools for their futures in college and career.

~~Secondary Sequence Options~~

~~Students will progress according to grade level through the sixth grade. Beginning in the seventh grade, students are given course sequence options based on academic progress, teacher recommendation, and parental consent. Below are **suggested** secondary course sequence options:~~

~~Suggested Secondary Course Sequence Options for Mathematics~~

~~Grade Level~~	~~OPTION 1~~	~~OPTION 2~~	~~OPTION 3~~
~~7~~	~~Grade 7~~	~~Compacted Grade 7 (with Grade 8)~~	~~Compacted Grade 7 (with Grade 8)~~
~~8~~	~~Grade 8~~	~~Compacted Grade 8 (with Algebra I)~~ **~~or~~** ~~Compacted Grade 8 (with Integrated Math I)~~	~~Compacted Grade 8 (with Algebra I)~~ **~~or~~** ~~Compacted Grade 8 (with Integrated Math I)~~
~~9~~	~~Algebra I~~ **~~or~~** ~~Integrated Math I~~	~~Geometry~~ **~~or~~** ~~Integrated Math II~~	~~Algebra II~~ **~~or~~** ~~Integrated Math II~~
~~10~~	~~Geometry~~ **~~or~~** ~~Integrated Math II~~	~~Algebra II~~ **~~or~~** ~~Integrated Math III~~	~~Geometry~~ **~~or~~** ~~Integrated Math III~~
~~11~~	~~Algebra II~~ **~~or~~** ~~Integrated Math III~~	~~Algebra III, Advanced Mathematics Plus, AP Precalculus, Calculus, AP Calculus, AP Statistics, Dual Credit/Dual Enrollment or SREB Math Ready Course~~	~~Algebra III, Advanced Mathematics Plus, AP Precalculus, Calculus, AP Calculus, AP Statistics, Dual Credit/Dual Enrollment or SREB Math Ready Course~~
~~12~~	~~Algebra III, Advanced Mathematics Plus, AP Precalculus, Calculus, AP Calculus, AP Statistics, Dual Credit/Dual Enrollment or SREB Math Ready Course~~	~~Algebra III, Advanced Mathematics Plus, AP Precalculus, Calculus, AP Calculus, AP Statistics, Dual Credit/Dual Enrollment or SREB Math Ready Course~~	~~Algebra III, Advanced Mathematics Plus, AP Precalculus, Calculus, AP Calculus, AP Statistics, Dual Credit/Dual Enrollment or SREB Math Ready Course~~

~~High School Conceptual Categories~~

~~The high school standards specify the mathematics that all students should study in order to be college and career ready. Additional mathematics that students might learn in order to take advanced courses are included in the Advanced Mathematics Plus and Algebra III courses.~~

~~The high school standards are listed in conceptual categories:~~

- ~~Number and Quantity~~
- ~~Algebra~~
- ~~Functions~~
- ~~Modeling~~
- ~~Geometry~~
- ~~Statistics and Probability~~

~~Conceptual categories portray a coherent view of high school mathematics; a student's work with functions, for example, crosses a number of traditional course boundaries, potentially up through and including calculus.~~

~~Modeling is best interpreted not as a collection of isolated topics but in relation to other standards. Making mathematical models is a Standard for Mathematical Practice, and specific modeling standards appear throughout the high school standards indicated by an asterisk (*). The asterisk (*) symbol sometimes appears on the heading for a group of standards; in that case, it should be understood to apply to all standards in that group.~~

~~High School—Number and Quantity Conceptual Category~~

~~**Numbers and Number Systems.** During the years from kindergarten to eighth grade, students must repeatedly extend their conception of number. At first, “number” means “counting number”: 1, 2, 3... Soon after that, 0 is used to represent “none” and the whole numbers are formed by the counting numbers together with zero. The next extension is fractions. At first, fractions are barely numbers and tied strongly to pictorial representations. Yet by the time students understand division of fractions, they have a strong concept of fractions as numbers and have connected them, via their decimal representations, with the base-ten system used to represent the whole numbers. During middle school, fractions are augmented by negative fractions to form the rational numbers. In Grade 8, students extend this system once more, augmenting the rational numbers with the irrational numbers to form the real numbers. In high school, students will be exposed to yet another extension of number, when the real numbers are augmented by the imaginary numbers to form the complex numbers.~~

~~With each extension of number, the meanings of addition, subtraction, multiplication, and division are extended. In each new number system—integers, rational numbers, real numbers, and complex numbers—the four operations stay the same in two important ways: They have the commutative, associative, and distributive properties and their new meanings are consistent with their previous meanings.~~

~~Extending the properties of whole-number exponents leads to new and productive notation. For example, properties of whole-number exponents suggest that $(5^{1/3})^3$ should be $5^{(1/3)3} = 5^1 = 5$ and that $5^{1/3}$ should be the cube root of 5.~~

~~Calculators, spreadsheets, and computer algebra systems can provide ways for students to become better acquainted with these new number systems and their notation. They can be used to generate data for numerical experiments, to help understand the workings of matrix, vector, and complex number algebra, and to experiment with non-integer exponents.~~

~~**Quantities.** In real world problems, the answers are usually not numbers but quantities: numbers with units, which involves measurement. In their work in measurement up through Grade 8, students primarily measure commonly used attributes such as length, area, and volume. In high school, students encounter a wider variety of units in modeling, e.g., acceleration, currency conversions, derived quantities such as person-hours and heating degree days, social science rates such as per-capita income, and rates in everyday life such as points scored per game or batting averages. They also encounter novel situations in which they themselves must conceive the attributes of interest. For example, to find a good measure of overall highway safety, they might propose measures such as fatalities per year, fatalities per year per driver, or fatalities per vehicle-mile traveled. Such a conceptual process is sometimes called quantification. Quantification is important for science, as when surface area suddenly “stands out” as an important variable in evaporation. Quantification is also important for companies, which must conceptualize relevant attributes and create or choose suitable measures for them.~~

~~High School—Algebra Conceptual Category~~

~~**Expressions.** An expression is a record of a computation with numbers, symbols that represent numbers, arithmetic operations, exponentiation, and, at more advanced levels, the operation of evaluating a function. Conventions about the use of parentheses and the order of operations assure that each expression is unambiguous. Creating an expression that describes a computation involving a general quantity requires the ability to express the computation in general terms, abstracting from specific instances.~~

~~Reading an expression with comprehension involves analysis of its underlying structure. This may suggest a different but equivalent way of writing the expression that exhibits some different aspect of its meaning. For example, $p + 0.05p$ can be interpreted as the addition of a 5% tax to a price p. Rewriting $p + 0.05p$ as $1.05p$ shows that adding a tax is the same as multiplying the price by a constant factor.~~

~~Algebraic manipulations are governed by the properties of operations and exponents, and the conventions of algebraic notation. At times, an expression is the result of applying operations to simpler expressions. For example, $p + 0.05p$ is the sum of the simpler expressions p and $0.05p$. Viewing an expression as the result of operation on simpler expressions can sometimes clarify its underlying structure.~~

~~A spreadsheet or a computer algebra system (CAS) can be used to experiment with algebraic expressions, perform complicated algebraic manipulations, and understand how algebraic manipulations behave.~~

~~**Equations and inequalities.** An equation is a statement of equality between two expressions, often viewed as a question asking for which values of the variables the expressions on either side are in fact equal. These values are the solutions to the equation. An identity, in contrast, is true for all values of the variables; identities are often developed by rewriting an expression in an equivalent form.~~

~~The solutions of an equation in one variable form a set of numbers; the solutions of an equation in two variables form a set of ordered pairs of numbers, which can be plotted in the coordinate plane. Two or more equations and/or inequalities form a system. A solution for such a system must satisfy every equation and inequality in the system.~~

~~An equation can often be solved by successively deducing from it one or more simpler equations. For example, one can add the same constant to both sides without changing the solutions, but squaring both sides might lead to extraneous solutions. Strategic competence in solving includes looking ahead for productive manipulations and anticipating the nature and number of solutions.~~

~~Some equations have no solutions in a given number system, but have a solution in a larger system. For example, the solution of $x + 1 = 0$ is an integer, not a whole number; the solution of $2x + 1 = 0$ is a rational number, not an integer; the solutions of $x^2 – 2 = 0$ are real numbers, not rational numbers; and the solutions of $x^2 + 2 = 0$ are complex numbers, not real numbers.~~

~~High School—Algebra Conceptual Category~~ ~~(continued)~~

~~The same solution techniques used to solve equations can be used to rearrange formulas. For example, the formula for the area of a trapezoid,~~ $\cancel{A = ((b_1+b_2)/2)h}$~~, can be solved for~~ $\cancel{h}$ ~~using the same deductive process. Inequalities can be solved by reasoning about the properties of inequality. Many, but not all, of the properties of equality continue to hold for inequalities and can be useful in solving them.~~

~~**Connections to Functions and Modeling.**~~ ~~Expressions can define functions, and equivalent expressions define the same function. Asking when two functions have the same value for the same input leads to an equation; graphing the two functions allows for finding approximate solutions of the equation. Converting a verbal description to an equation, inequality, or system of these is an essential skill in modeling.~~

~~High School—Functions Conceptual Category~~

~~Functions describe situations where one quantity determines another. For example, the return on $10,000 invested at an annualized percentage rate of 4.25% is a function of the length of time the money is invested. Because we continually make theories about dependencies between quantities in nature and society, functions are important tools in the construction of mathematical models.~~

~~In school mathematics, functions usually have numerical inputs and outputs and are often defined by an algebraic expression. For example, the time in hours it takes for a car to drive 100 miles is a function of the car's speed in miles per hour, *v*; the rule *T(v)* = 100/*v* expresses this relationship algebraically and defines a function whose name is *T*.~~

~~The set of inputs to a function is called its domain. We often infer the domain to be all inputs for which the expression defining a function has a value, or for which the function makes sense in a given context.~~

~~A function can be described in various ways, such as by a graph (e.g., the trace of a seismograph); by a verbal rule, as in, "I'll give you a state, you give me the capital city;" by an algebraic expression like *f(x) = a + bx*; or by a recursive rule. The graph of a function is often a useful way of visualizing the relationship of the function models, and manipulating a mathematical expression for a function can throw light on the function's properties.~~

~~Functions presented as expressions can model many important phenomena. Two important families of functions characterized by laws of growth are linear functions, which grow at a constant rate, and exponential functions, which grow at a constant percent rate. Linear functions with a constant term of zero describe proportional relationships.~~

~~A graphing utility or a computer algebra system can be used to experiment with properties of these functions and their graphs and to build computational models of functions, including recursively defined functions.~~

~~Connections to Expressions, Equations, Modeling, and Coordinates. Determining an output value for a particular input involves evaluating an expression; finding inputs that yield a given output involves solving an equation. Questions about when two functions have the same value for the same input lead to equations, whose solutions can be visualized from the intersection of their graphs. Because functions describe relationships between quantities, they are frequently used in modeling. Sometimes functions are defined by a recursive process, which can be displayed effectively using a spreadsheet or other technology.~~

~~High School—Modeling Conceptual Category~~

~~Modeling links classroom mathematics and statistics to everyday life, work, and decision-making. Modeling is the process of choosing and using appropriate mathematics and statistics to analyze empirical situations, to understand them better, and to improve decisions. Quantities and their relationships in physical, economic, public policy, social, and everyday situations can be modeled using mathematical and statistical methods. When making mathematical models, technology is valuable for varying assumptions, exploring consequences, and comparing predictions with data.~~

~~A model can be very simple, such as writing total cost as a product of unit price and number bought, or using a geometric shape to describe a physical object like a coin. Even such simple models involve making choices. It is up to us whether to model a coin as a three-dimensional cylinder, or whether a two-dimensional disk works well enough for our purposes. Other situations—modeling a delivery route, a production schedule, or a comparison of loan amortizations—need more elaborate models that use other tools from the mathematical sciences. Real-world situations are not organized and labeled for analysis; formulating tractable models, representing such models, and analyzing them is appropriately a creative process. Like every such process, this depends on acquired expertise as well as creativity.~~

~~Some examples of such situations might include:~~

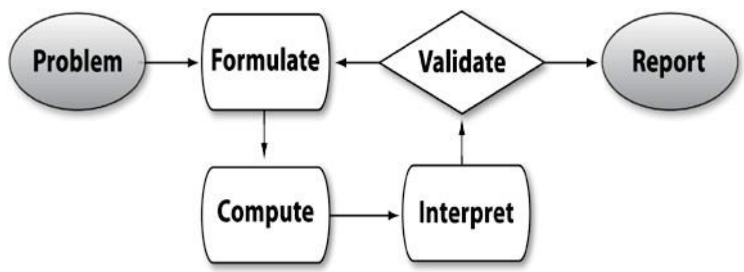
- ~~Estimating how much water and food is needed for emergency relief in a devastated city of 3 million people, and how it might be distributed.~~
- ~~Planning a table tennis tournament for 7 players at a club with 4 tables, where each player plays against each other player.~~
- ~~Designing the layout of the stalls in a school fair so as to raise as much money as possible.~~
- ~~Analyzing stopping distance for a car.~~
- ~~Modeling savings account balance, bacterial colony growth, or investment growth.~~
- ~~Engaging in critical path analysis, e.g., applied to turnaround of an aircraft at an airport.~~
- ~~Analyzing risk in situations such as extreme sports, pandemics, and terrorism.~~
- ~~Relating population statistics to individual predictions.~~

~~In situations like these, the models devised depend on a number of factors: How precise an answer do we want or need? What aspects of the situation do we most need to understand, control, or optimize? What resources of time and tools do we have? The range of models that we can create and analyze is also constrained by the limitations of our mathematical, statistical, and technical skills, and our ability to recognize significant variables and relationships among them. Diagrams of various kinds, spreadsheets and~~

~~Modeling Conceptual Category~~ ~~(continued)~~

~~other technology, and algebra are powerful tools for understanding and solving problems drawn from different types of real-world situations.~~

~~One of the insights provided by mathematical modeling is that essentially the same mathematical or statistical structure can sometimes model seemingly different situations. Models can also shed light on the mathematical structures themselves, for example, as when a model of bacterial growth makes more vivid the explosive growth of the exponential function.~~



~~The basic modeling cycle is summarized in the diagram. It involves (1) identifying variables in the situation and selecting those that represent essential features, (2) formulating a model by creating and selecting geometric, graphical, tabular, algebraic, or statistical representations that describe relationships between the variables, (3) analyzing and performing operations on these relationships to draw conclusions, (4) interpreting the results of the mathematics in terms of the original situation, (5) validating the conclusions by comparing them with the situation, and then either improving the model or, if it is acceptable, (6) reporting on the conclusions and the reasoning behind them. Choices, assumptions, and approximations are present throughout this cycle.~~

~~In descriptive modeling, a model simply describes the phenomena or summarizes them in a compact form. Graphs of observations are a familiar descriptive model—for example, graphs of global temperature and atmospheric~~ ~~CO_2~~ ~~over time.~~

~~Analytic modeling seeks to explain data on the basis of deeper theoretical ideas, albeit with parameters that are empirically based; for example, exponential growth of bacterial colonies (until cut-off mechanisms such as pollution or starvation intervene) follows from a constant reproduction rate. Functions are an important tool for analyzing such problems. Graphing utilities, spreadsheets, computer algebra systems, and dynamic geometry software are powerful tools that can be used to model purely mathematical phenomena (e.g., the behavior of polynomials) as well as physical phenomena.~~

~~**Modeling Standards.**~~ ~~*Modeling is best interpreted not as a collection of isolated topics but rather in relation to other standards. Making mathematical models is a Standard for Mathematical Practice, and specific modeling standards appear throughout the high school standards indicated by an asterisk (*).*~~

~~Geometry Conceptual Category~~

~~An understanding of the attributes and relationships of geometric objects can be applied in diverse contexts—interpreting a schematic drawing, estimating the amount of wood needed to frame a sloping roof, rendering computer graphics, or designing a sewing pattern for the most efficient use of material.~~

~~Although there are many types of geometry, school mathematics is devoted primarily to plane Euclidean geometry, studied both synthetically (without coordinates) and analytically (with coordinates). Euclidean geometry is characterized most importantly by the Parallel Postulate that through a point not on a given line there is exactly one parallel line. (Spherical geometry, in contrast, has no parallel lines.)~~

~~During high school, students begin to formalize their geometry experiences from elementary and middle school, using more precise definitions and developing careful proofs. Later in college some students develop Euclidean and other geometries carefully from a small set of axioms.~~

~~The concepts of congruence, similarity, and symmetry can be understood from the perspective of geometric transformation. Fundamental are the rigid motions: translations, rotations, reflections, and combinations of these, all of which are here assumed to preserve distance and angles (and therefore shapes generally). Reflections and rotations each explain a particular type of symmetry, and the symmetries of an object offer insight into its attributes—as when the reflective symmetry of an isosceles triangle assures that its base angles are congruent.~~

~~In the approach taken here, two geometric figures are defined to be congruent if there is a sequence of rigid motions that carries one onto the other. This is the principle of superposition. For triangles, congruence means the equality of all corresponding pairs of sides and all corresponding pairs of angles. During the middle grades, through experiences drawing triangles from given conditions, students notice ways to specify enough measures in a triangle to ensure that all triangles drawn with those measures are congruent. Once these triangle congruence criteria (ASA, SAS, and SSS) are established using rigid motions, they can be used to prove theorems about triangles, quadrilaterals, and other geometric figures.~~

~~Similarity transformations (rigid motions followed by dilations) define similarity in the same way that rigid motions define congruence, thereby formalizing the similarity ideas of "same shape" and "scale factor" developed in the middle grades. These transformations lead to the criterion for triangle similarity that two pairs of corresponding angles are congruent.~~
~~The definitions of sine, cosine, and tangent for acute angles are founded on right triangles and similarity, and, with the Pythagorean Theorem, are fundamental in many real-world and theoretical situations. The Pythagorean Theorem is generalized to non-right triangles by the Law of Cosines. Together, the Laws of Sines and Cosines embody~~

~~Geometry Conceptual Category~~ ~~(continued)~~

~~the triangle congruence criteria for the cases where three pieces of information suffice to completely solve a triangle. Furthermore, these laws yield two possible solutions in the ambiguous case, illustrating that Side-Side-Angle is not a congruence criterion.~~

~~Analytic geometry connects algebra and geometry, resulting in powerful methods of analysis and problem solving. Just as the number line associates numbers with locations in one dimension, a pair of perpendicular axes associates pairs of numbers with locations in two dimensions. This correspondence between numerical coordinates and geometric points allows methods from algebra to be applied to geometry and vice versa. The solution set of an equation becomes a geometric curve, making visualization a tool for doing and understanding algebra. Geometric shapes can be described by equations, making algebraic manipulation into a tool for geometric understanding, modeling, and proof. Geometric transformations of the graphs of equations correspond to algebraic changes in their equations.~~

~~Dynamic geometry environments provide students with experimental and modeling tools that allow them to investigate geometric phenomena in much the same way as computer algebra systems allow them to experiment with algebraic phenomena.~~

~~Connections to Equations.~~ ~~The correspondence between numerical coordinates and geometric points allows methods from algebra to be applied to geometry and vice versa. The solution set of an equation becomes a geometric curve, making visualization a tool for doing and understanding algebra. Geometric shapes can be described by equations, making algebraic manipulation into a tool for geometric understanding, modeling, and proof.~~

~~Statistics and Probability* Conceptual Category~~

~~Decisions or predictions are often based on data—numbers in context. These decisions or predictions would be easy if the data always sent a clear message, but the message is often obscured by variability. Statistics provides tools for describing variability in data and for making informed decisions that take it into account.~~

~~Data are gathered, displayed, summarized, examined, and interpreted to discover patterns and deviations from patterns. Quantitative data can be described in terms of key characteristics: measures of shape, center, and spread. The shape of a data distribution might be described as symmetric, skewed, flat, or bell shaped, and it might be summarized by a statistic measuring center (such as mean or median) and a statistic measuring spread (such as standard deviation or interquartile range). Different distributions can be compared numerically using these statistics or compared visually using plots. Knowledge of center and spread are not enough to describe a distribution. Which statistics to compare, which plots to use, and what the results of a comparison might mean, depend on the question to be investigated and the real-life actions to be taken.~~

~~Randomization has two important uses in drawing statistical conclusions. First, collecting data from a random sample of a population makes it possible to draw valid conclusions about the whole population, taking variability into account. Second, randomly assigning individuals to different treatments allows a fair comparison of the effectiveness of those treatments. A statistically significant outcome is one that is unlikely to be due to chance alone, and this can be evaluated only under the condition of randomness. The conditions under which data are collected are important in drawing conclusions from the data; in critically reviewing uses of statistics in public media and other reports, it is important to consider the study design, how the data were gathered, and the analyses employed as well as the data summaries and the conclusions drawn.~~

~~Random processes can be described mathematically by using a probability model: a list or description of the possible outcomes (the sample space), each of which is assigned a probability. In situations such as flipping a coin, rolling a number cube, or drawing a card, it might be reasonable to assume various outcomes are equally likely. In a probability model, sample points represent outcomes and combine to make up events; probabilities of events can be computed by applying the Addition and Multiplication Rules. Interpreting these probabilities relies on an understanding of independence and conditional probability, which can be approached through the analysis of two-way tables. Technology plays an important role in statistics and probability by making it possible to generate plots, regression functions, and correlation coefficients, and to simulate many possible outcomes in a short amount of time.~~

~~**Connections to Functions and Modeling.** Functions may be used to describe data; if the data suggest a linear relationship, the relationship can be modeled with a regression line, and its strength and direction can be expressed through a correlation coefficient.~~

CCR Compacted Mathe~~matics~~ Grade 7 (with Grade 8)

In Compacted Mathematics Grade 7, a one-credit course, instruction should focus on four critical areas from Grade 7: (1) applying proportional relationships; (2) developing understanding of operations with rational numbers and working with expressions and linear equations; (3) solving problems involving scale drawings and informal geometric constructions, and working with two- and three-dimensional shapes to solve problems involving area, surface area, and volume; and (4) drawing inferences about populations based on samples. Each critical area is described below.

(1) Students extend their understanding of ratios and develop understanding of proportionality to solve single- and multi-step problems. Students use their understanding of ratios and proportionality to solve a wide variety of percent problems, including those involving discounts, interest, taxes, tips, and percent increase or decrease. Students solve problems about scale drawings by relating corresponding lengths between the objects or by using the fact that relationships of lengths within an object are preserved in similar objects. Students graph proportional relationships and understand the unit rate informally as a measure of the steepness of the related line, called the slope. They distinguish proportional relationships from other relationships.

(2) Students develop a unified understanding of number, recognizing fractions, decimals (that have a finite or a repeating decimal representation), and percents as different representations of rational numbers. Students extend addition, subtraction, multiplication, and division to all rational numbers, maintaining the properties of operations and the relationships between addition and subtraction, and multiplication and division. By applying these properties, and by viewing negative numbers in terms of everyday contexts (e.g., amounts owed or temperatures below zero), students explain and interpret the rules for adding, subtracting, multiplying, and dividing with negative numbers. They use the arithmetic of rational numbers as they formulate expressions and equations in one variable and use these equations to solve problems.

(3) Students continue their work with area from Grade 6, solving problems involving the area and circumference of a circle and surface area of three-dimensional objects. In preparation for work on congruence and similarity in Grade 8 they reason about relationships among two-dimensional figures using scale drawings and informal geometric constructions, and they gain familiarity with the relationships between angles formed by intersecting lines. Students work with three-dimensional figures, relating them to two-dimensional figures by examining cross-sections. They solve real-world problems involving area, surface area, and volume of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes and right prisms.

(4) Students build on their previous work with single data distributions to compare two data distributions and address questions about differences between populations. They begin informal work with random sampling to generate data sets and learn about the importance of representative samples for drawing inferences.

~~Compacted Mathematics Grade 7~~ ~~(continued)~~

In Compacted Mathematics Grade 7, instruction should focus on three critical areas from Grade 8: (1) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations; (2) grasping the concept of a function and using functions to describe quantitative relationships; (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence. Each critical area is described below.

(1) Students use linear equations and systems of linear equations to represent, analyze, and solve a variety of problems. Students recognize equations for proportions ($y/x = m$ or $y = mx$) as special linear equations ($y = mx + b$), understanding that the constant of proportionality (m) is the slope, and the graphs are lines through the origin. They understand that the slope (m) of a line is a constant rate of change, so that if the input or x-coordinate changes by an amount A, the output or y-coordinate changes by the amount $m \cdot A$. Students also use a linear equation to describe the association between two quantities in bivariate data (such as arm span vs. height for students in a classroom). At this grade, fitting the model, and assessing its fit to the data are done informally. Interpreting the model in the context of the data requires students to express a relationship between the two quantities in question and to interpret components of the relationship (such as slope and y-intercept) in terms of the situation.

Students strategically choose and efficiently implement procedures to solve linear equations in one variable, understanding that when they use the properties of equality and the concept of logical equivalence, they maintain the solutions of the original equation. Students solve systems of two linear equations in two variables and relate the systems to pairs of lines in the plane; these intersect, are parallel, or are the same line. Students use linear equations, systems of linear equations, linear functions, and their understanding of slope of a line to analyze situations and solve problems.

(2) Students grasp the concept of a function as a rule that assigns to each input exactly one output. They understand that functions describe situations where one quantity determines another. They can translate among representations and partial representations of functions (noting that tabular and graphical representations may be partial representations), and they describe how aspects of the function are reflected in the different representations.

(3) Students use ideas about distance and angles, how they behave under translations, rotations, reflections, and dilations, and ideas about congruence and similarity to describe and analyze two-dimensional figures and to solve problems. Students show that the sum of the angles in a triangle is the angle formed by a straight line, and that various configurations of lines give rise to similar triangles because of the angles created when a transversal cuts parallel lines.

~~Compacted Mathematics Grade 7~~ ~~**(continued)**~~

The content within ~~of~~ this grade level ~~document~~ is centered on the mathematics domains of ~~**Counting and Cardinality** (Grade K), **Operations and Algebraic Thinking; Numbers and Operations in Base Ten** (Grades K-5); **Numbers and Operations—Fractions** (Grades 3-5); **Measurement and Data** (Grades K-5);~~ **Ratios and Proportional Relationships** (Grades 6- 7); **the Number System, Expressions & Equations, Geometry** (Grades K-8)**,** and **Statistics & Probability** (Grades 6-8).~~;~~ ~~**Functions** (Grade 8), and the high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling**, **Geometry**, and **Statistics & Probability**~~. Instruction in these domains ~~and conceptual categories~~ should be designed to expose students to experiences, which reflect the value of mathematics, ~~to~~ enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER ▼	MS CCR STANDARD ▼
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
7.SMP.1	Make sense of problems and persevere in solving them.
7.SMP.2	Reason abstractly and quantitatively.
7.SMP.3	Construct viable arguments and critique the reasoning of others.
7.SMP.4	Model with mathematics.
7.SMP.5	Use appropriate tools strategically.
7.SMP.6	Attend to precision.
7.SMP.7	Look for and make use of structure.
7.SMP.8	Look for and express regularity in repeated reasoning.

NOTE
The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

~~Compacted Mathematics Grade 7~~

Ratios and Proportional Relationships

Analyze proportional relationships and use them to solve real-world and mathematical problems

7.RP.1	Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. *For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction* $^{1/2}/_{1/4}$ *miles per hour, equivalently 2 miles per hour.*
7.RP.2	Recognize and represent proportional relationships between quantities. a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. c. Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.* d. Explain what a point (*x, y*) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, *r*) where *r* is the unit rate.
7.RP.3	Use proportional relationships to solve multistep ratio and percent problems. *Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.*

The Number System

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers

7.NS.1	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. a. Describe situations in which opposite quantities combine to make 0. *For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged*. b. Understand $p + q$ as the number located a distance $\lvert q \rvert$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. c. Understand subtraction of rational numbers as adding the additive inverse, $p – q = p + (–q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. d. Apply properties of operations as strategies to add and subtract rational numbers.

~~Compacted Mathematics Grade 7~~

7.NS.2	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (–1)(–1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts. c. Apply properties of operations as strategies to multiply and divide rational numbers. d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.
7.NS.3	Solve real-world and mathematical problems involving the four operations with rational numbers.[1]
	Know that there are numbers that are not rational, and approximate them by rational numbers
8.NS.1	Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.
8.NS.2	Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). *For example, by truncating the decimal expansion of $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.*
	Expressions and Equations
	Use properties of operations to generate equivalent expressions
7.EE.1	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
7.EE.2	Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05."*
	Solve real-life and mathematical problems using numerical and algebraic expressions and equations
7.EE.3	Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.*

~~Compacted Mathematics Grade 7~~

7.EE.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? b. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. *For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.*
Work with radicals and integer exponents	
8.EE.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions. *For example,* $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.
8.EE.2	Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.
8.EE.3	Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. *For example, estimate the population of the United States as* 3×10^8 *and the population of the world as* 7×10^9*, and determine that the world population is more than 20 times larger.*
8.EE.4	Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.
Understand the connections between proportional relationships, lines, and linear equations	
8.EE.5	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.*
8.EE.6	Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.

~~Compacted Mathematics Grade 7~~

Analyze and solve linear equations and pairs of simultaneous linear equations	
8.EE.7	Solve linear equations in one variable. a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers). b. Solve linear equations and inequalities with rational number coefficients, including those whose solutions require expanding expressions using the distributive property and collecting like terms.
Geometry	
Draw, construct, and describe geometrical figures and describe the relationships between them	
7.G.1	Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
7.G.2	Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.
7.G.3	Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.
Solve real-life and mathematical problems involving angle measure, area, surface area, and volume	
7.G.4	Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
7.G.5	Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
7.G.6	Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals and polygons including cubes, ~~and~~ right prisms, and pyramids.
Understand congruence and similarity using physical models, transparencies, or geometry software	
8.G.1	Verify experimentally the properties of rotations, reflections, and translations a. Lines are taken to lines, and line segments to line segments of the same length. b. Angles are taken to angles of the same measure. c. Parallel lines are taken to parallel lines.

~~Compacted Mathematics Grade 7~~

8.G.2	Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
8.G.3	Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
8.G.4	Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.
8.G.5	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. *For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.*
Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres	
8.G.9	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.
Statistics and Probability	
Use random sampling to draw inferences about a population	
7.SP.1	Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.
7.SP.2	Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. *For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.*
Draw informal comparative inferences about two populations	
7.SP.3	nformally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability on either team; on a dot plot, the separation between the two distributions of heights is noticeable.
7.SP.4	Use measures of center and measures of variability (i.e. inter-quartile range) for numerical data from random samples to draw informal comparative inferences about two populations. For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.

~~Compacted Mathematics Grade 7~~

Investigate chance processes and develop, use, and, evaluate probability models	
7.SP.5	Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.
7.SP.6	Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.*
7.SP.7	Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.* b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. *For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?*
7.SP.8	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. b. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event. c. Design and use a simulation to generate frequencies for compound events. *For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?*

[1] Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

~~Additional Resource~~

~~2016 Mississippi College- and Career-Standards Scaffolding Document~~

~~The primary purpose of the *2016 Mississippi College- and Career-Readiness Standards Scaffolding Document* is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career-Readiness Standards for Mathematics, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery. The Scaffolding Document can be found at **http://www.mde.k12.ms.us/ESE/ccr**.~~

~~Standards for Mathematical Practice~~

1. ~~Make sense of problems and persevere in solving them.~~
2. ~~Reason abstractly and quantitatively.~~
3. ~~Construct viable arguments and critique the reasoning of others.~~
4. ~~Model with mathematics.~~
5. ~~Use appropriate tools strategically.~~
6. ~~Attend to precision.~~
7. ~~Look for and make use of structure.~~
8. ~~Look for and express regularity in repeated reasoning.~~

NOTE: Standards for Mathematical Practice have been assigned Standard Numbers for each grade-level and course and precede the content standards for that grade level or course.

CCR Compacted Math~~ematics~~ Grade 8 (with Algebra I)

In Compacted Math~~ematics~~ Grade 8 (with Algebra I), a one-credit course, instruction should focus on three critical areas from Grade 8: (1) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations; (2) grasping the concept of a function and using functions to describe quantitative relationships; and (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean Theorem. Each critical area is described below.

(1) Students use linear equations and systems of linear equations to represent, analyze, and solve a variety of problems. Students recognize equations for proportions ($y/x = m$ or $y = mx$) as special linear equations ($y = mx + b$), understanding that the constant of proportionality (m) is the slope, and the graphs are lines through the origin. They understand that the slope (m) of a line is a constant rate of change, so that if the input or x-coordinate changes by an amount A, the output or y-coordinate changes by the amount $m \cdot A$. Students also use a linear equation to describe the association between two quantities in bivariate data (such as arm span vs. height for students in a classroom). At this grade, fitting the model, and assessing its fit to the data are done informally. Interpreting the model in the context of the data requires students to express a relationship between the two quantities in question and to interpret components of the relationship (such as slope and y-intercept) in terms of the situation.

Students strategically choose and efficiently implement procedures to solve linear equations in one variable, understanding that when they use the properties of equality and the concept of logical equivalence, they maintain the solutions of the original equation. Students solve systems of two linear equations in two variables and relate the systems to pairs of lines in the plane; these intersect, are parallel, or are the same line. Students use linear equations, systems of linear equations, linear functions, and their understanding of slope of a line to analyze situations and solve problems.

(2) Students grasp the concept of a function as a rule that assigns to each input exactly one output. They understand that functions describe situations where one quantity determines another. They can translate among representations and partial representations of functions (noting that tabular and graphical representations may be partial representations), and they describe how aspects of the function are reflected in the different representations.

(3) Students use ideas about distance and angles, how they behave under translations, rotations, reflections, and dilations, and ideas about congruence and similarity to describe and analyze two-dimensional figures and to solve problems. Students show that the sum of the angles in a triangle is the angle formed by a straight line, and that various configurations of lines give rise to similar triangles

~~Compacted Mathematics Grade 8 (with Algebra I)~~ ~~(continued)~~

because of the angles created when a transversal cuts parallel lines. Students understand the statement of the Pythagorean Theorem and its converse, and can explain why the Pythagorean Theorem holds, for example, by decomposing a square in two different ways. They apply the Pythagorean Theorem to find distances between points on the coordinate plane, to find lengths, and to analyze polygons. Students complete their work on volume by solving problems involving cones, cylinders, and spheres.

In Algebra I, the fundamental purpose of this course is to formalize and extend the mathematics that students learned in the middle grades. Because it is built on the middle grades standards, this is a more ambitious version of Algebra I than has generally been offered. Instruction should focus on five critical areas: (1) analyze and explain the process of solving equations and inequalities: (2) learn function notation and develop the concepts of domain and range; (3) use regression techniques; (4) create quadratic and exponential expressions; and (5) select from among these functions to model phenomena. Each critical area is described below.

(1) By the end of eighth grade, students have learned to solve linear equations in one variable and have applied graphical and algebraic methods to analyze and solve systems of linear equations in two variables. Now, students analyze and explain the process of solving an equation. Students develop fluency writing, interpreting, and translating between various forms of linear equations and inequalities, and using them to solve problems. They master the solution of linear equations and apply related solution techniques and the laws of exponents to the creation and solution of simple exponential equations.

(2) In earlier grades, students define, evaluate, and compare functions, and use them to model relationships between quantities. In this unit, students will learn function notation and develop the concepts of domain and range. They explore many examples of functions, including sequences; they interpret functions given graphically, numerically, symbolically, and verbally, translate between representations, and understand the limitations of various representations. Students build on and informally extend their understanding of integer exponents to consider exponential functions. They compare and contrast linear and exponential functions, distinguishing between additive and multiplicative change. Students explore systems of equations and inequalities, and they find and interpret their solutions. They interpret arithmetic sequences as linear functions and geometric sequences as exponential functions.

Compacted Mathematics Grade 8 (with Algebra I) (Continued)

(3) This area builds upon prior students' prior experiences with data, providing students with more formal means of assessing how a model fits data. Students use regression techniques to describe approximately linear relationships between quantities. They use graphical representations and knowledge of the context to make judgments about the appropriateness of linear models. With linear models, they look at residuals to analyze the goodness of fit.

(4) In this area, students build on their knowledge from unit 2, where they extended the laws of exponents to rational exponents. Students apply this new understanding of number and strengthen their ability to see structure in and create quadratic and exponential expressions. They create and solve equations, inequalities, and systems of equations involving quadratic expressions.

(5) In this area, students consider quadratic functions, comparing the key characteristics of quadratic functions to those of linear and exponential functions. They select from among these functions to model phenomena. Students learn to anticipate the graph of a quadratic function by interpreting various forms of quadratic expressions. In particular, they identify the real solutions of a quadratic equation as the zeros of a related quadratic function. Students expand their experience with functions to include more specialized functions—absolute value, step, and those that are piecewise-defined.

The content within ~~of~~ this grade level ~~document~~ is centered on the mathematics domains of ~~**Counting and Cardinality** (Grade K), **Operations and Algebraic Thinking; Numbers and Operations in Base Ten** (Grades K-5); **Numbers and Operations—Fractions** (Grades 3-5); **Measurement and Data** (Grades K-5); **Ratios and Proportional Relationships** (Grades 6- 7);~~ **the Number System, Expressions & Equations, Geometry** (Grades K-8)**, Statistics & Probability** (Grades 6-8); **Functions** (Grade 8), and the high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling, Geometry**, and **Statistics & Probability**.[1] Instruction in these domains ~~and conceptual categories~~ should be designed to expose students to experiences, which reflect the value of mathematics, ~~to~~ enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

[1] For a detailed description of each High School Conceptual Category, see the *High School Conceptual Categories* section (pp. 156-163).

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER ▼	MS CCR STANDARD ▼
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
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8.SMP.6	Attend to precision.
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NOTE

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~~Compacted Mathematics Grade 8 (with Algebra I)~~

Number and Quantity	
The Real Number System (N-RN)	
Use properties of rational and irrational numbers	
N-RN.3	Explain why: • the sum or product of two rational numbers is rational; • the sum of a rational number and an irrational number is irrational; and • the product of a nonzero rational number and an irrational number is irrational.
Quantities (N-Q)*	
Reason quantitatively and use units to solve problems	
N-Q.1	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.*
N-Q.2	Define appropriate quantities for the purpose of descriptive modeling.* [Refer to *Quantities* section of the High School *Number and Quantity* Conceptual Category ~~in the previous pages~~ section of this document.]
N-Q.3	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.*
Algebra	
Expressions and Expressions (EE)	
Analyze and solve linear equations and pairs of simultaneous linear equations	
8.EE.8	Analyze and solve pairs of simultaneous linear equations. a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously. b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. *For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6.* c. Solve real-world and mathematical problems leading to two linear equations in two variables. *For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.*
Seeing Structure in Expressions (A-SSE)	
Interpret the structure of expressions	
A-SSE.1	Interpret expressions that represent a quantity in terms of its context.* a. Interpret parts of an expression, such as terms, factors, and coefficients. b. Interpret complicated expressions by viewing one or more of their parts as a single entity. *For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P.*

A-SSE.2	Use the structure of an expression to identify ways to rewrite it. *For example, see $x^4 – y^4$ as $(x^2)^2 – (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 – y^2)(x^2 + y^2)$.*
Write expressions in equivalent forms to solve problems	
A-SSE.3	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.* a. Factor a quadratic expression to reveal the zeros of the function it defines. b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines. c. Use the properties of exponents to transform expressions for exponential functions. *For example the expression 1.15^t can be rewritten as $[1.15^{1/12}]^{12t}$ :: 1.012^{12t} to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.*
Arithmetic with Polynomials and Rational Expressions (A-APR)	
Perform arithmetic operations on polynomials	
A-APR.1	Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.
Understand the relationship between zeros and factors of polynomials	
A-APR.3	Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial (limit to 1st- and 2nd-degree polynomials).
Creating Equations (A-CED) *	
Create equations that describe numbers or relationships	
A-CED.1	Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and ~~simple rational and~~ exponential functions.**
A-CED.2	Create equations in two variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. *[Note this standard appears in future courses with a slight variation in the standard language.]*
A-CED.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.**
A-CED.4	Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. *For example, rearrange Ohm's law V = IR to highlight resistance R.**
Reasoning with Equations and Inequalities (A-REI)	
Understand solving equations as a process of reasoning and explain the reasoning	

~~Compacted Mathematics Grade 8 (with Algebra I)~~

A-REI.1	Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.
Solve equations and inequalities in one variable	
A-REI.3	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
A-REI.4	Solve quadratic equations in one variable. a. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x – p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form. b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions.
Solve systems of equations	
A-REI.5	Given a system of two equations in two variables, show and explain why the sum of equivalent forms of the equations produces the same solution as the original system.
A-REI.6	Solve systems of linear equations exactly using algebraic processes and approximately (e.g. graphically) ~~algebraically, exactly, and graphically~~ while focusing on pairs of linear equations in two variables.
Represent and solve equations and inequalities graphically	
A-REI.10	Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).
A-REI.11	Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where f(x) and/or g(x) are linear, quadratic, absolute value, and exponential functions. *
A-REI.12	Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.
Functions	
Functions (F)	
Define, evaluate, and compare functions	
8.F.1	Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.~~[1]~~[2]
8.F.2	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.*

8.F.3	Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. *For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.*
Use functions to model relationships between quantities	
8.F.4	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
8.F.5	Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.
Interpreting Functions (F-IF)	
Understand the concept of a function and use function notation	
F-IF.1	Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x. The graph of f is the graph of the equation $y = f(x)$.
F-IF.2	Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.
F-IF.3	Use the fact ~~Recognize~~ that sequences are functions whose domain is a subset of the integers to identify sequences and generate their explicit formulas.
Interpret functions that arise in applications in terms of the context	
F-IF.4	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries;* and end behavior~~.; and periodicity~~.*
F-IF.5	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.**
F-IF.6	Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.*

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Analyze functions using different representations	
F-IF.7	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* a. Graph functions (linear and quadratic) and show intercepts, maxima, and minima.. b. Graph square root and piecewise-defined functions, including absolute value functions.
F-IF.8	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.
F-IF.9	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*
Building Functions (F-BF)	
Build a function that models a relationship between two quantities	
F-BF.1	Write a function that describes a relationship between two quantities.* a. Determine an explicit expression or steps for calculation from a context.
Build new functions from existing functions	
F-BF.3	Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k\,f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. ~~*Include recognizing even and odd functions from their graphs and algebraic expressions for them.*~~
Linear, Quadratic, and Exponential Models (F-LE) *	
Construct and compare linear, quadratic, and exponential models and solve problems	
F-LE.1	Distinguish between situations that can be modeled with linear functions and with exponential functions.* a. Prove that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals. b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.
F-LE.2	Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).*

Interpret expressions for functions in terms of the situation they model	
F-LE.5	Interpret the parameters in a linear or exponential function in terms of a context.*
Geometry	
Geometry (G)	
Understand and apply the Pythagorean Theorem	
8.G.6	Explain a proof of the Pythagorean Theorem and its converse.
8.G.7	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
8.G.8	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.
Statistics and Probability	
Statistics and Probability (SP)	
Investigate patterns of association in bivariate data	
8.SP.1	Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.
8.SP.2	Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.
8.SP.3	Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. *For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.*
8.SP.4	Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. *For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?*
Interpreting Categorical and Quantitative Data (S-ID)	
Summarize, represent, and interpret data on a single count or measurement variable	
S-ID.1	Represent and analyze data with plots on the real number line (dot plots, histograms, and box plots).*
S-ID.2	Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.*

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S-ID.3	Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).*
Summarize, represent, and interpret data on two categorical and quantitative variables	
S-ID.5	Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.*
S-ID.6	Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.* a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. *Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.* b. Informally assess the fit of a function by plotting and analyzing residuals. c. Fit a linear function for a scatter plot that suggests a linear association.
Interpret linear models	
S-ID.7	Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.*
S-ID.8	Compute (using technology) and interpret the correlation coefficient of a linear fit *
S-ID.9	Distinguish between correlation and causation.*

~~[1]~~ [2]Function notation is not required at Grade 8

* Modeling Standards (**High School standards only**)

~~Additional Resource~~

~~2016 Mississippi College- and Career-Standards Scaffolding Document~~

~~The primary purpose of the *2016 Mississippi College- and Career-Readiness Standards Scaffolding Document* is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career-Readiness Standards for Mathematics, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery. The Scaffolding Document can be found at **http://www.mde.k12.ms.us/ESE/ccr**.~~

~~Standards for Mathematical Practice~~

1. ~~Make sense of problems and persevere in solving them.~~
2. ~~Reason abstractly and quantitatively.~~
3. ~~Construct viable arguments and critique the reasoning of others.~~
4. ~~Model with mathematics.~~
5. ~~Use appropriate tools strategically.~~
6. ~~Attend to precision.~~
7. ~~Look for and make use of structure.~~
8. ~~Look for and express regularity in repeated reasoning.~~

NOTE: Standards for Mathematical Practice have been assigned Standard Numbers for each grade-level and course and precede the content standards for that grade level or course.

~~Compacted Mathematics Grade 8 (with Integrated Math I)~~

~~In Compacted Mathematics Grade 8 (with Integrated Math I),~~ a one-credit course, ~~instruction should focus on three critical areas from Grade 8: (1) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations; (2) grasping the concept of a function and using functions to describe quantitative relationships; and (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean Theorem. Each critical area is described below.~~

~~(1) Students use linear equations and systems of linear equations to represent, analyze, and solve a variety of problems. Students recognize equations for proportions ($y/x = m$ or $y = mx$) as special linear equations ($y = mx + b$), understanding that the constant of proportionality (m) is the slope, and the graphs are lines through the origin. They understand that the slope (m) of a line is a constant rate of change, so that if the input or x-coordinate changes by an amount A, the output or y-coordinate changes by the amount $m \cdot A$. Students also use a linear equation to describe the association between two quantities in bivariate data (such as arm span vs. height for students in a classroom). At this grade, fitting the model, and assessing its fit to the data are done informally. Interpreting the model in the context of the data requires students to express a relationship between the two quantities in question and to interpret components of the relationship (such as slope and y-intercept) in terms of the situation. Students strategically choose and efficiently implement procedures to solve linear equations in one variable, understanding that when they use the properties of equality and the concept of logical equivalence, they maintain the solutions of the original equation. Students solve systems of two linear equations in two variables and relate the systems to pairs of lines in the plane; these intersect, are parallel, or are the same line. Students use linear equations, systems of linear equations, linear functions, and their understanding of slope of a line to analyze situations and solve problems.~~

~~(2) Students grasp the concept of a function as a rule that assigns to each input exactly one output. They understand that functions describe situations where one quantity determines another. They can translate among representations and partial representations of functions (noting that tabular and graphical representations may be partial representations), and they describe how aspects of the function are reflected in the different representations.~~

~~(3) Students use ideas about distance and angles, how they behave under translations, rotations, reflections, and dilations, and ideas about congruence and similarity to describe and analyze two-dimensional figures and to solve problems. Students show that the sum of the angles in a triangle is the angle formed by a straight line, and that various configurations of lines give rise to similar triangles because of the angles created when a transversal cuts parallel lines. Students~~

~~Compacted Mathematics Grade 8 (with Integrated Math I)~~
~~(continued)~~

~~understand the statement of the Pythagorean Theorem and its converse, and can explain why the Pythagorean Theorem holds, for example, by decomposing a square in two different ways. They apply the Pythagorean Theorem to find distances between points on the coordinate plane, to find lengths, and to analyze polygons. Students complete their work on volume by solving problems involving cones, cylinders, and spheres.~~

~~In Integrated Mathematics I, the fundamental purpose of this course is to formalize and extend the mathematics that students learned in the middle grades. The critical areas deepen and extend understanding of linear relationships, in part by contrasting them with exponential phenomena, and in part by applying linear models to data that exhibit a linear trend. Integrated Mathematics I uses properties and theorems involving congruent figures to deepen and extend understanding of geometric knowledge from prior grades. The final unit in the course ties together the algebraic and geometric ideas studied. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. Each critical area is described below.~~

~~(1) By the end of eighth grade students have had a variety of experiences working with expressions and creating equations. In this first unit, students continue this work by using quantities to model and analyze situations, to interpret expressions, and by creating equations to describe situations.~~

~~(2) In earlier grades, students define, evaluate, and compare functions, and use them to model relationships between quantities. In this unit, students will learn function notation and develop the concepts of domain and range. They move beyond viewing functions as processes that take inputs and yield outputs and start viewing functions as objects in their own right. They explore many examples of functions, including sequences; they interpret functions given graphically, numerically, symbolically, and verbally, translate between representations, and understand the limitations of various representations. They work with functions given by graphs and tables, keeping in mind that, depending upon the context, these representations are likely to be approximate and incomplete. Their work includes functions that can be described or approximated by formulas as well as those that cannot. When functions describe relationships between quantities arising from a context, students reason with the units in which those quantities are measured. Students build on and informally extend their understanding of integer exponents to consider exponential functions. They compare and contrast linear and exponential functions, distinguishing between additive and multiplicative~~
~~change. They interpret arithmetic sequences as linear functions and geometric sequences as exponential functions.~~

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(continued)

(3) By the end of eighth grade, students have learned to solve linear equations in one variable and have applied graphical and algebraic methods to analyze and solve systems of linear equations in two variables. This unit builds on these earlier experiences by asking students to analyze and explain the process of solving an equation and to justify the process used in solving a system of equations. Students develop fluency writing, interpreting, and translating between various forms of linear equations and inequalities, and using them to solve problems. They master the solution of linear equations and apply related solution techniques and the laws of exponents to the creation and solution of simple exponential equations. Students explore systems of equations and inequalities, and they find and interpret their solutions. All of this work is grounded on understanding quantities and on relationships between them.

(4) This area builds upon prior students' prior experiences with data, providing students with more formal means of assessing how a model fits data. Students use regression techniques to describe approximately linear relationships between quantities. They use graphical representations and knowledge of the context to make judgments about the appropriateness of linear models. With linear models, they look at residuals to analyze the goodness of fit.

(5) In previous grades, students were asked to draw triangles based on given measurements. They also have prior experience with rigid motions: translations, reflections, and rotations and have used these to develop notions about what it means for two objects to be congruent. In this unit, students establish triangle congruence criteria, based on analyses of rigid motions and formal constructions. They solve problems about triangles, quadrilaterals, and other polygons. They apply reasoning to complete geometric constructions and explain why they work.

(6) Building on their work with the Pythagorean Theorem in 8th grade to find distances, students use a rectangular coordinate system to verify geometric relationships, including properties of special triangles and quadrilaterals and slopes of parallel and perpendicular lines.

The content of this document is centered on the mathematics domains of **Counting and Cardinality** (Grade K), **Operations and Algebraic Thinking; Numbers and Operations in Base Ten** (Grades K-5); **Numbers and Operations—Fractions** (Grades 3-5); **Measurement and Data** (Grades K-5); **Ratios and Proportional Relationships** (Grades 6-7); **the Number System, Expressions & Equations, Geometry, Statistics & Probability** (Grades 6-8); **Functions** (Grade 8), and the high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling**, **Geometry**, and **Statistics & Probability**. Instruction in these domains and conceptual categories should be designed to expose students to experiences, which reflect the value of mathematics, to enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

Compacted Mathematics Grade 8 (with Integrated Math I)

Number and Quantity	
Quantities (N-Q)*	
Reason quantitatively and use units to solve problems	
N-Q.1	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.*
N-Q.2	Define appropriate quantities for the purpose of descriptive modeling.*
N-Q.3	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.*
Algebra	
Expressions and Expressions (EE)	
Analyze and solve linear equations and pairs of simultaneous linear equations	
8.EE.8	Analyze and solve pairs of simultaneous linear equations. a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously. b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. *For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6.* c. Solve real-world and mathematical problems leading to two linear equations in two variables. *For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.*
Seeing Structure in Expressions (A-SSE)	
Interpret the structure of expressions	
A-SSE.1	Interpret expressions that represent a quantity in terms of its context.* a. Interpret parts of an expression, such as terms, factors, and coefficients. b. Interpret complicated expressions by viewing one or more of their parts as a single entity. *For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P.*
Write expressions in equivalent forms to solve problems	
A-SSE.3	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.* c. Use the properties of exponents to transform expressions for exponential functions. *For example the expression 1.15^t can be rewritten as $[1.15^{1/12}]^{12t}$ :: 1.012^{12t} to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.*

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Creating Equations (A-CED) *	
Create equations that describe numbers or relationships	
A-CED.1	Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions.**
A-CED.2	Create equations in two variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.* *[Note this standard appears in future courses with a slight variation in the standard language.]*
A-CED.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.**
A-CED.4	Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. *For example, rearrange Ohm's law V = IR to highlight resistance R.**
Reasoning with Equations and Inequalities (A-REI)	
Solve equations and inequalities in one variable	
A-REI.3	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
Solve systems of equations	
A-REI.5	Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.
A-REI.6	Solve systems of linear equations algebraically, exactly, and graphically while focusing on pairs of linear equations in two variables.
Represent and solve equations and inequalities graphically	
A-REI.10	Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).
A-REI.11	Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, quadratic, absolute value, and exponential functions.*
A-REI.12	Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

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~~Functions~~

~~Functions (F)~~	
~~Define, evaluate, and compare functions~~	
~~8.F.1~~	~~Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.~~ [1]
~~8.F.2~~	~~Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.*~~
~~8.F.3~~	~~Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. *For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.*~~
~~Use functions to model relationships between quantities~~	
~~8.F.4~~	~~Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.~~
~~8.F.5~~	~~Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.~~
~~Interpreting Functions (F-IF)~~	
~~Understand the concept of a function and use function notation~~	
~~F-IF.1~~	~~Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x. The graph of f is the graph of the equation $y = f(x)$.~~
~~F-IF.2~~	~~Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.~~
~~F-IF.3~~	~~Recognize that sequences are functions whose domain is a subset of the integers.~~

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~~Interpret functions that arise in applications in terms of the context~~	
~~F-IF.4~~	~~For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship.~~ *~~Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.*~~*
~~F-IF.5~~	~~Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.~~ *~~For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.*~~*
~~F-IF.6~~	~~Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.*~~
~~Analyze functions using different representations~~	
~~F-IF.7~~	~~Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.*~~ a. ~~Graph functions (linear and quadratic) and show intercepts, maxima, and minima.~~
~~F-IF.9~~	~~Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).~~ *~~For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.~~*
~~Building Functions (F-BF)~~	
~~Build a function that models a relationship between two quantities~~	
~~F-BF.1~~	~~Write a function that describes a relationship between two quantities.*~~ a. ~~Determine an explicit expression or steps for calculation from a context.~~
~~F-BF.2~~	~~Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.*~~
~~Linear, Quadratic, and Exponential Models (F-LE) *~~	
~~Construct and compare linear, quadratic, and exponential models and solve problems~~	
~~F-LE.1~~	~~Distinguish between situations that can be modeled with linear functions and with exponential functions.*~~ a. ~~Prove that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals.~~ b. ~~Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.~~ c. ~~Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.~~

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~~F-LE.2~~	~~Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).*~~
~~Interpret expressions for functions in terms of the situation they model~~	
~~F-LE.5~~	~~Interpret the parameters in a linear or exponential function in terms of a context.*~~
~~Geometry~~	
~~Geometry (G)~~	
~~Understand and apply the Pythagorean Theorem~~	
~~8.G.6~~	~~Explain a proof of the Pythagorean Theorem and its converse.~~
~~8.G.7~~	~~Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.~~
~~8.G.8~~	~~Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.~~
~~Congruence (G-CO)~~	
~~Experiment with transformations in the plane~~	
~~G-CO.1~~	~~Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.~~
~~G-CO.2~~	~~Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).~~
~~G-CO.3~~	~~Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.~~
~~G-CO.4~~	~~Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.~~
~~G-CO.5~~	~~Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.~~
~~Understand congruence in terms of rigid motions~~	
~~G-CO.6~~	~~Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.~~

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~~G-CO.7~~	~~Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.~~
~~G-CO.8~~	~~Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.~~
~~Prove geometric theorems~~	
~~G-CO.9~~	~~Prove theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.*~~
~~G-CO.10~~	~~Prove theorems about triangles. *Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.*~~
~~G-CO.11~~	~~Prove theorems about parallelograms. *Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.*~~
~~Statistics and Probability~~	
~~Statistics and Probability (SP)~~	
~~Investigate patterns of association in bivariate data~~	
~~8.SP.1~~	~~Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.~~
~~8.SP.2~~	~~Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.~~
~~8.SP.3~~	~~Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. *For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.*~~
~~8.SP.4~~	~~Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. *For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?*~~

~~Compacted Mathematics Grade 8 (with Integrated Math I)~~

~~Interpreting Categorical and Quantitative Data (S-ID)~~	
~~Summarize, represent, and interpret data on a single count or measurement variable~~	
~~S-ID.1~~	~~Represent and analyze data with plots on the real number line (dot plots, histograms, and box plots).*~~
~~S-ID.2~~	~~Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.*~~
~~S-ID.3~~	~~Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).*~~
~~Summarize, represent, and interpret data on two categorical and quantitative variables~~	
~~S-ID.5~~	~~Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.*~~
~~S-ID.6~~	~~Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.*~~ ~~a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data.~~ *~~Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.~~* ~~c. Fit a linear function for a scatter plot that suggests a linear association.~~
~~Interpret linear models~~	
~~S-ID.7~~	~~Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.*~~
~~S-ID.8~~	~~Compute (using technology) and interpret the correlation coefficient of a linear fit.*~~
~~S-ID.9~~	~~Distinguish between correlation and causation.*~~

~~[1] Function notation is not required at Grade 8~~

~~* Modeling Standards (**High School standards only**)~~

~~Additional Resource~~

~~2016 Mississippi College- and Career-Standards Scaffolding Document~~

~~The primary purpose of the *2016 Mississippi College- and Career-Readiness Standards Scaffolding Document* is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career- Readiness Standards for Mathematics, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery. The Scaffolding Document can be found at~~ **~~http://www.mde.k12.ms.us/ESE/ccr~~**.

~~Standards for Mathematical Practice~~

1. ~~Make sense of problems and persevere in solving them.~~
2. ~~Reason abstractly and quantitatively.~~
3. ~~Construct viable arguments and critique the reasoning of others.~~
4. ~~Model with mathematics.~~
5. ~~Use appropriate tools strategically.~~
6. ~~Attend to precision.~~
7. ~~Look for and make use of structure.~~
8. ~~Look for and express regularity in repeated reasoning.~~

SREB Ready For High School Math

The Southern Region Education Board (SREB) Ready for High School Math Course, is a ***one-credit course*** designed only for 8th and/or 9th graders.

This course offers an earlier intervention, reaching underprepared students as they enter high school, which for many students is the most critical time in their education in determining future success. This course emphasizes the understanding of math concepts rather than just memorizing procedures. In SREB Ready for High School Math, students learn why to use a certain formula or method to solve a problem. By engaging students in real-world applications, SREB Ready for High School Math develops critical-thinking skills that students will use throughout their high school studies.

The SREB Ready for High School Math course consists of eight units, focuses on sixty-eight key readiness standards, and culminates with a capstone project. The content within this course is centered on the mathematics from throughout middle school and even earlier, agreed to as essential college- and career-readiness standards for most students, and is aligned with the domains of **the Number System**, **Ratios and Proportional Relationships**, **Expressions & Equations**, **Functions**, **Geometry**, and **Statistics & Probability**. Instruction in these domains should be designed to expose students to experiences, which reflect the value of mathematics, to enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

For the most current SREB Ready for High School Math course description, standards, and materials, visit: *https://www.sreb.org/ready-high-school-math*.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER ▼	MS CCR STANDARD ▼
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
R.SMP.1	Make sense of problems and persevere in solving them.
R.SMP.2	Reason abstractly and quantitatively.
R.SMP.3	Construct viable arguments and critique the reasoning of others.
R.SMP.4	Model with mathematics.
R.SMP.5	Use appropriate tools strategically.
R.SMP.6	Attend to precision.
R.SMP.7	Look for and make use of structure.
R.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

Unit 1/2: The Number System

This introductory unit encourages a deeper understanding of order, comparison and computation of fractions through the exploration of different fraction models. Students will reflect upon which model works best to represent different situations and create connections between those models. This unit also introduces students to the general approach to instruction and modes of thinking and questioning they will encounter in the remainder of the course.

Unit 1: The Number System

This unit solidifies students' understanding of the relationships among fractions, decimals and percents. The unit introduces students to scientific notation and irrational numbers. Students explore the context of scientific notation and the forms of numbers used in solving math problems.

Unit 2: Ratio and Proportional Relationships

This introductory unit encourages a deeper understanding of order, comparison and computation of fractions through the exploration of different fraction models. Students will reflect upon which model works best to represent different situations and create connections between those models. This unit also introduces students to the general approach to instruction and modes of thinking and questioning they will encounter in the remainder of the course.

Unit 3: Probability and One-variable Statistics

This unit solidifies students' understanding of simple probability and one-variable statistics, including but not limited to describing distributions, sampling and statistical measures. Students explore ways mathematics can provide models to interpret data, make predictions and better understand the world. The limitations of statistics are discussed.

Unit 4: Expressions, Equations, and Inequalities

This unit solidifies students' understanding of the structure of expressions and solving equations. Illustrations, drawings and models are used to represent and solve equations and inequalities, helping to develop understanding of acceptable solutions. Students explore the relationships between properties of equations and algebraic expressions

Unit 5: Geometry

This unit teaches students how to draw, translate and describe geometrical figures, understand congruence, use the Pythagorean Theorem and discuss relationships among different shapes in the context of real-world mathematical problems. Students explore how angles, parallel lines, congruent figures, triangles and quadrilaterals occur in real-life situations.

Unit 6: Functions and Linear Relationships

Students identify the characteristics that distinguish functions from relations and identify functions as linear or nonlinear. Students investigate linear relationships in depth through tables, equations and graphs. Students develop linear models for real-world situations. Students relate slope as a rate of change and the y-intercept contextually to real-world problems.

Unit 7: Systems of Equations

Students explore solutions to systems of equations, including graphical representation and numerical solutions. Students learn to write and use systems of equations and/or inequalities to solve real-world problems and estimate the solution for a system of equations by graphing.

Supplemental Middle School Math Courses

Supplemental Mathematics (Grades 5-6) and (Grades 7-8) courses, formerly Compensatory Mathematics, are designed to provide targeted interventions of core mathematics concepts.[1]

Students in need of instructional support, intervention, or remediation may be enrolled in a Supplemental Mathematics course under the following stipulations:
The Supplemental Mathematics course:

1. must be taken in concert with a credit-bearing course at the same grade level;
2. includes content supportive of the accompanying credit-bearing course;
3. should incorporate the Standards for Mathematical Practice (SMPs); and
4. may be taken as an elective, but will **not** satisfy the number of mathematics Carnegie units required for graduation.

Instruction within the supplemental mathematics courses should be designed to expose students to experiences, which reflect the value of mathematics, to enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

[1] Documentation of Tier II and III interventions is required. ***MS State Board Policy Manual:*** *Rule 41.1 intervention*.

MISSISSIPPI
DEPARTMENT OF
EDUCATION

Ensuring a bright future for every child

Secondary and High School ~~College- and Career-Readiness Standards for Mathematics (~~Grades 9-12~~)~~

~~Secondary Sequence Options~~

~~Students will progress according to grade level through the sixth grade. Beginning in the seventh grade, students are given course sequence options based on academic progress, teacher recommendation, and parental consent. Below are suggested secondary course sequence options:~~

~~Suggested Secondary Course Sequence Options for Mathematics~~

~~Grade Level~~	~~OPTION 1~~	~~OPTION 2~~	~~OPTION 3~~
~~7~~	~~Grade 7~~	~~Compacted Grade 7~~	~~Compacted Grade 7~~
~~8~~	~~Grade 8~~	~~Compacted Grade 8 (with Algebra I)~~ ~~**or**~~ ~~Compacted Grade 8 (with Integrated Math I)~~	~~Compacted Grade 8 (with Algebra I)~~ ~~**or**~~ ~~Compacted Grade 8 (with Integrated Math I)~~
~~9~~	~~Algebra I~~ ~~**or**~~ ~~Integrated Math I~~	~~Geometry~~ ~~**or**~~ ~~Integrated Math II~~	~~Algebra II~~ ~~**or**~~ ~~Integrated Math II~~
~~10~~	~~Geometry~~ ~~**or**~~ ~~Integrated Math II~~	~~Algebra II~~ ~~**or**~~ ~~Integrated Math III~~	~~Geometry~~ ~~**or**~~ ~~Integrated Math III~~
~~11~~	~~Algebra II~~ ~~**or**~~ ~~Integrated Math III~~	~~Algebra III, Advanced Mathematics Plus, Calculus, AP Calculus, AP Statistics, Dual Credit/Dual Enrollment or SREB Math Ready Course~~	~~Algebra III, Advanced Mathematics Plus, Calculus, AP Calculus, AP Statistics, Dual Credit/Dual Enrollment or SREB Math Ready Course~~
~~12~~	~~Algebra III, Advanced Mathematics Plus, Calculus, AP Calculus, AP Statistics, Dual Credit/Dual Enrollment or SREB Math Ready Course~~	~~Algebra III, Advanced Mathematics Plus, Calculus, AP Calculus, AP Statistics, Dual Credit/Dual Enrollment or SREB Math Ready Course~~	~~Algebra III, Advanced Mathematics Plus, Calculus, AP Calculus, AP Statistics, Dual Credit/Dual Enrollment or SREB Math Ready Course~~

High School Overview

The high school standards specify the mathematics that all students should study in order to be college and career ready. Additional mathematics that students might learn in order to take advanced courses are included in the Advanced Mathematics Plus and Algebra III courses. The high school standards are listed in conceptual categories:

- Number and Quantity
- Algebra
- Functions
- Modeling
- Geometry
- Statistics and Probability

Conceptual categories portray a coherent view of high school mathematics; a student's work with functions, for example, crosses a number of traditional course boundaries, potentially up through and including calculus.

Modeling is best interpreted not as a collection of isolated topics but in relation to other standards. Making mathematical models is a Standard for Mathematical Practice, and specific modeling standards appear throughout the high school standards indicated by an asterisk (*). The asterisk (*) symbol sometimes appears on the heading for a group of standards; in that case, it should be understood to apply to all standards in that group.

High School Conceptual Categories

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~~High School—~~Number and Quantity ~~Conceptual Category~~

Numbers and Number Systems. During the years from kindergarten to eighth grade, students must repeatedly extend their conception of number. At first, “number” means “counting number”: 1, 2, 3... Soon after that, 0 is used to represent “none” and the whole numbers are formed by the counting numbers together with zero. The next extension is fractions. At first, fractions are barely numbers and tied strongly to pictorial representations. Yet by the time students understand division of fractions, they have a strong concept of fractions as numbers and have connected them, via their decimal representations, with the base-ten system used to represent the whole numbers. During middle school, fractions are augmented by negative fractions to form the rational numbers. In Grade 8, students extend this system once more, augmenting the rational numbers with the irrational numbers to form the real numbers. In high school, students will be exposed to yet another extension of number, when the real numbers are augmented by the imaginary numbers to form the complex numbers.

With each extension of number, the meanings of addition, subtraction, multiplication, and division are extended. In each new number system—integers, rational numbers, real numbers, and complex numbers—the four operations stay the same in two important ways: They have the commutative, associative, and distributive properties and their new meanings are consistent with their previous meanings.

Extending the properties of whole-number exponents leads to new and productive notation. For example, properties of whole-number exponents suggest that $(5^{1/3})^3$ should be $5^{(1/3)3} = 5^1 = 5$ and that $5^{1/3}$ should be the cube root of 5.

Calculators, spreadsheets, and computer algebra systems can provide ways for students to become better acquainted with these new number systems and their notation. They can be used to generate data for numerical experiments, to help understand the workings of matrix, vector, and complex number algebra, and to experiment with non-integer exponents.

Quantities. In real world problems, the answers are usually not numbers but quantities: numbers with units, which involves measurement. In their work in measurement up through Grade 8, students primarily measure commonly used attributes such as length, area, and volume. In high school, students encounter a wider variety of units in modeling, e.g., acceleration, currency conversions, derived quantities such as person-hours and heating degree days, social science rates such as per-capita income, and rates in everyday life such as points scored per game or batting averages. They also encounter novel situations in which they themselves must conceive the attributes of interest. For example, to find a good measure of overall highway safety, they might propose measures such as fatalities per year, fatalities per year per driver, or fatalities per vehicle-mile traveled. Such a conceptual process is sometimes called quantification. Quantification is important for science, as when surface area suddenly “stands out” as an important variable in evaporation. Quantification is also important for companies, which must conceptualize relevant attributes and create or choose suitable measures for them.

~~High School—~~Algebra ~~Conceptual Category~~

Expressions. An expression is a record of a computation with numbers, symbols that represent numbers, arithmetic operations, exponentiation, and, at more advanced levels, the operation of evaluating a function. Conventions about the use of parentheses and the order of operations assure that each expression is unambiguous. Creating an expression that describes a computation involving a general quantity requires the ability to express the computation in general terms, abstracting from specific instances.

Reading an expression with comprehension involves analysis of its underlying structure. This may suggest a different but equivalent way of writing the expression that exhibits some different aspect of its meaning. For example, $p + 0.05p$ can be interpreted as the addition of a 5% tax to a price p. Rewriting $p + 0.05p$ as $1.05p$ shows that adding a tax is the same as multiplying the price by a constant factor.

Algebraic manipulations are governed by the properties of operations and exponents, and the conventions of algebraic notation. At times, an expression is the result of applying operations to simpler expressions. For example, $p + 0.05p$ is the sum of the simpler expressions p and $0.05p$. Viewing an expression as the result of operation on simpler expressions can sometimes clarify its underlying structure.

A spreadsheet or a computer algebra system (CAS) can be used to experiment with algebraic expressions, perform complicated algebraic manipulations, and understand how algebraic manipulations behave.

Equations and inequalities. An equation is a statement of equality between two expressions, often viewed as a question asking for which values of the variables the expressions on either side are in fact equal. These values are the solutions to the equation. An identity, in contrast, is true for all values of the variables; identities are often developed by rewriting an expression in an equivalent form.

The solutions of an equation in one variable form a set of numbers; the solutions of an equation in two variables form a set of ordered pairs of numbers, which can be plotted in the coordinate plane. Two or more equations and/or inequalities form a system. A solution for such a system must satisfy every equation and inequality in the system.

An equation can often be solved by successively deducing from it one or more simpler equations. For example, one can add the same constant to both sides without changing the solutions, but squaring both sides might lead to extraneous solutions. Strategic competence in solving includes looking ahead for productive manipulations and anticipating the nature and number of solutions.

Some equations have no solutions in a given number system, but have a solution in a larger system. For example, the solution of $x + 1 = 0$ is an integer, not a whole number; the solution of $2x + 1 = 0$ is a rational number, not an integer; the solutions of $x^2 – 2 = 0$ are real numbers, not rational numbers; and the solutions of $x^2 + 2 = 0$ are complex numbers, not real numbers.

~~High School—Algebra Conceptual Category~~ ~~(continued)~~

The same solution techniques used to solve equations can be used to rearrange formulas. For example, the formula for the area of a trapezoid, $A = ((b_1+b_2)/2)h$, can be solved for h using the same deductive process.

Inequalities can be solved by reasoning about the properties of inequality. Many, but not all, of the properties of equality continue to hold for inequalities and can be useful in solving them.

Connections to Functions and Modeling. Expressions can define functions, and equivalent expressions define the same function. Asking when two functions have the same value for the same input leads to an equation; graphing the two functions allows for finding approximate solutions of the equation. Converting a verbal description to an equation, inequality, or system of these is an essential skill in modeling.

~~High School—~~Functions ~~Conceptual Category~~

Functions describe situations where one quantity determines another. For example, the return on $10,000 invested at an annualized percentage rate of 4.25% is a function of the length of time the money is invested. Because we continually make theories about dependencies between quantities in nature and society, functions are important tools in the construction of mathematical models.

In school mathematics, functions usually have numerical inputs and outputs and are often defined by an algebraic expression. For example, the time in hours it takes for a car to drive 100 miles is a function of the car's speed in miles per hour, v; the rule $T(v) = 100/v$ expresses this relationship algebraically and defines a function whose name is T.

The set of inputs to a function is called its domain. We often infer the domain to be all inputs for which the expression defining a function has a value, or for which the function makes sense in a given context.

A function can be described in various ways, such as by a graph (e.g., the trace of a seismograph); by a verbal rule, as in, "I'll give you a state, you give me the capital city;" by an algebraic expression like $f(x) = a + bx$; or by a recursive rule. The graph of a function is often a useful way of visualizing the relationship of the function models, and manipulating a mathematical expression for a function can throw light on the function's properties.

Functions presented as expressions can model many important phenomena. Two important families of functions characterized by laws of growth are linear functions, which grow at a constant rate, and exponential functions, which grow at a constant percent rate. Linear functions with a constant term of zero describe proportional relationships.

A graphing utility or a computer algebra system can be used to experiment with properties of these functions and their graphs and to build computational models of functions, including recursively defined functions.

Connections to Expressions, Equations, Modeling, and Coordinates. Determining an output value for a particular input involves evaluating an expression; finding inputs that yield a given output involves solving an equation. Questions about when two functions have the same value for the same input lead to equations, whose solutions can be visualized from the intersection of their graphs. Because functions describe relationships between quantities, they are frequently used in modeling. Sometimes functions are defined by a recursive process, which can be displayed effectively using a spreadsheet or other technology.

~~High School—~~Modeling ~~Conceptual Category~~

Modeling links classroom mathematics and statistics to everyday life, work, and decision-making. Modeling is the process of choosing and using appropriate mathematics and statistics to analyze empirical situations, to understand them better, and to improve decisions. Quantities and their relationships in physical, economic, public policy, social, and everyday situations can be modeled using mathematical and statistical methods. When making mathematical models, technology is valuable for varying assumptions, exploring consequences, and comparing predictions with data.

A model can be very simple, such as writing total cost as a product of unit price and number bought, or using a geometric shape to describe a physical object like a coin. Even such simple models involve making choices. It is up to us whether to model a coin as a three-dimensional cylinder, or whether a two-dimensional disk works well enough for our purposes. Other situations—modeling a delivery route, a production schedule, or a comparison of loan amortizations—need more elaborate models that use other tools from the mathematical sciences. Real-world situations are not organized and labeled for analysis; formulating tractable models, representing such models, and analyzing them is appropriately a creative process. Like every such process, this depends on acquired expertise as well as creativity.

Some examples of such situations might include:

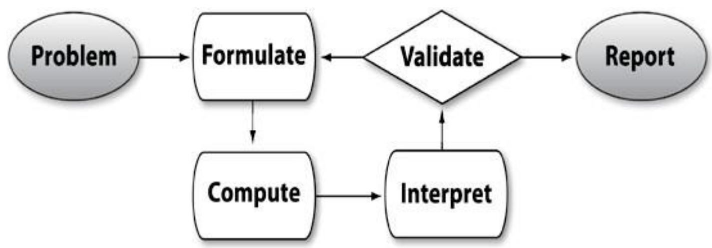
- Estimating how much water and food is needed for emergency relief in a devastated city of 3 million people, and how it might be distributed.
- Planning a table tennis tournament for 7 players at a club with 4 tables, where each player plays against each other player.
- Designing the layout of the stalls in a school fair so as to raise as much money as possible.
- Analyzing stopping distance for a car.
- Modeling savings account balance, bacterial colony growth, or investment growth.
- Engaging in critical path analysis, e.g., applied to turnaround of an aircraft at an airport.
- Analyzing risk in situations such as extreme sports, pandemics, and terrorism.
- Relating population statistics to individual predictions.

In situations like these, the models devised depend on a number of factors: How precise an answer do we want or need? What aspects of the situation do we most need to understand, control, or optimize? What resources of time and tools do we have? The range of models that we can create and analyze is also constrained by the limitations of our mathematical, statistical, and technical skills, and our ability to recognize significant variables and relationships among them. Diagrams of various kinds, spreadsheets and

~~High School—Modeling Conceptual Category (continued)~~

other technology, and algebra are powerful tools for understanding and solving problems drawn from different types of real-world situations.

One of the insights provided by mathematical modeling is that essentially the same mathematical or statistical structure can sometimes model seemingly different situations. Models can also shed light on the mathematical structures themselves, for example, as when a model of bacterial growth makes more vivid the explosive growth of the exponential function.



The basic modeling cycle is summarized in the diagram. It involves (1) identifying variables in the situation and selecting those that represent essential features, (2) formulating a model by creating and selecting geometric, graphical, tabular, algebraic, or statistical representations that describe relationships between the variables, (3) analyzing and performing operations on these relationships to draw conclusions, (4) interpreting the results of the mathematics in terms of the original situation, (5) validating the conclusions by comparing them with the situation, and then either improving the model or, if it is acceptable, (6) reporting on the conclusions and the reasoning behind them. Choices, assumptions, and approximations are present throughout this cycle.

In descriptive modeling, a model simply describes the phenomena or summarizes them in a compact form. Graphs of observations are a familiar descriptive model—for example, graphs of global temperature and atmospheric CO_2 over time.

Analytic modeling seeks to explain data on the basis of deeper theoretical ideas, albeit with parameters that are empirically based; for example, exponential growth of bacterial colonies (until cut-off mechanisms such as pollution or starvation intervene) follows from a constant reproduction rate. Functions are an important tool for analyzing such problems.

Graphing utilities, spreadsheets, computer algebra systems, and dynamic geometry software are powerful tools that can be used to model purely mathematical phenomena (e.g., the behavior of polynomials) as well as physical phenomena.

Modeling Standards. *Modeling is best interpreted not as a collection of isolated topics but rather in relation to other standards. Making mathematical models is a Standard for Mathematical Practice, and specific modeling standards appear throughout the high school standards indicated by an asterisk (*).*

~~High School—~~Geometry ~~Conceptual Category~~

An understanding of the attributes and relationships of geometric objects can be applied in diverse contexts—interpreting a schematic drawing, estimating the amount of wood needed to frame a sloping roof, rendering computer graphics, or designing a sewing pattern for the most efficient use of material.

Although there are many types of geometry, school mathematics is devoted primarily to plane Euclidean geometry, studied both synthetically (without coordinates) and analytically (with coordinates). Euclidean geometry is characterized most importantly by the Parallel Postulate that through a point not on a given line there is exactly one parallel line. (Spherical geometry, in contrast, has no parallel lines.)

During high school, students begin to formalize their geometry experiences from elementary and middle school, using more precise definitions and developing careful proofs. Later in college some students develop Euclidean and other geometries carefully from a small set of axioms.

The concepts of congruence, similarity, and symmetry can be understood from the perspective of geometric transformation. Fundamental are the rigid motions: translations, rotations, reflections, and combinations of these, all of which are here assumed to preserve distance and angles (and therefore shapes generally). Reflections and rotations each explain a particular type of symmetry, and the symmetries of an object offer insight into its attributes—as when the reflective symmetry of an isosceles triangle assures that its base angles are congruent.

In the approach taken here, two geometric figures are defined to be congruent if there is a sequence of rigid motions that carries one onto the other. This is the principle of superposition. For triangles, congruence means the equality of all corresponding pairs of sides and all corresponding pairs of angles. During the middle grades, through experiences drawing triangles from given conditions, students notice ways to specify enough measures in a triangle to ensure that all triangles drawn with those measures are congruent. Once these triangle congruence criteria (ASA, SAS, and SSS) are established using rigid motions, they can be used to prove theorems about triangles, quadrilaterals, and other geometric figures.

Similarity transformations (rigid motions followed by dilations) define similarity in the same way that rigid motions define congruence, thereby formalizing the similarity ideas of "same shape" and "scale factor" developed in the middle grades. These transformations lead to the criterion for triangle similarity that two pairs of corresponding angles are congruent.

The definitions of sine, cosine, and tangent for acute angles are founded on right triangles and similarity, and, with the Pythagorean Theorem, are fundamental in many

~~High School—Geometry Conceptual Category~~ ~~(continued)~~

real-world and theoretical situations. The Pythagorean Theorem is generalized to non-right triangles by the Law of Cosines. Together, the Laws of Sines and Cosines embody the triangle congruence criteria for the cases where three pieces of information suffice to completely solve a triangle. Furthermore, these laws yield two possible solutions in the ambiguous case, illustrating that Side-Side-Angle is not a congruence criterion.

Analytic geometry connects algebra and geometry, resulting in powerful methods of analysis and problem solving. Just as the number line associates numbers with locations in one dimension, a pair of perpendicular axes associates pairs of numbers with locations in two dimensions. This correspondence between numerical coordinates and geometric points allows methods from algebra to be applied to geometry and vice versa. The solution set of an equation becomes a geometric curve, making visualization a tool for doing and understanding algebra. Geometric shapes can be described by equations, making algebraic manipulation into a tool for geometric understanding, modeling, and proof. Geometric transformations of the graphs of equations correspond to algebraic changes in their equations.

Dynamic geometry environments provide students with experimental and modeling tools that allow them to investigate geometric phenomena in much the same way as computer algebra systems allow them to experiment with algebraic phenomena.

Connections to Equations. The correspondence between numerical coordinates and geometric points allows methods from algebra to be applied to geometry and vice versa. The solution set of an equation becomes a geometric curve, making visualization a tool for doing and understanding algebra. Geometric shapes can be described by equations, making algebraic manipulation into a tool for geometric understanding, modeling, and proof.

~~High School—~~Statistics and Probability ~~Conceptual Category~~

Decisions or predictions are often based on data—numbers in context. These decisions or predictions would be easy if the data always sent a clear message, but the message is often obscured by variability. Statistics provides tools for describing variability in data and for making informed decisions that take it into account.

Data are gathered, displayed, summarized, examined, and interpreted to discover patterns and deviations from patterns. Quantitative data can be described in terms of key characteristics: measures of shape, center, and spread. The shape of a data distribution might be described as symmetric, skewed, flat, or bell shaped, and it might be summarized by a statistic measuring center (such as mean or median) and a statistic measuring spread (such as standard deviation or interquartile range). Different distributions can be compared numerically using these statistics or compared visually using plots. Knowledge of center and spread are not enough to describe a distribution. Which statistics to compare, which plots to use, and what the results of a comparison might mean, depend on the question to be investigated and the real-life actions to be taken.

Randomization has two important uses in drawing statistical conclusions. First, collecting data from a random sample of a population makes it possible to draw valid conclusions about the whole population, taking variability into account. Second, randomly assigning individuals to different treatments allows a fair comparison of the effectiveness of those treatments. A statistically significant outcome is one that is unlikely to be due to chance alone, and this can be evaluated only under the condition of randomness. The conditions under which data are collected are important in drawing conclusions from the data; in critically reviewing uses of statistics in public media and other reports, it is important to consider the study design, how the data were gathered, and the analyses employed as well as the data summaries and the conclusions drawn.

Random processes can be described mathematically by using a probability model: a list or description of the possible outcomes (the sample space), each of which is assigned a probability. In situations such as flipping a coin, rolling a number cube, or drawing a card, it might be reasonable to assume various outcomes are equally likely. In a probability model, sample points represent outcomes and combine to make up events; probabilities of events can be computed by applying the Addition and Multiplication Rules. Interpreting these probabilities relies on an understanding of independence and conditional probability, which can be approached through the analysis of two-way tables. Technology plays an important role in statistics and probability by making it possible to generate plots, regression functions, and correlation coefficients, and to simulate many possible outcomes in a short amount of time.

Connections to Functions and Modeling. Functions may be used to describe data; if the data suggest a linear relationship, the relationship can be modeled with a regression line, and its strength and direction can be expressed through a correlation coefficient.

~~Additional Resource~~

~~2016 Mississippi College- and Career-Standards Scaffolding Document~~

~~The primary purpose of the *2016 Mississippi College- and Career-Readiness Standards Scaffolding Document* is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career- Readiness Standards for Mathematics, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery. The Scaffolding Document can be found at~~ **~~http://www.mde.k12.ms.us/ESE/ccr.~~**

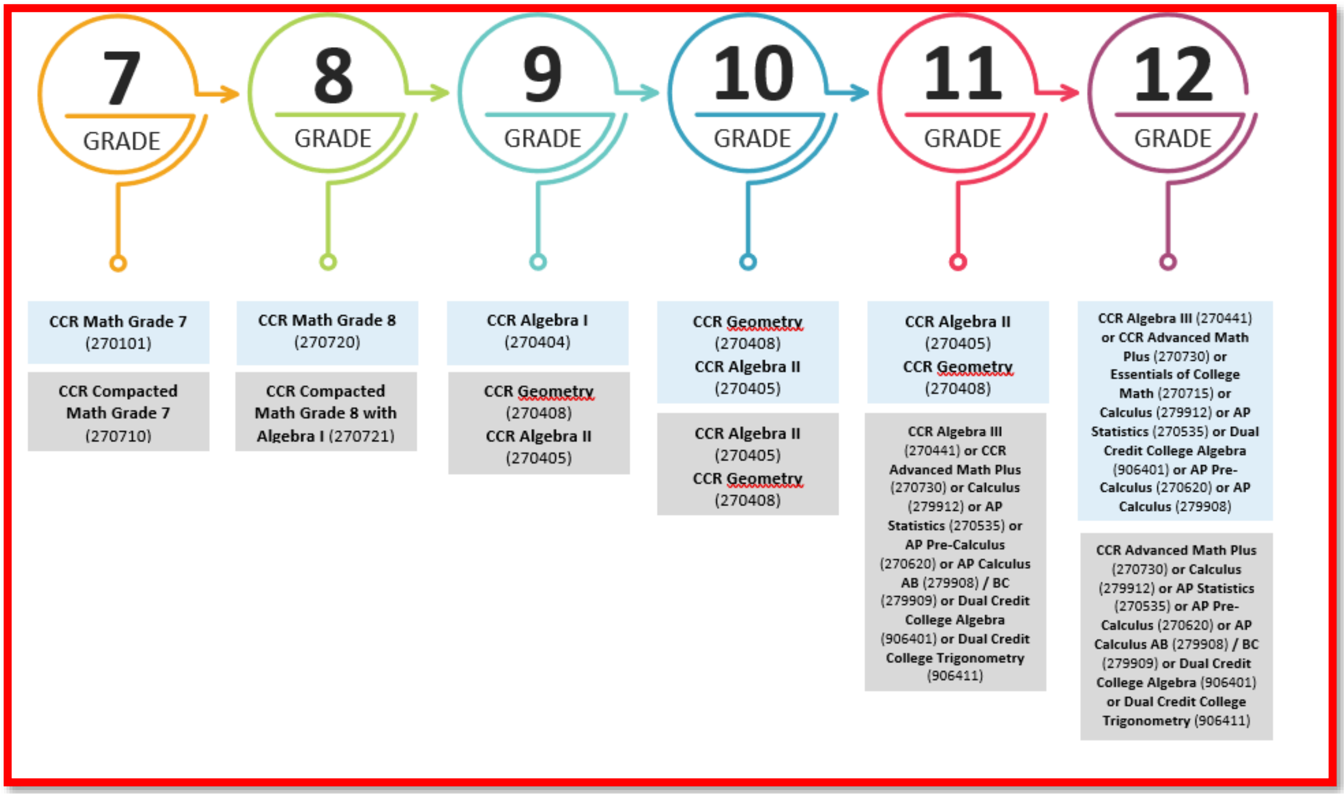
~~Standards for Mathematical Practice~~

1. ~~Make sense of problems and persevere in solving them.~~
2. ~~Reason abstractly and quantitatively.~~
3. ~~Construct viable arguments and critique the reasoning of others.~~
4. ~~Model with mathematics.~~
5. ~~Use appropriate tools strategically.~~
6. ~~Attend to precision.~~
7. ~~Look for and make use of structure.~~
8. ~~Look for and express regularity in repeated reasoning.~~

NOTE: Standards for Mathematical Practice have been assigned Standard Numbers for each grade-level and course and precede the content standards for that grade level or course.

BEST PRACTICES FOR SECONDARY MS CCR SEQUENCING

To help students meet College- and Career-Readiness ACT/SAT benchmarks in their junior year, the following course sequencing is recommended for mathematics. Any additional upper-level course sequencing is acceptable.



SUGGESTED COURSE SEQUENCE SECONDARY OPTIONS FOR MATHEMATICS

The course codes follow the course names in parentheses. For additional courses for math classes, please refer to *MSIS Approved Secondary Course Codes Report*. These are the most commonly used courses for secondary level students.

GRADE LEVEL	OPTION 1	OPTION 2	OPTION 3
GRADE 7	• CCR Math Grade 7 (270101)	• CCR Compacted Math Grade 7 (270710)	• CCR Compacted Math Grade 7 (270710)
GRADE 8	• CCR Math Grade 8 (270720)	• CCR Compacted Math Grade 8 with Algebra I (270721)	• CCR Compacted Math Grade 8 with Algebra I (270721)
GRADE 9	• CCR Algebra I (270404)	• CCR Geometry (270408)	• CCR Algebra II (270405)
GRADE 10	• CCR Geometry (270408)	• CCR Algebra II (270405)	• CCR Geometry (270408)
GRADE 11	• CCR Algebra II (270405)	• CCR Algebra III (270441) **OR** • CCR Advanced Math Plus (270730) **OR** • Calculus (279912) **OR** • AP Pre-Calculus (270620) **OR** • AP Calculus AB (279908)/ AP Calculus BC (279909) **OR** • Dual Credit/Dual Enrollment	• CCR Algebra III (270441) **OR** • CCR Advanced Math Plus (270730) **OR** • Calculus (279912) **OR** • AP Pre-Calculus (270620) **OR** • AP Calculus AB (279908)/ AP Calculus BC (279909) **OR** • Dual Credit/Dual Enrollment
GRADE 12	• CCR Algebra III (270441) **OR** • CCR Advanced Math Plus (270730) **OR** • Calculus (279912) **OR** • AP Pre-Calculus (270620) **OR** • AP Calculus AB (279908)/ AP Calculus BC (279909) **OR** • Essentials for College Math (270715) **OR** • Dual Credit/Dual Enrollment Math Course	• CCR Algebra III (270441) **OR** • CCR Advanced Math Plus (270730) **OR** • Calculus (279912) **OR** • AP Pre-Calculus (270620) **OR** • AP Calculus AB (279908)/ AP Calculus BC (279909) **OR** • Essentials for College Math (270715) **OR** • Dual Credit/Dual Enrollment Math Course	• CCR Algebra III (270441) **OR** • CCR Advanced Math Plus (270730) **OR** • Calculus (279912) **OR** • AP Pre-Calculus (270620) **OR** • AP Calculus AB (279908)/ AP Calculus BC (279909) **OR** • Essentials for College Math (270715) **OR** • Dual Credit/Dual Enrollment Math Course

NOTE: Because this is a ninth-grade course that cannot be taken after Algebra I, this course was moved from the end of the MS CCR document to precede Algebra I.

Foundations of Algebra ~~Course~~

Foundations of Algebra is a one-math credit course offered only to 9th grade students. The primary purpose of the *Foundations of Algebra* course is to provide a basis for curriculum development for rising 9th grade students in need of substantial support prior to taking Algebra I. ~~The content of the *Foundations of* Algebra course focuses on equations, inequalities, functions, polynomials, geometry, and statistics as well as the standards of mathematical practice.~~ The standards for this course were developed based on core content that should have been mastered by the end of the grade 8 and key skills that will be introduced in Algebra I. The~~se~~ core content standards are indicated in ~~red~~ bold font and color-coded to match their original conceptual domain or category.

Additional standards have been developed to ensure conceptual understanding. Students who have already successfully completed Algebra I may not take this course. Teachers of this course are encouraged to incorporate real-world contexts, appropriate manipulatives, and technology to assist students in developing the conceptual understanding needed to master course content.

The content within the *Foundations of* Algebra course focuses on the conceptual categories of **Algebra** and **Functions** (**equations**, **inequalities, polynomials)**, **Geometry**, and **Statistics and Probability.** Instruction in these conceptual categories should be designed to expose students to experiences, which reflect the value of mathematics, to enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER ▼	MS CCR STANDARD ▼
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
FA.SMP.1	Make sense of problems and persevere in solving them.
FA.SMP.2	Reason abstractly and quantitatively.
FA.SMP.3	Construct viable arguments and critique the reasoning of others.
FA.SMP.4	Model with mathematics.
FA.SMP.5	Use appropriate tools strategically.
FA.SMP.6	Attend to precision.
FA.SMP.7	Look for and make use of structure.
FA.SMP.8	Look for and express regularity in repeated reasoning.

NOTE
The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

Foundations of Algebra ~~Course~~

Equations and Inequalities	
FA.A.1	Interpret key features of an expression (i.e., terms, factors, and coefficients). (A-SSE.1a)
FA.A.2	Create expressions that can be modeled by a real-world context.
FA.A.3	Use the structure of an expression to identify ways to rewrite it. (A-SSE.2)
FA.A.4	Simplify and evaluate numerical and algebraic expressions. (7.EE.1)
FA.A.5	Compare and contrast an expression and an equation and give examples of each.
FA.A.6	Given an equation, solve for a specified variable of degree one (i.e. *isolate a variable*). (6.EE.7, 7.EE.4)
FA.A.7	Fluently solve and check multi-step equations and inequalities with an emphasis on the distributive property, variables on both sides, and rational coefficients. Explain each step when solving a multi- step equation and inequality. Justify each step using the properties of real numbers.
FA.A.8	Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. (7.EE.4a)
FA.A.9	Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Solve inequalities of these forms fluently. (7.EE.4b)
FA.A.10	Graph the solution point of an equation and the solution set of an inequality in one variable on a horizontal number line. For inequalities, be able to interpret and write the solution set in a variety of ways (e.g., set notation).
FA.A.11	Justify when linear equations in one variable will yield one solution, infinitely many solutions, or no solution. (8.EE.7a)
Functions	
FA.F.12	Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. Use function notation, where appropriate. (F-IF.1, F-IF.2)
FA.F.13	Compare and contrast a function and a relation. Use appropriate strategies to assess whether a given situation represents a function or a relation (e.g,. the vertical line test).
FA.F.14	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. (F-IF.7)
FA.F.15	Determine the rate of change of a linear function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. (8.F.4) Use the rate of change to determine if two lines are parallel, perpendicular, or neither.
FA.F.16	Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values. (8.F.4)
FA.F.17	Create and graph the equation of a linear function given the rate of change and y-intercept. Compare and contrast up to three linear functions written in a various forms (i.e., point-slope, slope-intercept, standard form).
FA.F.18	Given two points, a graph, a table of values, a mapping, or a real-world context determine the linear function that models this information. Fluently convert between the point-slope, slope-intercept, and standard form of a line.

~~Foundations of Algebra Course~~

FA.F.19	Create and identify the parent function for linear and quadratic functions in the Coordinate Plane.
FA.F.20	Compare the properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.* (Limited to linear and quadratic functions only.) (8.F.2)
FA.F.21	Describe the following characteristics of linear and quadratic parent functions by inspection: domain/range, increasing/decreasing intervals, intercepts, symmetry, and asymptotic behavior. Identify each characteristic in set notation or words, where appropriate. (Algebra III, standard 8)
FA.F.22	Graph a system of two functions, $f(x)$ and $g(x)$, on the same Coordinate Plane by hand for simple cases, and with technology for complicated cases. Explain the relationship between the point(s) of intersection and the solution to the system. Determine the solution(s) using technology, a tables of values, substitution, or successive approximations. (Limited to linear and quadratic functions only.) (8.EE.7b, A-REI.6, A-REI.11)
FA.F.23	With accuracy, graph the solutions to a linear inequality in two variables as a half-plane, and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes on the same Coordinate Plane. (A-REI.12) Construct graphs of linear inequalities and systems of linear inequalities without technology. Use appropriate strategies to verify points that may or may not belong to the solution set.
FA.F.24	Identify real-world contexts that can be modeled by a system of inequalities in two variables. (Limited to three inequalities.)
FA.F.25	Identify when systems of equations and inequalities have constraints. (A-CED.3)
FA.F.26	Perform simple translations on linear functions given in a variety of forms (e.g., two points, a graph, a table of values, a mapping, slope-intercept form, or standard form). Explain the impact on the parent function when the slope is greater than one or less than one and the effect of increasing/decreasing the y-intercept.
FA.F.27	Given the graph of function in the form $f(x)+k$, $kf(x)$, $f(kx)$, or $f(x+k)$, where k belongs to the set of integers, identify the domain/range, increasing/decreasing intervals, intercepts, symmetry, and asymptotic behavior, where appropriate. (F-BF.3) Identify each characteristic in set notation or as an inequality, where appropriate. (Limited to linear and quadratic functions only.)
FA.F.28	Identify and graph real-world contexts that can be modeled by a quadratic equation.
FA.F.29	Solve quadratic equations in standard form by factoring, graphing, tables, and the Quadratic Formula. Know when the Quadratic Formula might yield complex solutions and the location of the solutions in relationship to the x-axis. Know suitable alternatives for the terminology "*solution of a quadratic"* and when each is appropriate to use.
FA.F.30	Understand the relationship between the constants of a quadratic equation and the attributes of the graph. Recognize the relationship between the value of the discriminant and the type and number of solutions (i.e., *predict the characteristics of a graph given the equation*).
Polynomials	
FA.A.31	Describe and identify a polynomial of degree one, two, three and four by examining a polynomial expression or a graph.

~~Foundations of Algebra Course~~

FA.A.32	Add and subtract polynomials using appropriate strategies (e.g. by using Algebra Tiles).

FA.A.33	Factor polynomials using the greatest common factor and factor quadratics that have only rational zeros.
FA.A.34	Justify why some polynomials are prime over the rational number system.
FA.A.35	Use the zeros of a polynomial to construct a rough graph of the function. (A-APR.3)
Geometry	
FA.G.36	Explain and apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions. (8.G.7)
FA.G.37	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system. (8.G.8)
FA.G.38	Fluently use formulas and/or appropriate measuring tools to find length and angle measures, perimeter, area, volume, and surface area of polygons, circles, spheres, cones, cylinders, pyramids, and composite or irregular figures. Use them to solve real-world and mathematical problems. (8.G.9)
FA.G.39	Solve real-world and mathematical problems involving two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. (7.G.6,)
Statistics	
FA.SP.40	Without technology, fluently calculate the measures of central tendency (mean, median, mode), measures of spread (range, interquartile range), and understand the impact of extreme values (outliers) on each of these values. (6.SP.5, 8.SP.1, S-ID.3) Justify which measure is appropriate to use when describing a data set or a real-world context.
FA.SP.41	Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association. (8.SP.1)
FA.SP.42	Know when it is and is not appropriate to use a linear model to make predictions about a data set beyond a given set of values. Explain extrapolation and interpolation and the impact both have on predicted values.
FA.SP.43	For scatter plots that suggest a linear association, informally fit a straight line and predict the equation for the line of best fit. (8.SP.2)
FA.SP.44	Justify the relationship between the correlation coefficient and the rate of change for the line of best fit.
FA.SP.45	Understand the difference between correlation and causation and identify real-world contexts that depict each of them. (S-ID.9)

~~High School—~~CCR Algebra I

In Algebra I, a one-credit course, the fundamental purpose of this course is to formalize and extend the mathematics that students learned in the middle grades. Because it is built on the middle grades standards, this is a more ambitious version of Algebra I than has generally been offered. Instruction should focus on five critical areas: (1) analyze and explain the process of solving equations and inequalities: (2) learn function notation and develop the concepts of domain and range; (3) use regression techniques; (4) create quadratic and exponential expressions; and (5) select from among these functions to model phenomena. Each critical area is described below.

(1) By the end of eighth grade, students have learned to solve linear equations in one variable and have applied graphical and algebraic methods to analyze and solve systems of linear equations in two variables. Now, students analyze and explain the process of solving an equation. Students develop fluency writing, interpreting, and translating between various forms of linear equations and inequalities, and using them to solve problems. They master the solution of linear equations and apply related solution techniques and the laws of exponents to the creation and solution of simple exponential equations.

(2) In earlier grades, students define, evaluate, and compare functions, and use them to model relationships between quantities. In this unit, students will learn function notation and develop the concepts of domain and range. They explore many examples of functions, including sequences; they interpret functions given graphically, numerically, symbolically, and verbally, translate between representations, and understand the limitations of various representations. Students build on and informally extend their understanding of integer exponents to consider exponential functions. They compare and contrast linear and exponential functions, distinguishing between additive and multiplicative change. Students explore systems of equations and inequalities, and they find and interpret their solutions. They interpret arithmetic sequences as linear functions and geometric sequences as exponential functions.

(3) This area builds upon prior students' prior experiences with data, providing students with more formal means of assessing how a model fits data. Students use regression techniques to describe approximately linear relationships between quantities. They use graphical representations and knowledge of the context to make judgments about the appropriateness of linear models. With linear models, they look at residuals to analyze the goodness of fit.

~~High School—Algebra I (continued)~~

(4) In this area, students build on their knowledge from unit 2, where they extended the laws of exponents to rational exponents. Students apply this new understanding of number and strengthen their ability to see structure in and create quadratic and exponential expressions. They create and solve equations, inequalities, and systems of equations involving quadratic expressions.

(5) In this area, students consider quadratic functions, comparing the key characteristics of quadratic functions to those of linear and exponential functions. They select from among these functions to model phenomena. Students learn to anticipate the graph of a quadratic function by interpreting various forms of quadratic expressions. In particular, they identify the real solutions of a quadratic equation as the zeros of a related quadratic function. Students expand their experience with functions to include more specialized functions—absolute value, step, and those that are piecewise-defined.

The content within ~~of~~ this course ~~document~~ is centered on the mathematics ~~domains of~~ ~~**Counting and Cardinality**~~ ~~(Grade K),~~ ~~**Operations and Algebraic Thinking;**~~ ~~**Numbers and Operations in Base Ten**~~ ~~(Grades K-5);~~ ~~**Numbers and Operations—Fractions**~~ ~~(Grades 3-5);~~ ~~**Measurement and Data**~~ ~~(Grades K-5);~~ ~~**Ratios and Proportional Relationships**~~ ~~(Grades 6-7);~~ ~~**the Number System, Expressions & Equations, Geometry, Statistics & Probability**~~ ~~(Grades 6-8);~~ ~~**Functions**~~ ~~(Grade 8),~~ ~~and the~~ high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling,** ~~**Geometry**,~~ and **Statistics & Probability**. Instruction in these domains and conceptual categories should be designed to expose students to experiences, which reflect the value of mathematics, ~~to~~ enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

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NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

Number and Quantity	
The Real Number System (N-RN)	
Use properties of rational and irrational numbers	
N-RN.3	Explain why: • the sum or product of two rational numbers is rational; • the sum of a rational number and an irrational number is irrational; and • the product of a nonzero rational number and an irrational number is irrational.
Quantities (N-Q) *	
Reason quantitatively and use units to solve problems	
N-Q.1	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.*
N-Q.2	Define appropriate quantities for the purpose of descriptive modeling.* [Refer to the *Quantities* section of the High School *Number and Quantity* Conceptual Category ~~in the previous pages~~ section of this document.]
N-Q.3	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.*
Algebra	
Seeing Structure in Expressions (A-SSE)	
Interpret the structure of expressions	
A-SSE.1	Interpret expressions that represent a quantity in terms of its context.* a. Interpret parts of an expression, such as terms, factors, and coefficients. b. Interpret complicated expressions by viewing one or more of their parts as a single entity. *For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P.*
A-SSE.2	Use the structure of an expression to identify ways to rewrite it. *For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$ thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.*
Write expressions in equivalent forms to solve problems	
A-SSE.3	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.* a. Factor a quadratic expression to reveal the zeros of the function it defines. b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines. c. Use the properties of exponents to transform expressions for exponential functions. *For example the expression 1.15^t can be rewritten as $[1.15^{1/12}]^{12t}$ :: 1.012^{12t} to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.*
Arithmetic with Polynomials and Rational Expressions (A-APR)	

Perform arithmetic operations on polynomials	
A-APR.1	Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.
Understand the relationship between zeros and factors of polynomials	
A-APR.3	Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial (limit to 1st- and 2nd-degree polynomials).
Creating Equations (A-CED) *	
Create equations that describe numbers or relationships	
A-CED.1	Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and ~~simple rational and~~ exponential functions.**
A-CED.2	Create equations in two variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.* *[Note this standard appears in future courses with a slight variation in the standard language.*]
A-CED.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.**
A-CED.4	Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. *For example, rearrange Ohm's law $V = IR$ to highlight resistance R.**
Reasoning with Equations and Inequalities (A-REI)	
Understand solving equations as a process of reasoning and explain the reasoning	
A-REI.1	Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.
Solve equations and inequalities in one variable	
A-REI.3	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
A-REI.4	Solve quadratic equations in one variable. a. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x – p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form. b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions.
Solve systems of equations	

A-REI.5	Given a system of two equations in two variables, show and explain why the sum of equivalent forms of the equations produces the same solution as the original system.
A-REI.6	Solve systems of linear equations exactly using algebraic processes and approximately (e.g. graphically) ~~algebraically, exactly, and graphically~~ while focusing on pairs of linear equations in two variables.
Represent and solve equations and inequalities graphically	
A-REI.10	Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).
A-REI.11	Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, quadratic, absolute value, and exponential functions.*
A-REI.12	Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

Functions

Interpreting Functions (F-IF)

Understand the concept of a function and use function notation	
F-IF.1	Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x. The graph of f is the graph of the equation $y = f(x)$.
F-IF.2	Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.
F-IF.3	Use the fact ~~Recognize~~ that sequences are functions whose domain is a subset of the integers to identify sequences and generate their explicit formulas.
Interpret functions that arise in applications in terms of the context	
F-IF.4	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; and end behavior*~~.; and periodicity~~.*
F-IF.5	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.**
F-IF.6	Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.*
Analyze functions using different representations	

F-IF.7	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* a. Graph functions (linear and quadratic) and show intercepts, maxima, and minima. b. Graph square root and piecewise-defined functions, including absolute value functions.
F-IF.8	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.
F-IF.9	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*
Building Functions (F-BF)	
Build a function that models a relationship between two quantities	
F-BF.1	Write a function that describes a relationship between two quantities.* a. Determine an explicit expression or steps for calculation from a context.
Build new functions from existing functions	
F-BF.3	Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k\,f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. ~~*Include recognizing even and odd functions from their graphs and algebraic expressions for them.*~~
Linear, Quadratic, and Exponential Models (F-LE) *	
Construct and compare linear, quadratic, and exponential models and solve problems	
F-LE.1	Distinguish between situations that can be modeled with linear functions and with exponential functions.* a. Prove that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals. b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.
F-LE.2	Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).*
Interpret expressions for functions in terms of the situation they model	
F-LE.5	Interpret the parameters in a linear or exponential function in terms of a context.*
Statistics and Probability *	
Interpreting Categorical and Quantitative Data (S-ID)	

Summarize, represent, and interpret data on a single count or measurement variable	
S-ID.1	Represent and analyze data with plots on the real number line (dot plots, histograms, and box plots).*
S-ID.2	Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.*
S-ID.3	Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).*
Summarize, represent, and interpret data on two categorical and quantitative variables	
S-ID.5	Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.*
S-ID.6	Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.* a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. *Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.* b. Informally assess the fit of a function by plotting and analyzing residuals. c. Fit a linear function for a scatter plot that suggests a linear association.
Interpret linear models	
S-ID.7	Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.*
S-ID.8	Compute (using technology) and interpret the correlation coefficient of a linear fit.*
S-ID.9	Distinguish between correlation and causation.*

* Modeling Standards

~~Additional Resource~~

~~2016 Mississippi College- and Career-Standards Scaffolding Document~~

~~The primary purpose of the *2016 Mississippi College- and Career-Readiness Standards Scaffolding Document* is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career-Readiness Standards for Mathematics, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery. The Scaffolding Document can be found at **http://www.mde.k12.ms.us/ESE/ccr**.~~

~~Standards for Mathematical Practice~~

1. ~~Make sense of problems and persevere in solving them.~~
2. ~~Reason abstractly and quantitatively.~~
3. ~~Construct viable arguments and critique the reasoning of others.~~
4. ~~Model with mathematics.~~
5. ~~Use appropriate tools strategically.~~
6. ~~Attend to precision.~~
7. ~~Look for and make use of structure.~~
8. ~~Look for and express regularity in repeated reasoning.~~

NOTE: Standards for Mathematical Practice have been assigned Standard Numbers for each grade-level and course and precede the content standards for that grade level or course.

~~High School—~~ CCR Geometry

The fundamental purpose of the course in Geometry a one-credit course, is to formalize and extend students' geometric experiences from the middle grades. Students explore more complex geometric situations and deepen their explanations of geometric relationships, moving towards formal mathematical arguments. Important differences exist between this Geometry course and the historical approach taken in Geometry classes. Close attention should be paid to the introductory content for the Geometry conceptual category found in the high school MS CCRS ~~CCSS~~. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. The six critical areas of this course include (1) building a thorough understanding of translations, reflections, and rotations; (2) developing the understanding of similarity and several theorems; (3) extension of formulas for 2-dimensional and 3-dimensional objects (4) extension of 8th grade geometric concepts of lines; (5) prove basic theorems about circles; and (6) work with experimental and theoretical probability. Each critical area is described below:

(1) In previous grades, students were asked to draw triangles based on given measurements. They also have prior experience with rigid motions: translations, reflections, and rotations and have used these to develop notions about what it means for two objects to be congruent. In this unit, students establish triangle congruence criteria, based on analyses of rigid motions and formal constructions. They use triangle congruence as a familiar foundation for the development of formal proof. Students prove theorems—using a variety of formats—and solve problems about triangles, quadrilaterals, and other polygons. They apply reasoning to complete geometric constructions and explain why they work.

(2) Students apply their earlier experience with dilations and proportional reasoning to build a formal understanding of similarity. They identify criteria for similarity of triangles, use similarity to solve problems, and apply similarity in right triangles to understand right triangle trigonometry, with particular attention to special right triangles and the Pythagorean Theorem. Students develop the Laws of Sines and Cosines in order to find missing measures of general (not necessarily right) triangles, building on students' work with quadratic equations done in the first course. They are able to distinguish whether three given measures (angles or sides) define 0, 1, 2, or infinitely many triangles.

(3) Students' experience with two-dimensional and three-dimensional objects is extended to include informal explanations of circumference, area and volume formulas. Additionally, students apply their knowledge of two-dimensional shapes to consider the shapes of cross-sections and the result of rotating a two-dimensional object about a line.

~~High School—Geometry~~ ~~(continued)~~

(4) Building on their work with the Pythagorean theorem in 8th grade to find distances, students use a rectangular coordinate system to verify geometric relationships, including properties of special triangles and quadrilaterals and slopes of parallel and perpendicular lines, which relates back to work done in the first course. Students continue their study of quadratics by connecting the geometric and algebraic definitions of the parabola.

(5) Students prove basic theorems about circles, such as a tangent line is perpendicular to a radius, inscribed angle theorem, and theorems about chords, secants, and tangents dealing with segment lengths and angle measures. They study relationships among segments on chords, secants, and tangents as an application of similarity. In the Cartesian coordinate system, students use the distance formula to write the equation of a circle when given the radius and the coordinates of its center. Given an equation of a circle, they draw the graph in the coordinate plane, and apply techniques for solving quadratic equations, which relates back to work done in the first course, to determine intersections between lines and circles or parabolas and between two circles.

(6) Building on probability concepts that began in the middle grades, students use the languages of set theory to expand their ability to compute and interpret theoretical and experimental probabilities for compound events, attending to mutually exclusive events, independent events, and conditional probability. Students should make use of geometric probability models wherever possible. They use probability to make informed decisions.

The content within ~~of~~ this course ~~document~~ is centered on the mathematics ~~domains of **Counting and Cardinality** (Grade K), **Operations and Algebraic Thinking; Numbers and Operations in Base Ten** (Grades K-5); **Numbers and Operations—Fractions** (Grades 3-5); **Measurement and Data** (Grades K-5); **Ratios and Proportional Relationships** (Grades 6-7); **the Number System, Expressions & Equations, Geometry, Statistics & Probability** (Grades 6-8); **Functions** (Grade 8), and the~~ high school conceptual categories of ~~**Number and Quantity**, **Algebra**, **Functions**, **Modeling**,~~ **Geometry** and **Modeling.**~~, and **Statistics & Probability**.~~ Instruction in these domains and conceptual categories should be designed to expose students to experiences, which reflect the value of mathematics, ~~to~~ enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
G.SMP.1	Make sense of problems and persevere in solving them.
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G.SMP.6	Attend to precision.
G.SMP.7	Look for and make use of structure.
G.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

~~Geometry~~

Geometry	
Congruence (G-CO)	
Experiment with transformations in the plane	
G-CO.1	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
G-CO.2	Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).
G-CO.3	Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.
G-CO.4	Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.
G-CO.5	Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.
Understand congruence in terms of rigid motions	
G-CO.6	Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.
G-CO.7	Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.
G-CO.8	Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.
Prove geometric theorems	
G-CO.9	Prove theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.*
G-CO.10	Prove theorems about triangles. *Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.*
G-CO.11	Prove theorems about parallelograms. *Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.*

~~Geometry~~

Make geometric constructions	
G-CO.12	Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.*
G-CO.13	Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.
Similarity, Right Triangles, and Trigonometry (G-SRT)	
Understand similarity in terms of similarity transformations	
G-SRT.1	Verify experimentally the properties of dilations given by a center and a scale factor: a. A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged. b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor.
G-SRT.2	Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.
G-SRT.3	Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.
Prove theorems involving similarity	
G-SRT.4	Prove theorems about triangles. *Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.*
G-SRT.5	Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
Define trigonometric ratios and solve problems involving right triangles	
G-SRT.6	Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.
G-SRT.7	Explain and use the relationship between the sine and cosine of complementary angles.
G-SRT.8	Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems and rewrite expressions involving radicals to simplify and interpret solutions.*
Circles (G-C)	
Understand and apply theorems about circles	
G-C.1	Prove that all circles are similar.

~~Geometry~~

G-C.2	Identify and describe relationships among inscribed angles, radii, and chords. *Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.*
G-C.3	Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.
Find arc lengths and areas of sectors of circles	
G-C.5	Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.
Expressing Geometric Properties with Equations (G-GPE)	
Translate between the geometric description and the equation for a conic section	
G-GPE.1	Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.
Use coordinates to prove simple geometric theorems algebraically	
G-GPE.4	Use coordinates to prove simple geometric theorems algebraically. *For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point (1, $\sqrt{3}$) lies on the circle centered at the origin and containing the point (0, 2).*
G-GPE.5	Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).
G-GPE.6	Find the point on a directed line segment between two given points that partitions the segment in a given ratio.
G-GPE.7	Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.*
Geometric Measurement and Dimension (G-GMD)	
Explain volume formulas and use them to solve problems	
G-GMD.1	Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. *Use dissection arguments, Cavalieri's principle, and informal limit arguments.*
G-GMD.3	Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.*
Visualize relationships between two-dimensional and three-dimensional objects	
G-GMD.4	Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

~~Geometry~~

Modeling with Geometry (G-MG)	
Apply geometric concepts in modeling situations	
G-MG.1	Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*
G-MG.2	Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).*
G-MG.3	Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).*

* Modeling Standards

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~~High School—~~CCR Algebra II

In Algebra II, a one-credit course, students build on their work with linear, quadratic, and exponential functions, to extend their repertoire of functions to include polynomial, rational, and radical functions. Students work closely with the expressions that define the functions, and continue to expand and hone their abilities to model situations and to solve equations, including solving quadratic equations over the set of complex numbers and solving exponential equations using the properties of logarithms. The Mathematical Practice Standards apply throughout this course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. The four critical areas of this course include (1) working extensively with polynomial operations; (2) building connections between geometry and trigonometric ratios; (3) understanding of a variety of function families; and (4) explore statistical data. Each critical area is described below:

(1) Students develop the structural similarities between the system of polynomials and the system of integers. Students draw on analogies between polynomial arithmetic and base-ten computation, focusing on properties of operations, particularly the distributive property. Students connect multiplication of polynomials with multiplication of multi-digit integers, and division of polynomials with long division of integers. Students identify zeros of polynomials, including complex zeros of quadratic polynomials, and make connections between zeros of polynomials and solutions of polynomial equations. The unit culminates with the fundamental theorem of algebra. A central theme of this unit is that the arithmetic of rational expressions is governed by the same rules as the arithmetic of rational numbers.

(2) Building on their previous work with functions, and on their work with trigonometric ratios and circles in Geometry, students now use the coordinate plane to extend trigonometry to model periodic phenomena.

(3) Students synthesize and generalize what they have learned about a variety of function families. They extend their work with exponential functions to include solving exponential equations with logarithms. They explore the effects of transformations on graphs of diverse functions, including functions arising in an application, in order to abstract the general principle that transformations on a graph always have the same effect regardless of the type of the underlying function. They identify appropriate types of functions to model a situation, they adjust parameters to improve the model, and they compare models by analyzing appropriateness of fit and making judgments about the domain over which a model is a good fit. The description of modeling as "*the process of choosing and using mathematics and statistics to analyze empirical situations, to understand them better, and to make decisions*" is at the heart of this unit. The narrative discussion and diagram of the modeling cycle should be considered when knowledge of functions, statistics, and geometry is applied in a modeling context.

~~High School—Algebra II (continued)~~

(4) Students see how the visual displays and summary statistics they learned in earlier grades relate to different types of data and to probability distributions. They identify different ways of collecting data—including sample surveys, experiments, and simulations—and the role that randomness and careful design play in the conclusions that can be drawn

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~~Algebra II~~

Number and Quantity	
The Real Number System (N-RN)	
Extend the properties of exponents to rational exponents	
N-RN.1	Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. *For example, we define $5^{1/3}$ to be the cube root of 5 because we want $[5^{1/3}]^3 = 5^{(1/3)\,3}$ to hold, so $[5^{1/3}]^3$ must equal 5.*
N-RN.2	Rewrite expressions involving radicals and rational exponents using the properties of exponents.
Quantities (N-Q) *	
Reason quantitatively and use units to solve problems	
N-Q.2	Define appropriate quantities for the purpose of descriptive modeling.*
The Complex Number System (N-CN)	
Perform arithmetic operations with complex numbers	
N-CN.1	Know there is a complex number i such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real.
N-CN.2	Use the relation $i^2 = –1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.
Use complex numbers in polynomial identities and equations	
N-CN.7	Solve quadratic equations with real coefficients that have complex solutions.
Algebra	
Seeing Structure in Expressions (A-SSE)	
Interpret the structure of expressions	
A-SSE.2	Use the structure of an expression to identify ways to rewrite it. *For example, see $x^4 – y^4$ as $(x^2)^2 – (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 – y^2)(x^2 + y^2)$.*
Write expressions in equivalent forms to solve problems	
A-SSE.3	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.* c. Use the properties of exponents to transform expressions for exponential functions. *For example the expression 1.15t can be rewritten as $[1.15^{1/12}]^{12t}$ :: 1.012^{12t} to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.*

~~Algebra II~~

A-SSE.4	Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. *For example, calculate mortgage payments.**
Arithmetic with Polynomials and Rational Expressions (A-APR)	
Understand the relationship between zeros and factors of polynomials	
A-APR.2	Know and apply the Remainder Theorem: For a polynomial $p(x)$ and a number a, the remainder on division by $x - a$ is $p(a)$, so $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.
A-APR.3	Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial (limit to 1st- and 2nd-degree polynomials).
Use polynomial identities to solve problems	
A-APR.4	Prove polynomial identities and use them to describe numerical relationships. *For example, the polynomial identity* $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ *can be used to generate Pythagorean triples.*
Rewrite rational expressions	
A-APR.6	Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.
Creating Equations (A-CED) *	
Create equations that describe numbers or relationships	
A-CED.1	Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and ~~simple rational and~~ exponential functions.**
A-CED.2	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. *[Note this standard appears in previous courses with a slight variation in the standard language.]*
A-CED.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.
Reasoning with Equations and Inequalities (A-REI)	
Understand solving equations as a process of reasoning and explain the reasoning	
A-REI.1	Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.
A-REI.2	Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

~~Algebra II~~

Solve equations and inequalities in one variable	
A-REI.4	Solve quadratic equations in one variable. b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions.
Solve systems of equations	
A-REI.6	Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.
A-REI.7	Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. *For example, find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.*
Represent and solve equations and inequalities graphically	
A-REI.11	Explain why the *x*-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.*
Functions	
Interpreting Functions (F-IF)	
Understand the concept of a function and use function notation	
F-IF.3	Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. *For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$.*
Interpret functions that arise in applications in terms of the context	
F-IF.4	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.**
F-IF.6	Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.*

Analyze functions using different representations	
F-IF.7	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior. e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.
F-IF.8	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. b. Use the properties of exponents to interpret expressions for exponential functions. For example, identify percent rate of change in functions such as y = (1.02)t, y = (0.97)t, y = (1.01)12t, y = (1.2)t/10, and classify them as representing exponential growth and decay.
F-IF.9	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.
Building Functions (F-BF)	
Build a function that models a relationship between two quantities	
F-BF.1	Write a function that describes a relationship between two quantities.* a. Determine an explicit expression, a recursive process, or steps for calculation from a context. b. Combine standard function types using arithmetic operations. *For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.*
F-BF.2	Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.*
Build new functions from existing functions	
F-BF.3	Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k\,f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. *Include recognizing even and odd functions from their graphs and algebraic expressions for them.*
F-BF.4	Find inverse functions. a. Solve an equation of the form $f(x) = c$ for a simple function f that has an inverse and write an expression for the inverse. *For example,* $f(x) = 2x^3$ *or* $f(x) = (x+1)/(x-1)$ *for* $x \neq 1$.
Linear, Quadratic, and Exponential Models (F-LE) *	
Construct and compare linear, quadratic, and exponential models and solve problems	

~~Algebra II~~

F-LE.2	Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).*
F-LE.3	Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.*
F-LE.4	For exponential models, express as a logarithm the solution to $ab^{ct} = d$ where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology.*
Interpret expressions for functions in terms of the situation they model	
F-LE.5	Interpret the parameters in a linear or exponential function in terms of a context.*
Trigonometric Functions (F-TF)	
Extend the domain of trigonometric functions using the unit circle	
F-TF.1	Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.
F-TF.2	Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.
Geometry	
Expressing Geometric Properties with Equations (G-GPE)	
Translate between the geometric description and the equation for a conic section	
G-GPE.2	Derive the equation of a parabola given a focus and directrix.
Statistics and Probability*	
Interpreting Categorical and Quantitative Data (S-ID)	
Summarize, represent, and interpret data on a single count or measurement variable	
S-ID.4	Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.*
Summarize, represent, and interpret data on two categorical and quantitative variables	
S-ID.6	Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.* a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. *Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.*
Making Inferences and Justifying Conclusions (S-IC)	

Understand and evaluate random processes underlying statistical experiments	
S-IC.1	Understand statistics as a process for making inferences about population parameters based on a random sample from that population.*
S-IC.2	Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. *For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?**
Make inferences and justify conclusions from sample surveys, experiments, and observational studies	
S-IC.3	Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.*
S-IC.4	Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.*
S-IC.5	Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.*
S-IC.6	Evaluate reports based on data.*
Conditional Probability and the Rules of Probability (S-CP)	
Understand independence and conditional probability and use them to interpret data	
S-CP.1	Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events (“or,” “and,” “not”).*
S-CP.2	Understand that two events *A* and *B* are independent if the probability of *A* and *B* occurring together is the product of their probabilities, and use this characterization to determine if they are independent.*
S-CP.3	Understand the conditional probability of *A* given *B* as *P*(*A* and *B*)/*P*(*B*), and interpret independence of *A* and *B* as saying that the conditional probability of *A* given *B* is the same as the probability of *A*, and the conditional probability of *B* given *A* is the same as the probability of *B*.*
S-CP.4	Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. *For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.**
S-CP.5	Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. *For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.**

Use the rules of probability to compute probabilities of compound events in a uniform probability model	
S-CP.6	Find the conditional probability of *A* given *B* as the fraction of *B*’s outcomes that also belong to *A*, and interpret the answer in terms of the model.*

S-CP.7	Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.*

* Modeling Standards

~~Additional Resource~~

~~2016 Mississippi College- and Career-Standards Scaffolding Document~~

~~The primary purpose of the *2016 Mississippi College- and Career-Readiness Standards Scaffolding Document* is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career-Readiness Standards for Mathematics, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery. The Scaffolding Document can be found at **http://www.mde.k12.ms.us/ESE/ccr**.~~

~~Standards for Mathematical Practice~~

1. ~~Make sense of problems and persevere in solving them.~~
2. ~~Reason abstractly and quantitatively.~~
3. ~~Construct viable arguments and critique the reasoning of others.~~
4. ~~Model with mathematics.~~
5. ~~Use appropriate tools strategically.~~
6. ~~Attend to precision.~~
7. ~~Look for and make use of structure.~~
8. ~~Look for and express regularity in repeated reasoning.~~

NOTE: Standards for Mathematical Practice have been assigned Standard Numbers for each grade-level and course and precede the content standards for that grade level or course.

~~High School—Integrated Mathematics I~~

~~The fundamental purpose of Integrated Mathematics I,~~ a one-credit course~~, is to formalize and extend the mathematics that students learned in the middle grades. The critical areas deepen and extend understanding of linear relationships, in part by contrasting them with exponential phenomena, and in part by applying linear models to data that exhibit a linear trend. Integrated Mathematics I uses properties and theorems involving congruent figures to deepen and extend understanding of geometric knowledge from prior grades. The final critical area in the course ties together the algebraic and geometric ideas studied. The Mathematical Practice Standards apply throughout this course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. The six critical focus areas of this course include (1)working with quantities to model and analyze situations; (2) exploring sequences and their relationships to functions; (3) working and translating between the various forms of linear equations and inequalities; (4) fitting data to a particular model; (5) establishing triangle congruency; and (6) verifying geometric relationships. Each critical area is described below:~~

~~(1) By the end of eighth grade students have had a variety of experiences working with expressions and creating equations. In this first critical focus area, students continue this work by using quantities to model and analyze situations, to interpret expressions, and by creating equations to describe situations.~~

~~(2) In earlier grades, students define, evaluate, and compare functions, and use them to model relationships between quantities. In this unit, students will learn function notation and develop the concepts of domain and range. They move beyond viewing functions as processes that take inputs and yield outputs and start viewing functions as objects in their own right. They explore many examples of functions, including sequences; they interpret functions given graphically, numerically, symbolically, and verbally, translate between representations, and understand the limitations of various representations. They work with functions given by graphs and tables, keeping in mind that, depending upon the context, these representations are likely to be approximate and incomplete. Their work includes functions that can be described or approximated by formulas as well as those that cannot. When functions describe relationships between quantities arising from a context, students reason with the units in which those quantities are measured. Students build on and informally extend their understanding of integer exponents to consider exponential functions. They compare and contrast linear and exponential functions, distinguishing between additive and multiplicative change. They interpret arithmetic sequences as linear functions and geometric sequences as exponential functions.~~

~~(3) By the end of eighth grade, students have learned to solve linear equations in one variable and have applied graphical and algebraic methods to analyze and~~

~~High School—Integrated Mathematics I~~ ~~(continued)~~

~~solve systems of linear equations in two variables. This critical area builds on these earlier experiences by asking students to analyze and explain the process of solving an equation and to justify the process used in solving a system of equations. Students develop fluency writing, interpreting, and translating between various forms of linear equations and inequalities, and using them to solve problems. They master the solution of linear equations and apply related solution techniques and the laws of exponents to the creation and solution of simple exponential equations. Students explore systems of equations and inequalities, and they find and interpret their solutions. All of this work is grounded on understanding quantities and on relationships between them.~~

~~(4) This critical area builds upon prior students' prior experiences with data, providing students with more formal means of assessing how a model fits data. Students use regression techniques to describe approximately linear relationships between quantities. They use graphical representations and knowledge of the context to make judgments about the appropriateness of linear models. With linear models, they look at residuals to analyze the goodness of fit.~~

~~(5) In previous grades, students were asked to draw triangles based on given measurements. They also have prior experience with rigid motions: translations, reflections, and rotations and have used these to develop notions about what it means for two objects to be congruent. In this area, students establish triangle congruence criteria, based on analyses of rigid motions and formal constructions. They solve problems about triangles, quadrilaterals, and other polygons. They apply reasoning to complete geometric constructions and explain why they work.~~

~~(6) Building on their work with the Pythagorean Theorem in 8th grade to find distances, students use a rectangular coordinate system to verify geometric relationships, including properties of special triangles and quadrilaterals and slopes of parallel and perpendicular lines.~~

~~The content of this document is centered on the mathematics domains of **Counting and Cardinality** (Grade K), **Operations and Algebraic Thinking; Numbers and Operations in Base Ten** (Grades K-5); **Numbers and Operations—Fractions** (Grades 3-5); **Measurement and Data** (Grades K-5); **Ratios and Proportional Relationships** (Grades 6-7); **the Number System, Expressions & Equations, Geometry, Statistics & Probability** (Grades 6-8); **Functions** (Grade 8), and the high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling**, **Geometry**, and **Statistics & Probability**. Instruction in these domains and conceptual categories should be designed to expose students to experiences, which reflect the value of mathematics, to enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.~~

Integrated Mathematics I

Number and Quantity

Quantities (N-Q) *

Reason quantitatively and use units to solve problems

N-Q.1	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.*
N-Q.2	Define appropriate quantities for the purpose of descriptive modeling.*
N-Q.3	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.*

Algebra

Seeing Structure in Expressions (A-SSE)

Interpret the structure of expressions

A-SSE.1	Interpret expressions that represent a quantity in terms of its context.* a. Interpret parts of an expression, such as terms, factors, and coefficients. b. Interpret complicated expressions by viewing one or more of their parts as a single entity. *For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P.*

Write expressions in equivalent forms to solve problems

A-SSE.3	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.* c. Use the properties of exponents to transform expressions for exponential functions. *For example the expression 1.15^t can be rewritten as $[1.15^{1/12}]^{12t}$ :: 1.012^{12t} to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.*

Creating Equations (A-CED) *

Create equations that describe numbers or relationships

A-CED.1	Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions.**
A-CED.2	Create equations in two variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.* *[Note this standard appears in future courses with a slight variation in the standard language.]*
A-CED.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.**
A-CED.4	Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. *For example, rearrange Ohm's law V = IR to highlight resistance R.**

~~Integrated Mathematics I~~

~~Reasoning with Equations and Inequalities (A-REI)~~	
~~Solve equations and inequalities in one variable~~	
~~A-REI.3~~	~~Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.~~
~~Solve systems of equations~~	
~~A-REI.5~~	~~Given a system of two equations in two variables, show and explain why the sum of equivalent forms of the equations produces the same solution as the original system.~~
~~A-REI.6~~	~~Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.~~
~~Represent and solve equations and inequalities graphically~~	
~~A-REI.10~~	~~Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).~~
~~A-REI.11~~	~~Explain why the *x*-coordinates of the points where the graphs of the equations *y* = *f*(*x*) and *y* = *g*(*x*) intersect are the solutions of the equation *f*(*x*) = *g*(*x*); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where *f*(*x*) and/or *g*(*x*) are linear, polynomial, rational, absolute value and exponential, and logarithmic functions.*~~
~~A-REI.12~~	~~Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.~~
~~Functions~~	
~~Interpreting Functions (F-IF)~~	
~~Understand the concept of a function and use function notation~~	
~~F-IF.1~~	~~Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If *f* is a function and *x* is an element of its domain, then *f*(*x*) denotes the output of *f* corresponding to the input *x*. The graph of *f* is the graph of the equation *y* = *f*(*x*).~~
~~F-IF.2~~	~~Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.~~
~~F-IF.3~~	~~Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. *For example, the Fibonacci sequence is defined recursively by f(0) = f(1) = 1, f(n+1) = f(n) + f(n-1) for n � 1.*~~
~~Interpret functions that arise in applications in terms of the context~~	
~~F-IF.4~~	~~For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.**~~

~~Integrated Mathematics I~~

~~F-IF.5~~	~~Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.~~ ~~*For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.**~~
~~F-IF.6~~	~~Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.*~~
	~~Analyze functions using different representations~~
~~F-IF.7~~	~~Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.*~~ ~~a. Graph functions (linear and quadratic) and show intercepts, maxima, and minima.~~
~~F-IF.9~~	~~Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).~~ ~~*For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*~~
	~~Building Functions (F-BF)~~
	~~Build a function that models a relationship between two quantities~~
~~F-BF.1~~	~~Write a function that describes a relationship between two quantities.*~~ ~~a. Determine an explicit expression, a recursive process, or steps for calculation from a context.~~
~~F-BF.2~~	~~Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.*~~
	~~Linear, Quadratic, and Exponential Models (F-LE) *~~
	~~Construct and compare linear, quadratic, and exponential models and solve problems~~
~~F-LE.1~~	~~Distinguish between situations that can be modeled with linear functions and with exponential functions.*~~ ~~a. Prove that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals.~~ ~~b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.~~ ~~c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.~~
~~F-LE.2~~	~~Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).*~~
~~F-LE.3~~	~~Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.*~~
	~~Interpret expressions for functions in terms of the situation they model~~
~~F-LE.5~~	~~Interpret the parameters in a linear or exponential function in terms of a context.*~~

~~Integrated Mathematics I~~

~~Geometry~~

~~Congruence (G-CO)~~

~~Experiment with transformations in the plane~~

~~G-CO.1~~	~~Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.~~
~~G-CO.2~~	~~Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).~~
~~G-CO.3~~	~~Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.~~
~~G-CO.4~~	~~Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.~~
~~G-CO.5~~	~~Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.~~

~~Understand congruence in terms of rigid motions~~

~~G-CO.6~~	~~Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.~~
~~G-CO.7~~	~~Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.~~
~~G-CO.8~~	~~Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.~~

~~Prove geometric theorems~~

~~G-CO.9~~	~~Prove theorems about lines and angles.~~ *~~Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.~~*
~~G-CO.10~~	~~Prove theorems about triangles.~~ *~~Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.~~*
~~G-CO.11~~	~~Prove theorems about parallelograms.~~ *~~Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.~~*

~~Integrated Mathematics I~~

~~Statistics and Probability *~~	
~~Interpreting Categorical and Quantitative Data (S-ID)~~	
~~Summarize, represent, and interpret data on a single count or measurement variable~~	
~~S-ID.1~~	~~Represent and analyze data with plots on the real number line (dot plots, histograms, and box plots).*~~
~~S-ID.2~~	~~Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.*~~
~~S-ID.3~~	~~Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).*~~
~~Summarize, represent, and interpret data on two categorical and quantitative variables~~	
~~S-ID.5~~	~~Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.*~~
~~S-ID.6~~	~~Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.*~~ ~~a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data.~~ *~~Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.~~* ~~c. Fit a linear function for a scatter plot that suggests a linear association.~~
~~Interpret linear models~~	
~~S-ID.7~~	~~Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.*~~
~~S-ID.8~~	~~Compute (using technology) and interpret the correlation coefficient of a linear fit.*~~
~~S-ID.9~~	~~Distinguish between correlation and causation.*~~

~~* Modeling Standards~~

~~**Additional Resource**~~

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~~**Standards for Mathematical Practice**~~

1. ~~Make sense of problems and persevere in solving them.~~
2. ~~Reason abstractly and quantitatively.~~
3. ~~Construct viable arguments and critique the reasoning of others.~~
4. ~~Model with mathematics.~~
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6. ~~Attend to precision.~~
7. ~~Look for and make use of structure.~~
8. ~~Look for and express regularity in repeated reasoning.~~

High School—Integrated Mathematics II

The focus of Integrated Mathematics II, a one-credit course, is on quadratic expressions, equations, and functions; comparing their characteristics and behavior to those of linear and exponential relationships from Integrated Mathematics I as organized into 6 critical areas. The need for extending the set of rational numbers arises and real and complex numbers are introduced so that all quadratic equations can be solved. The link between probability and data is explored through conditional probability and counting methods, including their use in making and evaluating decisions. The study of similarity leads to an understanding of right triangle trigonometry and connects to quadratics through Pythagorean relationships. Circles, with their quadratic algebraic representations, bring more depth to the course. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. The six critical areas of this course include (1) exploring the distinction between rational and irrational numbers; (2) expending expertise of functions into piece-wise functions and quadratics; (3) focusing on the structure of expressions; (4) exploring compound events; (5) building a formal understanding of similarity; and (6) proving basic theorems about circles. Each critical area is described below:

(1) Students extend the laws of exponents to rational exponents and explore distinctions between rational and irrational numbers by considering their decimal representations. Students learn that when quadratic equations do not have real solutions the number system must be extended so that solutions exist, analogous to the way in which extending the whole numbers to the negative numbers allows $x+1 = 0$ to have a solution. Students explore relationships between number systems: whole numbers, integers, rational numbers, real numbers, and complex numbers. The guiding principle is that equations with no solutions in one number system may have solutions in a larger number system.

(2) Students consider quadratic functions, comparing the key characteristics of quadratic functions to those of linear and exponential functions. They select from among these functions to model phenomena. Students learn to anticipate the graph of a quadratic function by interpreting various forms of quadratic expressions. In particular, they identify the real solutions of a quadratic equation as the zeros of a related quadratic function.
When quadratic equations do not have real solutions, students learn that that the graph of the related quadratic function does not cross the horizontal axis. They expand their experience with functions to include more specialized functions—absolute value, step, and those that are piecewise-defined.

(3) Students begin this critical area by focusing on the structure of expressions, rewriting expressions to clarify and reveal aspects of the relationship they represent. They create and solve equations, inequalities, and systems of equations involving exponential and quadratic expressions.

~~High School—Integrated Mathematics II~~ ~~(continued)~~

~~(4) Students use the languages of set theory to expand their ability to compute and interpret theoretical and experimental probabilities for compound events, attending to mutually exclusive events, independent events, and conditional probability. Students should make use of geometric probability models wherever possible. They use probability to make informed decisions.~~

~~(5) Students apply their earlier experience with dilations and proportional reasoning to build a formal understanding of similarity. They identify criteria for similarity of triangles, use similarity to solve problems, and apply similarity in right triangles to understand right triangle trigonometry, with particular attention to special right triangles and the Pythagorean Theorem. It is in this unit that students develop facility with geometric proof. They use what they know about congruence and similarity to prove theorems involving lines, angles, triangles, and other polygons. They explore a variety of formats for writing proofs.~~

~~(6) In this area students prove basic theorems about circles, such as a tangent line is perpendicular to a radius, inscribed angle theorem, and theorems about chords, secants, and tangents dealing with segment lengths and angle measures. In the Cartesian coordinate system, students use the distance formula to write the equation of a circle when given the radius and the coordinates of its center, and the equation of a parabola with vertical axis when given an equation of its directrix and the coordinates of its focus. Given an equation of a circle, they draw the graph in the coordinate plane, and apply techniques for solving quadratic equations to determine intersections between lines and circles or a parabola and between two circles. Justifying common formulas for circumference, area, and volume of geometric objects, especially those related to circles is also explored.~~

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Integrated Mathematics II

Number and Quantity

The Real Number System (N-RN)

Extend the properties of exponents to rational exponents

N-RN.1	Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. *For example, we define $5^{1/3}$ to be the cube root of 5 because we want $[5^{1/3}]^3 = 5^{(1/3)\,3}$ to hold, so $[5^{1/3}]^3$ must equal 5.*
N-RN.2	Rewrite expressions involving radicals and rational exponents using the properties of exponents.

Use properties of rational and irrational numbers

N-RN.3	Explain why: • the sum or product of two rational numbers is rational; • the sum of a rational number and an irrational number is irrational; and • the product of a nonzero rational number and an irrational number is irrational.

Quantities (N-Q) *

Reason quantitatively and use units to solve problems

N-Q.2	Define appropriate quantities for the purpose of descriptive modeling.*

The Complex Number System (N-CN)

Perform arithmetic operations with complex numbers

N-CN.1	Know there is a complex number i such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real.
N-CN.2	Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.

Use complex numbers in polynomial identities and equations

N-CN.7	Solve quadratic equations with real coefficients that have complex solutions.

Algebra

Seeing Structure in Expressions (A-SSE)

Interpret the structure of expressions

A-SSE.1	Interpret expressions that represent a quantity in terms of its context.* b. Interpret complicated expressions by viewing one or more of their parts as a single entity. *For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P.*

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~~A-SSE.2~~	~~Use the structure of an expression to identify ways to rewrite it.~~ ~~*For example, see*~~ $\cancel{x^4 - y^4}$ ~~*as*~~ $\cancel{(x^2)^2 - (y^2)^2}$, ~~*thus recognizing it as a difference of squares that can be factored as*~~ $\cancel{(x^2 - y^2)(x^2 + y^2)}$.
~~Write expressions in equivalent forms to solve problems~~	
~~A-SSE.3~~	~~Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.*~~ a. ~~Factor a quadratic expression to reveal the zeros of the function it defines.~~ b. ~~Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.~~
~~Arithmetic with Polynomials and Rational Expressions (A-APR)~~	
~~Perform arithmetic operations on polynomials~~	
~~A-APR.1~~	~~Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.~~
~~Creating Equations (A-CED) *~~	
~~Create equations that describe numbers or relationships~~	
~~A-CED.1~~	~~Create equations and inequalities in one variable and use them to solve problems.~~ ~~*Include equations arising from linear and quadratic functions, and simple rational and exponential functions.**~~
~~A-CED.2~~	~~Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.*~~ ~~*[Note this standard appears in previous courses with a slight variation in the standard language.*]~~
~~A-CED.3~~	~~Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. *~~
~~A-CED.4~~	~~Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.~~ ~~*For example, rearrange Ohm's law V = IR to highlight resistance R.**~~
~~Reasoning with Equations and Inequalities (A-REI)~~	
~~Understand solving equations as a process of reasoning and explain the reasoning~~	
~~A-REI.1~~	~~Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.~~
~~Solve equations and inequalities in one variable~~	

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A-REI.4	Solve quadratic equations in one variable. a. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form. b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions.
Solve systems of equations	
A-REI.6	Solve systems of linear equations algebraically, exactly, approximately, and graphically while focusing on pairs of linear equations in two variables.
A-REI.7	Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. *For example, find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.*
Functions	
Interpreting Functions (F-IF)	
Interpret functions that arise in applications in terms of the context	
F-IF.4	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.**
F-IF.5	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.**
F-IF.6	Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.*
Analyze functions using different representations	
F-IF.7	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* a. Graph linear and quadratic functions and show intercepts, maxima, and minima. b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions. e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.

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F-IF.8	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context. b. Use the properties of exponents to interpret expressions for exponential functions. *For example, identify percent rate of change in functions such as* $y = (1.02)^t$, $y = (0.97)^t$, $y = (1.01)^{12t}$, $y = (1.2)^{t/10}$, *and classify them as representing exponential growth and decay.*
F-IF.9	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*
Building Functions (F-BF)	
Build a function that models a relationship between two quantities	
F-BF.1	Write a function that describes a relationship between two quantities.* a. Determine an explicit expression, a recursive process, or steps for calculation from a context. b. Combine standard function types using arithmetic operations. *For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.*
Build new functions from existing functions	
F-BF.3	Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k\,f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. *Include recognizing even and odd functions from their graphs and algebraic expressions for them.*
Geometry	
Similarity, Right Triangles, and Trigonometry (G-SRT)	
Understand similarity in terms of similarity transformations	
G-SRT.1	Verify experimentally the properties of dilations given by a center and a scale factor: a. A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged. b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor.
G-SRT.2	Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.
G-SRT.3	Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.

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~~Prove theorems using similarity~~	
~~G-SRT.4~~	~~Prove theorems about triangles. *Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.*~~
~~G-SRT.5~~	~~Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.~~
~~Define trigonometric ratios and solve problems involving right triangles~~	
~~G-SRT.6~~	~~Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.~~
~~G-SRT.7~~	~~Explain and use the relationship between the sine and cosine of complementary angles.~~
~~G-SRT.8~~	~~Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.*~~
~~Geometric Measurement and Dimension (G-GMD)~~	
~~Explain volume formulas and use them to solve problems~~	
~~G-GMD.1~~	~~Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. *Use dissection arguments, Cavalieri's principle, and informal limit arguments.*~~
~~G-GMD.3~~	~~Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.*~~
~~Statistics and Probability *~~	
~~Interpreting Categorical and Quantitative Data (S-ID)~~	
~~Summarize, represent, and interpret data on two categorical and quantitative variables~~	
~~S-ID.6~~	~~Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.*~~ ~~a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. *Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.*~~ ~~b. Informally assess the fit of a function by plotting and analyzing residuals.~~
~~Conditional Probability and the Rules of Probability (S-CP)~~	
~~Understand independence and conditional probability and use them to interpret data~~	
~~S-CP.1~~	~~Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").*~~
~~S-CP.2~~	~~Understand that two events *A* and *B* are independent if the probability of *A* and *B* occurring together is the product of their probabilities, and use this characterization to determine if they are independent.*~~

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~~S-CP.3~~	~~Understand the conditional probability of *A* given *B* as *P*(*A* and *B*)/*P*(*B*), and interpret independence of *A* and *B* as saying that the conditional probability of *A* given *B* is the same as the probability of *A*, and the conditional probability of *B* given *A* is the same as the probability of *B*.*~~
~~S-CP.4~~	~~Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. *For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.**~~
~~S-CP.5~~	~~Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. *For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.**~~
~~Use the rules of probability to compute probabilities of compound events in a uniform probability model~~	
~~S-CP.6~~	~~Find the conditional probability of *A* given *B* as the fraction of *B*'s outcomes that also belong to *A*, and interpret the answer in terms of the model.*~~
~~S-CP.7~~	~~Apply the Addition Rule, *P*(*A* or *B*) = *P*(*A*) + *P*(*B*) – *P*(*A* and *B*), and interpret the answer in terms of the model.*~~

~~* Modeling Standards~~

~~Additional Resource~~

~~2016 Mississippi College- and Career-Standards Scaffolding Document~~

~~The primary purpose of the *2016 Mississippi College- and Career-Readiness Standards Scaffolding Document* is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career-Readiness Standards for Mathematics, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery. The Scaffolding Document can be found at **http://www.mde.k12.ms.us/ESE/ccr**.~~

Standards for Mathematical Practice

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

~~High School—Integrated Mathematics III~~

~~It is in Mathematics III, a one-credit course, that students pull together and apply the accumulation of learning that they have from their previous courses, with content grouped into four critical areas, organized into units. They apply methods from probability and statistics to draw inferences and conclusions from data. Students expand their repertoire of functions to include polynomial, rational, and radical functions. They expand their study of right triangle trigonometry to include general triangles. And, finally, students bring together all of their experience with functions and geometry to create models and solve contextual problems. The Mathematical Practice Standards apply throughout this course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. The four critical areas of this course include (1) working extensively with statistics and probability; (2) culminating work with the Fundamental Theorem of Algebra; (3) understanding of periodic phenomena; and (4) exploring function fitting. Each critical area is described below:~~

~~(1) In this area, students see how the visual displays and summary statistics they learned in earlier grades relate to different types of data and to probability distributions. They identify different ways of collecting data—including sample surveys, experiments, and simulations—and the role that randomness and careful design play in the conclusions that can be drawn.~~

~~(2) This area develops the structural similarities between the system of polynomials and the system of integers. Students draw on analogies between polynomial arithmetic and base-ten computation, focusing on properties of operations, particularly the distributive property. Students connect multiplication of polynomials with multiplication of multi-digit integers, and division of polynomials with long division of integers. Students identify zeros of polynomials and make connections between zeros of polynomials and solutions of polynomial equations. The area culminates with the fundamental theorem of algebra. Rational numbers extend the arithmetic of integers by allowing division by all numbers except 0. Similarly, rational expressions extend the arithmetic of polynomials by allowing division by all polynomials except the zero polynomial. A central theme of this unit is that the arithmetic of rational expressions is governed by the same rules as the arithmetic of rational numbers.~~

~~(3) Students develop the Laws of Sines and Cosines in order to find missing measures of general (not necessarily right) triangles. They are able to distinguish whether three given measures (angles or sides) define 0, 1, 2, or infinitely many triangles. This discussion of general triangles open up the idea~~

~~High School—Integrated Mathematics III~~ ~~(continued)~~

~~of trigonometry applied beyond the right triangle—that is, at least to obtuse angles. Students build on this idea to develop the notion of radian measure for angles and extend the domain of the trigonometric functions to all real numbers. They apply this knowledge to model simple periodic phenomena.~~

~~(4)~~ ~~Students synthesize and generalize what they have learned about a variety of function families. They extend their work with exponential functions to include solving exponential equations with logarithms. They explore the effects of transformations on graphs of diverse functions, including functions arising in an application, in order to abstract the general principle that transformations on a graph always have the same effect regardless of the type of the underlying functions. They identify appropriate types of functions to model a situation, they adjust parameters to improve the model, and they compare models by analyzing appropriateness of fit and making judgments about the domain over which a model is a good fit. The description of modeling as "the process of choosing and using mathematics and statistics to analyze empirical situations, to understand them better, and to make decisions" is at the heart of this area. The narrative discussion and diagram of the modeling cycle should be considered when knowledge of functions, statistics, and geometry is applied in a modeling context.~~

~~The content of this document is centered on the mathematics domains of **Counting and Cardinality** (Grade K), **Operations and Algebraic Thinking; Numbers and Operations in Base Ten** (Grades K-5); **Numbers and Operations—Fractions** (Grades 3-5); **Measurement and Data** (Grades K-5); **Ratios and Proportional Relationships** (Grades 6-7); **the Number System, Expressions & Equations, Geometry, Statistics & Probability** (Grades 6-8); **Functions** (Grade 8), and the high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling**, **Geometry**, and **Statistics & Probability**. Instruction in these domains and conceptual categories should be designed to expose students to experiences, which reflect the value of mathematics, to enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.~~

~~Integrated Mathematics III~~

~~Number and Quantity~~	
~~Quantities (N-Q) *~~	
~~Reason quantitatively and use units to solve problems~~	
~~N-Q.2~~	~~Define appropriate quantities for the purpose of descriptive modeling.*~~
~~Algebra~~	
~~Seeing Structure in Expressions (A-SSE)~~	
~~Interpret the structure of expressions~~	
~~A-SSE.2~~	~~Use the structure of an expression to identify ways to rewrite it. *For example, see* $x^4 - y^4$ *as* $(x^2)^2 - (y^2)^2$*, thus recognizing it as a difference of squares that can be factored as* $(x^2 - y^2)(x^2 + y^2)$.~~
~~Write expressions in equivalent forms to solve problems~~	
~~A-SSE.4~~	~~Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. *For example, calculate mortgage payments.**~~
~~Arithmetic with Polynomials and Rational Expressions (A-APR)~~	
~~Understand the relationship between zeros and factors of polynomials~~	
~~A-APR.2~~	~~Know and apply the Remainder Theorem: For a polynomial $p(x)$ and a number a, the remainder on division by $x - a$ is $p(a)$, so $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.~~
~~A-APR.3~~	~~Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial (limit to 1st- and 2nd-degree polynomials).~~
~~Use polynomial identities to solve problems~~	
~~A-APR.4~~	~~Prove polynomial identities and use them to describe numerical relationships. *For example, the polynomial identity* $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ *can be used to generate Pythagorean triples.*~~
~~Rewrite rational expressions~~	
~~A-APR.6~~	~~Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.~~

Integrated Mathematics III

Creating Equations (A-CED) *	
Create equations that describe numbers or relationships	
A-CED.1	Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions.**
A-CED.2	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.* *[Note this standard appears in previous courses with a slight variation in the standard language.]*
Reasoning with Equations and Inequalities (A-REI)	
Understand solving equations as a process of reasoning and explain the reasoning	
A-REI.1	Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.
A-REI.2	Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.
Represent and solve equations and inequalities graphically	
A-REI.11	Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.*
Functions	
Interpreting Functions (F-IF)	
Interpret functions that arise in applications in terms of the context	
F-IF.4	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.**
F-IF.6	Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.*
Analyze functions using different representations	
F-IF.7	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior. e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.

~~Integrated Mathematics III~~

~~F-IF.9~~	~~Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*~~
~~Building Functions (F-BF)~~	
~~Build new functions from existing functions~~	
~~F-BF.3~~	~~Identify the effect on the graph of replacing *f*(*x*) by *f*(*x*) + *k*, *k f*(*x*), *f*(*kx*), and *f*(*x* + *k*) for specific values of *k* (both positive and negative); find the value of *k* given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. *Include recognizing even and odd functions from their graphs and algebraic expressions for them.*~~
~~F-BF.4~~	~~Find inverse functions.~~ ~~a. Solve an equation of the form *f*(*x*) = *c* for a simple function *f* that has an inverse and write an expression for the inverse. *For example,* $f(x) = 2x^3$ *or f(x) = (x+1)/(x-1) for x -: 1.*~~
~~Linear, Quadratic, and Exponential Models (F-LE) *~~	
~~Construct and compare linear, quadratic, and exponential models and solve problems~~	
~~F-LE.4~~	~~For exponential models, express as a logarithm the solution to~~ $ab^{ct} = d$ ~~where *a*, *c*, and *d* are numbers and the base *b* is 2, 10, or *e*; evaluate the logarithm using technology.*~~
~~Trigonometric Functions (F-TF)~~	
~~Extend the domain of trigonometric functions using the unit circle~~	
~~F-TF.1~~	~~Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.~~
~~F-TF.2~~	~~Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.~~
~~Model periodic phenomena with trigonometric functions~~	
~~F-TF.5~~	~~Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.*~~
~~Prove and apply trigonometric identities~~	
~~F-TF.8~~	~~Prove the Pythagorean identity~~ $\sin(0)^2 + \cos(0)^2 = 1$ ~~and use it to find sin (0), cos (0), or tan (0), given sin (0), cos (0), or tan (0) and the quadrant of the angle.~~

~~Integrated Mathematics III~~

~~Geometry~~	
~~Congruence (G-CO)~~	
~~Make geometric constructions~~	
~~G-CO.12~~	~~Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.*~~
~~G-CO.13~~	~~Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.~~
~~Circles (G-C)~~	
~~Understand and apply theorems about circles~~	
~~G-C.1~~	~~Prove that all circles are similar.~~
~~G-C.2~~	~~Identify and describe relationships among inscribed angles, radii, and chords. *Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.*~~
~~G-C.3~~	~~Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.~~
~~Find arc lengths and areas of sectors of circles~~	
~~G-C.5~~	~~Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.~~
~~Expressing Geometric Properties with Equations (G-GPE)~~	
~~Translate between the geometric description and the equation for a conic section~~	
~~G-GPE.1~~	~~Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.~~
~~G-GPE.2~~	~~Derive the equation of a parabola given a focus and directrix.~~
~~Use coordinates to prove simple geometric theorems algebraically~~	
~~G-GPE.4~~	~~Use coordinates to prove simple geometric theorems algebraically. *For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point (1, √3) lies on the circle centered at the origin and containing the point (0, 2).*~~
~~G-GPE.5~~	~~Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).~~

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~~G-GPE.6~~	~~Find the point on a directed line segment between two given points that partitions the segment in a given ratio.~~
~~G-GPE.7~~	~~Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.*~~

~~Geometric Measurement and Dimension (G-GMD)~~

~~Visualize relationships between two-dimensional and three-dimensional objects~~

~~G-GMD.4~~	~~Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.~~

~~Modeling with Geometry (G-MG)~~

~~Apply geometric concepts in modeling situations~~

~~G-MG.1~~	~~Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*~~
~~G-MG.2~~	~~Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).*~~
~~G-MG.3~~	~~Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).*~~

~~Statistics and Probability *~~

~~Interpreting Categorical and Quantitative Data (S-ID)~~

~~Summarize, represent, and interpret data on a single count or measurement variable~~

~~S-ID.4~~	~~Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.*~~

~~Summarize, represent, and interpret data on two categorical and quantitative variables~~

~~S-ID.6~~	~~Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.*~~ a. ~~Fit a function to the data; use functions fitted to data to solve problems in the context of the data.~~ *~~Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.~~* b. ~~Informally assess the fit of a function by plotting and analyzing residuals.~~

~~Making Inferences and Justifying Conclusions (S-IC)~~

~~Understand and evaluate random processes underlying statistical experiments~~

~~S-IC.1~~	~~Understand statistics as a process for making inferences about population parameters based on a random sample from that population.*~~

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~~S-IC.2~~	~~Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. *For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?**~~
~~Make inferences and justify conclusions from sample surveys, experiments, and observational studies~~	
~~S-IC.3~~	~~Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.*~~
~~S-IC.4~~	~~Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.*~~
~~S-IC.5~~	~~Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.*~~
~~S-IC.6~~	~~Evaluate reports based on data.*~~

~~* Modeling Standards~~

~~**Additional Resource**~~

~~**2016 Mississippi College- and Career-Standards Scaffolding Document**~~

~~The primary purpose of the *2016 Mississippi College- and Career-Readiness Standards Scaffolding Document* is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career- Readiness Standards for Mathematics, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery. The Scaffolding Document can be found at **http://www.mde.k12.ms.us/ESE/ccr**.~~

~~**Standards for Mathematical Practice**~~

1. ~~Make sense of problems and persevere in solving them.~~
2. ~~Reason abstractly and quantitatively.~~
3. ~~Construct viable arguments and critique the reasoning of others.~~
4. ~~Model with mathematics.~~
5. ~~Use appropriate tools strategically.~~
6. ~~Attend to precision.~~
7. ~~Look for and make use of structure.~~
8. ~~Look for and express regularity in repeated reasoning.~~

NOTE: This course is a MS CCRS course that was isolated and housed with CTE courses, it has been added to the 2025 MS CCRS math standards for accessibility.

Advanced Technical Mathematics

~~The Advanced Technical Mathematics (ATM), course is a higher-level mathematics course that provides mathematical understanding and skills used in career and technical education (CTE) and entry-level positions in technical jobs. This course is only available for CTE students that have completed the MS CCRS Algebra I course, passed the MAAP Algebra I state assessment, and are a completer in one CTE pathway. The topics covered in this course include a comprehensive coverage of the real number system, measurement, data, expressions, equations, functions, introductory trigonometry, geometry and spatial reasoning.~~

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The Advanced Technical Mathematics (ATM) course, ***a one-credit course***, is only available for career and technical education (CTE) students who have completed the MS CCRS Algebra I course, passed the MAAP Algebra I end-of-course state assessment, and are a completer in one CTE pathway.

The ATM course is a higher-level mathematics course that provides mathematical understanding and skills used in CTE and entry-level positions in technical jobs.

The content within this high school level course includes comprehensive coverage of the real number system, measurement, data, expressions, equations, functions, introductory trigonometry, geometry and spatial reasoning, and is centered on the mathematics domains of **Measurement & Data** (Grades K-5), **the Number System** (Grades 6-8), **Expressions & Equations** (Grades 6-8), **Ratios and Proportional Relationships** (Grades 6-7), **Functions** (Grades 8), **Geometry** (Grades K-8). The high school conceptual categories included are **Number and Quantity**, **Algebra**, **Functions**, **Geometry,** and **Statistics & Probability**. Instruction in these domains and conceptual categories should be designed to expose students to experiences that reflect the value of mathematics, enhance students' confidence in their ability to do mathematics, and help students communicate and reason mathematically.

For additional information regarding CTE courses and curriculum, visit *https://www.rcu.msstate.edu/curriculum.*

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
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NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

The Real Number System	
ATM.NS.1	Solve real-world and mathematical problems involving the four operations with rational numbers.
ATM.NS.2	Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.
ATM.NS.3	Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.
ATM.NS.4	Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
ATM.NS.5	Represent proportional relationships by equations.
ATM.NS.6	Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (*0, 0*) and (*1, r*) where r is the unit rate.
ATM.NS.7	Use proportional relationships to solve multistep ratio and percent problems.
Measurement and Data	
ATM.MD.8	Recognize volume as an attribute of solid figures and understand concepts of volume measurement wherein a cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume.
ATM.MD.9	Recognize volume as an attribute of solid figures and understand concepts of volume measurement wherein a solid figure which can be packed without gaps or overlaps using *n* unit cubes is said to have a volume of *n* cubic units.
ATM.MD.10	Measure volumes by counting unit cubes, using cubic *cm*, cubic *in*, cubic *ft,* and improvised units.
ATM.MD.11	Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
ATM.MD.12	Apply the formulas $V = l \times w \times h$ *and* $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.
ATM.MD.13	Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.
ATM.MD.14	Use units as a way to understand problems and to guide the solution of multi-step problems, choose and interpret units consistently in formulas, choose and interpret the scale and the origin in graphs and data displays.

Equations, Expressions, and Functions	
ATM.EE.15	Write and evaluate numerical expressions involving whole-number exponents.
ATM.EE.16	Write expressions that record operations with numbers and with letters standing for numbers.
ATM.EE.17	Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity.
ATM.EE.18	Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order.
ATM.EE.19	Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
ATM.EE.20	Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.
ATM.EE.21	Solve word problems leading to equations of the form $px + q = r$ *and* $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.
ATM.EE.22	Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, *and* r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.
ATM.EE.23	Know and apply the properties of integer exponents to generate equivalent numerical expressions.
ATM.EE.24	Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.
ATM.EE.25	Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, *or* $a = b$ results (where a and b are different numbers).
ATM.EE.26	Solve linear equations and inequalities with rational number coefficients, including those whose solutions require expanding expressions using the distributive property and collecting like terms.
ATM.EE.27	Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.
ATM.EE.28	Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.

ATM.F.29	Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.
ATM.F.30	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two *(x, y)* values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
ATM.F.31	Write a function that describes a relationship between two quantities; and be able to calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.
ATM.F.32	Construct linear functions, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).
Geometry and Spatial Reasoning	
ATM.G.33	Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
ATM.G.34	Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
ATM.G.35	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real- world and mathematical problems.
ATM.G.36	Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
ATM.G.37	Solve real-world and mathematical problems involving area, volume and surface area of two-and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.
ATM.G.38	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.
ATM.G.39	Explain a proof of the Pythagorean Theorem and its converse.
ATM.G.40	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
ATM.G.41	Explain and use the relationship between the sine and cosine of complementary angles.
ATM.G.42	Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.
ATM.G.43	Identify and describe relationships among inscribed angles, radii, and chords.
ATM.G.44	Construct the inscribed and circumscribed circles of a triangle; and, prove properties of angles for a quadrilateral inscribed in a circle.
ATM.G.45	Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.
ATM.G.46	Use coordinates to prove simple geometric theorems algebraically.
ATM.G.47	Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems.

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NOTE: Standards for Mathematical Practice have been assigned Standard Numbers for each grade-level and course and precede the content standards for that grade level or course.

NOTE: Because this course is suggested as a Junior-level course, it was moved to precede Advanced Mathematics Plus, because AMP is suggested to be a Senior-level course.

~~High School—~~ CCR Algebra III

Algebra III, a one-credit course, includes content standards from the ~~*2007 Mississippi Mathematics Framework Revised*~~ former Pre-Calculus course and the Mississippi College- and Career- Readiness Standards for Mathematics; and covers those skills and objectives necessary for success in courses higher than Algebra II ~~and Integrated Mathematics III~~.

Topics of study include sequences and series, functions, and higher order polynomials. Polynomial functions provide the context for higher-order investigations. Topics are addressed from a numeric, graphical, and analytical perspective. Technology is to be used to enhance presentation and understanding of concepts. The instructional approach should provide opportunities for students to work together collaboratively and cooperatively as they solve routine and non-routine problems. Communication strategies should include reading, writing, speaking, and critical listening as students present and evaluate mathematical arguments, proofs, and explanations about their reasoning. Algebra III is typically taken by students who have successfully completed Algebra II and Geometry.

The content within ~~of~~ this course ~~document~~ is centered on the mathematics ~~domains of **Counting and Cardinality** (Grade K), **Operations and Algebraic Thinking; Numbers and Operations in Base Ten** (Grades K-5); **Numbers and Operations—Fractions** (Grades 3-5); **Measurement and Data** (Grades K-5); **Ratios and Proportional Relationships** (Grades 6-7); **the Number System, Expressions & Equations, Geometry, Statistics & Probability** (Grades 6-8); **Functions** (Grade 8), and the~~ high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling, Geometry**, and **Statistics & Probability**. Instruction in these domains and conceptual categories should be designed to expose students to experiences, which reflect the value of mathematics, ~~to~~ enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

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~~Algebra III~~

Number and Quantity	
Explore and illustrate the characteristics and operations connecting sequences and series	
A3.N.1	Express sequences and series using recursive and explicit formulas.
A3.N.2	Evaluate and apply formulas for arithmetic and geometric sequences and series.
A3.N.3	Calculate limits based on convergent and divergent series.
A3.N.4	Evaluate and apply infinite geometric series.
A3.N.5	Extend the meaning of exponents to include rational numbers.
A3.N.6	Simplify expressions with fractional exponents to include converting from radicals.
A3.N.7	Factor algebraic expressions containing fractional exponents.
Algebra	
Analyze and manipulate functions	
A3.A.8	Determine characteristics of graphs of parent functions (domain/range, increasing/decreasing intervals, intercepts, symmetry, end behavior, and asymptotic behavior).
A3.A.9	Determine the end behavior of polynomial functions.
Use polynomial identities to solve problems	
A3.A.10	Prove polynomial identities and use them to describe numerical relationships. For example, the polynomial identity $(x^2 + y^2)^2 = (x^2 – y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.
A3.A.11	Verify the Binomial Theorem by mathematical induction or by a combinatorial argument.
A3.A.12	Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n, where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.
A3.A.13	Write rational expressions in simplest form. (*For* example $\frac{x^3 - x^2 - x + 1}{x^3 + x^2 - x - 1} = \frac{x-1}{x+1}$).
A3.A.14	Decompose a rational function into partial fractions.
A3.A.15	Determine asymptotes and holes of rational functions, explain how each was found, and relate these behaviors to continuity.
Perform operations on expressions, equations, inequalities and polynomials	
A3.A.16	Add, subtract, multiply and divide rational expressions.
A3.A.17	Solve polynomial and rational inequalities. Relate results to the behavior of the graphs.

A3.A.18	Find the composite of two given functions and find the inverse of a given function. Extend this concept to discuss the identity function f(x) = x.
A3.A.19	Simplify complex algebraic fractions (with/without variable expressions and integer exponents) to include expressing $\frac{f(x+h)-f(x)}{h}$ as a single simplified fraction when f(x) = $\frac{1}{1-x}$ for example.
A3.A.20	Find the possible rational roots using the Rational Root Theorem.
A3.A.21	Find the zeros of polynomial functions by synthetic division and the Factor Theorem.
A3.A.22	Graph and solve quadratic inequalities.
Functions	
Analyze functions using different representations	
A3.F.23	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.
A3.F.24	Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.
Build a function that models a relationship between two quantities	
A3.F.25	Compose functions. *For example, if T(y) is the temperature in the atmosphere as a function of height, and h(t) is the height of a weather balloon as a function of time, then T(h(t)) is the temperature at the location of the weather balloon as a function of time.*
Build new functions from existing functions	
A3.F.26	Verify by composition that one function is the inverse of another.
A3.F.27	Read values of an inverse function from a graph or a table, given that the function has an inverse.
A3.F.28	Produce an invertible function from a non-invertible function by restricting the domain.
A3.F.29	Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.
Extend the domain of trigonometric functions using the unit circle	
A3.F.30	Use special triangles to determine geometrically the values of sine, cosine, tangent for $\pi/3$, $\pi/4$ and $\pi/6$, and use the unit circle to express the values of sine, cosine, and tangent for $\pi - x$, $\pi + x$, and $2\pi - x$ in terms of their values for x, where x is any real number.

~~Algebra III~~

A3.F.31	Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.
Model periodic phenomena with trigonometric functions	
A3.F.32	Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.*
A3.F.33	Understand that restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed.
A3.F.34	Use inverse functions to solve trigonometric equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context.
Prove and apply trigonometric identities	
A3.F.35	Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.
A3.F.36	Prove the Pythagorean identity sin2(Θ) + cos2(Θ) = 1 and use it to find sin(Θ), cos(Θ), or tan(Θ) given sin(Θ), cos(Θ), or tan(Θ) and the quadrant of the angle.
Geometry	
Recognize, sketch, and transform graphs of functions	
A3.G.37	Graph piecewise defined functions and determine continuity or discontinuities.
A3.G.38	Describe the attributes of graphs and the general equations of parent functions (linear, quadratic, cubic, absolute value, rational, exponential, logarithmic, square root, cube root, and greatest integer).
A3.G.39	Explain the effects of changing the parameters in transformations of functions.
A3.G.40	Predict the shapes of graphs of exponential, logarithmic, rational, and piece-wise functions, and verify the prediction with and without technology.
A3.G.41	Relate symmetry of the behavior of even and odd functions.
Apply trigonometry to general triangles	
A3.G.42	Derive the formula *A* = 1/2 *ab* sin(C) for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.
A3.G.43	Prove the Laws of Sines and Cosines and use them to solve problems.
A3.G.44	Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).
Statistics and Probability	
Explore and apply fundamental principles of probability.	
A3.SP.45	Analyze expressions in summation and factorial notation to solve problems.
A3.SP.46	Prove statements using mathematical induction.

~~Additional Resource~~

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~~Advanced Mathematics Plus~~

~~High School—~~ CCR Advanced Mathematic Plus

Advanced Mathematics Plus is designed to be a fourth-year, ~~a~~ one-credit math course, that specifies the mathematics that students should study in order to be college and career ready. The Advanced Mathematics Plus Course includes rigorous mathematical standards that will prepare students for collegiate courses dealing with higher-level trigonometric, algebraic, and calculus concepts. ~~This course was designed to be a fourth year math course. Throughout the duration of this course, teachers should make every effort to ensure the Standards for Mathematical Practice are addressed.~~

The content within ~~of~~ this course ~~document~~ is centered on the mathematics ~~domains of~~ ~~**Counting and Cardinality** (Grade K), **Operations and Algebraic Thinking; Numbers and Operations in Base Ten** (Grades K-5); **Numbers and Operations—Fractions** (Grades 3-5); **Measurement and Data** (Grades K-5); **Ratios and Proportional Relationships** (Grades 6-7); **the Number System, Expressions & Equations, Geometry, Statistics & Probability** (Grades 6-8); **Functions** (Grade 8), and the~~ high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling, Geometry**, and **Statistics & Probability**. Instruction in these domains and conceptual categories should be designed to expose students to experiences, which reflect the value of mathematics, ~~to~~ enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

~~Advanced Mathematics Plus~~

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~~Advanced Mathematics Plus~~

Number and Quantity	
The Complex Number System (N-CN)	
Perform arithmetic operations with complex numbers	
N-CN.3	Find the conjugate of a complex number; use conjugates to find moduli and quotients of complex numbers.
Represent complex numbers and their operations on the complex plane	
N-CN.4	Represent complex numbers on the complex plane in rectangular and polar form (including real and imaginary numbers), and explain why the rectangular and polar forms of a given complex number represent the same number.
N-CN.5	Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation. *For example,* $(-1 + \sqrt{3}\, i)^3 = 8$ *because* $(-1 + \sqrt{3}\, i)$ *has modulus 2 and argument 120°.*
N-CN.6	Calculate the distance between numbers in the complex plane as the modulus of the difference, and the midpoint of a segment as the average of the numbers at its endpoints.
Use complex numbers in polynomial identities and equations	
N-CN.8	Extend polynomial identities to the complex numbers. *For example, rewrite* $x^2 + 4$ *as* $(x + 2i)(x - 2i)$.
N-CN.9	Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.
Vector and Matrix Quantities (N-VM)	
Represent and model with vector quantities	
N-VM.1	Recognize vector quantities as having both magnitude and direction. Represent vector quantities by directed line segments, and use appropriate symbols for vectors and their magnitudes (e.g., ***v***, |***v***|, ||***v***||, *v*).
N-VM.2	Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point.
N-VM.3	Solve problems involving velocity and other quantities that can be represented by vectors.

~~Advanced Mathematics Plus~~

Perform operations on vectors	
N-VM.4	Add and subtract vectors. a. Add vectors end-to-end, component-wise, and by the parallelogram rule. Understand that the magnitude of a sum of two vectors is typically not the sum of the magnitudes. b. Given two vectors in magnitude and direction form, determine the magnitude and direction of their sum. c. Understand vector subtraction $\boldsymbol{v} - \boldsymbol{w}$ as $\boldsymbol{v} + (-\boldsymbol{w})$, where $-\boldsymbol{w}$ is the additive inverse of $\boldsymbol{w}$, with the same magnitude as $\boldsymbol{w}$ and pointing in the opposite direction. Represent vector subtraction graphically by connecting the tips in the appropriate order, and perform vector subtraction component-wise.
N-VM.5	Multiply a vector by a scalar. a. Represent scalar multiplication graphically by scaling vectors and possibly reversing their direction; perform scalar multiplication component-wise, e.g., as $c(v_x, v_y) = (cv_x, cv_y)$. b. Compute the magnitude of a scalar multiple $c\boldsymbol{v}$ using $\|\|c\boldsymbol{v}\|\| = \|c\|v$. Compute the direction of $c\boldsymbol{v}$ knowing that when $\|c\|v \neq 0$, the direction of $c\boldsymbol{v}$ is either along $\boldsymbol{v}$ (for $c > 0$) or against $\boldsymbol{v}$ (for $c < 0$).
Perform operations on matrices and use matrices in applications	
N-VM.6	Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.
N-VM.7	Multiply matrices by scalars to produce new matrices, e.g., as when all of the payoffs in a game are doubled.
N-VM.8	Add, subtract, and multiply matrices of appropriate dimensions.
N-VM.9	Understand that, unlike multiplication of numbers, matrix multiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties.
N-VM.10	Understand that the zero and identity matrices play a role in matrix addition and multiplication similar to the role of 0 and 1 in the real numbers. The determinant of a square matrix is nonzero if and only if the matrix has a multiplicative inverse.
N-VM.11	Multiply a vector (regarded as a matrix with one column) by a matrix of suitable dimensions to produce another vector. Work with matrices as transformations of vectors.
N-VM.12	Work with 2×2 matrices as transformations of the plane, and interpret the absolute value of the determinant in terms of area.
Algebra	
Arithmetic with Polynomials and Rational Expressions (A-APR)	
Use polynomial identities to solve problems	
A-APR.5	Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n, where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.[1]

~~Advanced Mathematics Plus~~

Rewrite rational expressions	
A-APR.7	Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.
Reasoning with Equations and Inequalities (A-REI)	
Solve systems of equations	
A-REI.8	Represent a system of linear equations as a single matrix equation in a vector variable.
A-REI.9	Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension 3 × 3 or greater).
Functions	
Interpreting Functions (F-IF)	
Analyze functions using different representations	
F-IF.7	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* d. Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.
Building Functions (F-BF)	
Build a function that models a relationship between two quantities	
F-BF.1	Write a function that describes a relationship between two quantities. * c. Compose functions. *For example, if T(y) is the temperature in the atmosphere as a function of height, and h(t) is the height of a weather balloon as a function of time, then T(h(t)) is the temperature at the location of the weather balloon as a function of time.*
Build new functions from existing functions	
F-BF.4	Find inverse functions. b. Verify by composition that one function is the inverse of another. c. Read values of an inverse function from a graph or a table, given that the function has an inverse. d. Produce an invertible function from a non-invertible function by restricting the domain.
F-BF.5	Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.

~~Advanced Mathematics Plus~~

Trigonometric Functions (F-TF)	
Extend the domain of trigonometric functions using the unit circle	
F-TF.3	Use special triangles to determine geometrically the values of sine, cosine, tangent for $\pi/3$, $\pi/4$ and $\pi/6$, and use the unit circle to express the values of sine, cosine, and tangent for $\pi-x$, $\pi+x$, and $2\pi-x$ in terms of their values for x, where x is any real number.
F-TF.4	Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.
Model periodic phenomena with trigonometric functions	
F-TF.5	Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.*
F-TF.6	Understand that restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed.
F-TF.7	Use inverse functions to solve trigonometric equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context. *
Prove and apply trigonometric identities	
F-TF.9	Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.
Geometry	
Similarity, Right Triangles, and Trigonometry (G-SRT)	
Apply trigonometry to general triangles	
G-SRT.9	Derive the formula $A = ½ ab \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.
G-SRT.10	Prove the Laws of Sines and Cosines and use them to solve problems.
G-SRT.11	Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).
Circles (G-C)	
Understand and apply theorems about circles	
G-C.4	Construct a tangent line from a point outside a given circle to the circle.

~~Advanced Mathematics Plus~~

Expressing Geometric Properties with Equations (G-GPE)	
Translate between the geometric description and the equation for a conic section	
G-GPE.3	Derive the equations of ellipses and hyperbolas given the foci, using the fact that the sum or difference of distances from the foci is constant.
Geometric Measurement and Dimension (G-GMD)	
Explain volume formulas and use them to solve problems	
G-GMD.2	Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures.
Statistics and Probability *	
Conditional Probability and the Rules of Probability (S-CP)	
Use the rules of probability to compute probabilities of compound events in a uniform probability model	
S-CP.8	Apply the general Multiplication Rule in a uniform probability model, P(A and B) = P(A)P(B|A) = P(B)P(A|B), and interpret the answer in terms of the model.*
S-CP.9	Use permutations and combinations to compute probabilities of compound events and solve problems.*
Using Probability to Make Decisions (S-MD)	
Calculate expected values and use them to solve problems	
S-MD.1	Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.*
S-MD.2	Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.*
S-MD.3	Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value. *For example, find the theoretical probability distribution for the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each question has four choices, and find the expected grade under various grading schemes.**
S-MD.4	Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. *For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?**

	Use probability to evaluate outcomes of decisions
S-MD.5	Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values. * a. Find the expected payoff for a game of chance. *For example, find the expected winnings from a state lottery ticket or a game at a fast-food restaurant*. b. Evaluate and compare strategies on the basis of expected values. *For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.**
S-MD.6	Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).*
S-MD.7	Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).*

[1] The

[1]Binomial Theorem can be proved by mathematical induction or by a combinatorial argument.

* Modeling Standards

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~~Additional Resource~~

~~2016 Mississippi College- and Career-Standards Scaffolding Document~~

~~The primary purpose of the *2016 Mississippi College- and Career-Readiness Standards Scaffolding Document* is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career-Readiness Standards for Mathematics, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery. The Scaffolding Document can be found at **http://www.mde.k12.ms.us/ESE/ccr**.~~

Standards for Mathematical Practice

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

NOTE: Standards for Mathematical Practice have been assigned Standard Numbers for each grade-level and course and precede the content standards for that grade level or course.

~~High School—Algebra III~~

~~Algebra III, a one-credit course, includes content standards from the *2007 Mississippi Mathematics Framework Revised* Pre-Calculus course and the Mississippi College- and Career-Readiness Standards for Mathematics; and covers those skills and objectives necessary for success in courses higher than Algebra II and Integrated Mathematics III. Topics of study include sequences and series, functions, and higher order polynomials. Polynomial functions provide the context for higher-order investigations. Topics are addressed from a numeric, graphical, and analytical perspective. Technology is to be used to enhance presentation and understanding of concepts. The instructional approach should provide opportunities for students to work together collaboratively and cooperatively as they solve routine and non-routine problems. Communication strategies should include reading, writing, speaking, and critical listening as students present and evaluate mathematical arguments, proofs, and explanations about their reasoning. Algebra III is typically taken by students who have successfully completed Algebra II and Geometry.~~

~~The content of this document is centered on the mathematics domains of **Counting and Cardinality** (Grade K), **Operations and Algebraic Thinking; Numbers and Operations in Base Ten** (Grades K-5); **Numbers and Operations—Fractions** (Grades 3-5); **Measurement and Data** (Grades K-5); **Ratios and Proportional Relationships** (Grades 6-7); **the Number System, Expressions & Equations, Geometry, Statistics & Probability** (Grades 6-8); **Functions** (Grade 8), and the high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling**, **Geometry**, and **Statistics & Probability**. Instruction in these domains and conceptual categories should be designed to expose students to experiences, which reflect the value of mathematics, to enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.~~

~~Algebra III~~

	~~Number and Quantity~~
	~~Explore and illustrate the characteristics and operations connecting sequences and series~~
~~1~~	~~Express sequences and series using recursive and explicit formulas.~~
~~2~~	~~Evaluate and apply formulas for arithmetic and geometric sequences and series.~~
~~3~~	~~Calculate limits based on convergent and divergent series.~~
~~4~~	~~Evaluate and apply infinite geometric series.~~
~~5~~	~~Extend the meaning of exponents to include rational numbers.~~
~~6~~	~~Simplify expressions with fractional exponents to include converting from radicals.~~
~~7~~	~~Factor algebraic expressions containing fractional exponents.~~
	~~Algebra~~
	~~Analyze and manipulate functions~~
~~8~~	~~Determine characteristics of graphs of parent functions (domain/range, increasing/decreasing intervals, intercepts, symmetry, end behavior, and asymptotic behavior).~~
~~9~~	~~Determine the end behavior of polynomial functions.~~
	~~Use polynomial identities to solve problems~~
~~10~~	~~Prove polynomial identities and use them to describe numerical relationships. For example, the polynomial identity~~ $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ ~~can be used to generate Pythagorean triples.~~
~~11~~	~~Verify the Binomial Theorem by mathematical induction or by a combinatorial argument.~~
~~12~~	~~Know and apply the Binomial Theorem for the expansion of~~ $(x + y)^n$ ~~in powers of~~ x ~~and~~ y ~~for a positive integer~~ n~~, where~~ x ~~and~~ y ~~are any numbers, with coefficients determined for example by Pascal's Triangle.~~
~~13~~	~~Write rational expressions in simplest form. (*For* example~~ $\frac{x^3 - x^2 - x + 1}{x^3 + x^2 - x - 1} = \frac{x - 1}{x + 1}$~~).~~
~~14~~	~~Decompose a rational function into partial fractions.~~
~~15~~	~~Determine asymptotes and holes of rational functions, explain how each was found, and relate these behaviors to continuity.~~
	~~Perform operations on expressions, equations, inequalities and polynomials~~
~~16~~	~~Add, subtract, multiply and divide rational expressions.~~
~~17~~	~~Solve polynomial and rational inequalities. Relate results to the behavior of the graphs.~~

~~Algebra III~~

~~18~~	~~Find the composite of two given functions and find the inverse of a given function. Extend this concept to discuss the identity function f(x) = x.~~
~~19~~	~~Simplify complex algebraic fractions (with/without variable expressions and integer exponents) to include expressing~~ $\cancel{\frac{f(x+h)-f(x)}{h}}$ ~~as a single simplified fraction when f(x) =~~ $\cancel{\frac{1}{1-x}}$ ~~for example.~~
~~20~~	~~Find the possible rational roots using the Rational Root Theorem.~~
~~21~~	~~Find the zeros of polynomial functions by synthetic division and the Factor Theorem.~~
~~22~~	~~Graph and solve quadratic inequalities.~~
	~~Functions~~
	~~Analyze functions using different representations~~
~~23~~	~~Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.~~
~~24~~	~~Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.~~
	~~Build a function that models a relationship between two quantities~~
~~25~~	~~Compose functions.~~ ~~*For example, if T(y) is the temperature in the atmosphere as a function of height, and h(t) is the height of a weather balloon as a function of time, then T(h(t)) is the temperature at the location of the weather balloon as a function of time.*~~
	~~Build new functions from existing functions~~
~~26~~	~~Verify by composition that one function is the inverse of another.~~
~~27~~	~~Read values of an inverse function from a graph or a table, given that the function has an inverse.~~
~~28~~	~~Produce an invertible function from a non-invertible function by restricting the domain.~~
~~29~~	~~Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.~~
	~~Extend the domain of trigonometric functions using the unit circle~~
~~30~~	~~Use special triangles to determine geometrically the values of sine, cosine, tangent for *rr*/3, *rr*/4 and *rr*/6, and use the unit circle to express the values of sine, cosine, and tangent for *rr–x, rr+x*, and *2rr–x* in terms of their values for *x*, where *x* is any real number.~~
~~31~~	~~Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.~~

Algebra III

	Model periodic phenomena with trigonometric functions
32	Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.*
33	Understand that restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed.
34	Use inverse functions to solve trigonometric equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context.
	Prove and apply trigonometric identities
35	Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.
36	Prove the Pythagorean identity sin2(8) + cos2(8) = 1 and use it to find sin(8), cos(8), or tan(8) given sin(8), cos(8), or tan(8) and the quadrant of the angle.
	Geometry
	Recognize, sketch, and transform graphs of functions
37	Graph piecewise defined functions and determine continuity or discontinuities.
38	Describe the attributes of graphs and the general equations of parent functions (linear, quadratic, cubic, absolute value, rational, exponential, logarithmic, square root, cube root, and greatest integer).
39	Explain the effects of changing the parameters in transformations of functions.
40	Predict the shapes of graphs of exponential, logarithmic, rational, and piece-wise functions, and verify the prediction with and without technology.
41	Relate symmetry of the behavior of even and odd functions.
	Apply trigonometry to general triangles
42	Derive the formula *A* = 1/2 *ab* sin(C) for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.
43	Prove the Laws of Sines and Cosines and use them to solve problems.
44	Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).
	Statistics and Probability
	Explore and apply fundamental principles of probability.
45	Analyze expressions in summation and factorial notation to solve problems.
46	Prove statements using mathematical induction.

~~**Additional Resource**~~

~~**2016 Mississippi College- and Career-Standards Scaffolding Document**~~

~~The primary purpose of the *2016 Mississippi College- and Career-Readiness Standards Scaffolding Document* is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career- Readiness Standards for Mathematics, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery. The Scaffolding Document can be found at **http://www.mde.k12.ms.us/ESE/ccr**.~~

~~**Standards for Mathematical Practice**~~

1. ~~Make sense of problems and persevere in solving them.~~
2. ~~Reason abstractly and quantitatively.~~
3. ~~Construct viable arguments and critique the reasoning of others.~~
4. ~~Model with mathematics.~~
5. ~~Use appropriate tools strategically.~~
6. ~~Attend to precision.~~
7. ~~Look for and make use of structure.~~
8. ~~Look for and express regularity in repeated reasoning.~~

NOTE: Standards for Mathematical Practice have been assigned Standard Numbers for each grade-level and course and precede the content standards for that grade level or course.

~~High School—~~Calculus

Calculus is~~,~~ a one-credit course~~,~~ designed for students who have successfully completed Algebra II or Algebra III, and ~~includes content standards from the 2007 Mississippi Mathematics Framework Revised. This course~~ focuses on the mathematics of change; specifically ~~. The major focus is on~~ differential and integral calculus. The course emphasizes ~~T~~the use of graphing calculators and other technologies as essential tools for learning. ~~are major components of the course.~~ Instruction should be structured to encourage collaborative problem-solving, allowing students to tackle both routine and complex challenges. Additionally, students are to engage in various forms of communication—reading, writing, speaking, and critical listening—to present, evaluate, and justify mathematical arguments, proofs, and reasoning. ~~The instructional approach should provide opportunities for students to work together collaboratively and cooperatively as they solve routine and non-routine problems. Communication strategies should include reading, writing, speaking, and critical listening as students present and evaluate mathematical arguments, proofs, and explanations about their reasoning. This one-credit course is designed for the student who has been successful in Algebra II, Integrated Mathematics III, or Algebra III.~~

The content within ~~of~~ this course ~~document~~ is centered on the mathematics ~~domains of **Counting and Cardinality** (Grade K), **Operations and Algebraic Thinking; Numbers and Operations in Base Ten** (Grades K-5); **Numbers and Operations—Fractions** (Grades 3-5); **Measurement and Data** (Grades K-5); **Ratios and Proportional Relationships** (Grades 6-7); **the Number System, Expressions & Equations, Geometry, Statistics & Probability** (Grades 6-8); **Functions** (Grade 8), and the~~ high school conceptual categories of **Number and Quantity**, **Algebra**, ~~**Functions**, **Modeling,**~~ **Geometry**, and **Statistics & Probability**. Instruction in these domains and conceptual categories should be designed to expose students to experiences, which reflect the value of mathematics, ~~to~~ enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
C.SMP.1	Make sense of problems and persevere in solving them.
C.SMP.2	Reason abstractly and quantitatively.
C.SMP.3	Construct viable arguments and critique the reasoning of others.
C.SMP.4	Model with mathematics.
C.SMP.5	Use appropriate tools strategically.
C.SMP.6	Attend to precision.
C.SMP.7	Look for and make use of structure.
C.SMP.8	Look for and express regularity in repeated reasoning.

NOTE
The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

Calculus

Number and Quantity	
Compute and determine the reasonableness of results in mathematical and real world situations	
C.N.1	Estimate limits from graphs or tables.
C.N.2	Estimate numerical derivatives from graphs or tables of data.
C.N.3	Prove statements using mathematical induction.
Algebra	
Demonstrate basic knowledge of functions, including their behavior and characteristics	
C.A.4	Predict and explain the characteristics and behavior of functions and their graphs (domain, range, increasing/decreasing intervals, intercepts, symmetry, and end behavior).
C.A.5	Investigate, describe, and determine asymptotic behavior using tables, graphs, and analytical methods
C.A.6	Determine and justify the continuity and discontinuity of functions
Evaluate limits and communicate an understanding of the limiting process	
C.A.7	Solve mathematical situations and application problems involving or using derivatives, including exponential, logarithmic, and trigonometric functions.
C.A.8	Calculate limits using algebraic methods.
C.A.9	Verify the behavior and direction of non-determinable limits.
Use the definition and formal rules of differentiation to compute derivatives	
C.A.10	State and apply the formal definition of a derivative.
C.A.11	Apply differentiation rules to sums, products, quotients, and powers of functions.
C.A.12	Use the chain rule and implicit differentiation.
C.A.13	Describe the relationship between differentiability and continuity.
Apply derivatives to find solutions in a variety of situations	
~~15~~ C.A.14	Define a derivative and explain the purpose/utility of the derivative.
~~16~~ C.A.15	Apply the derivative as a rate of change in varied contexts, including velocity, speed, and acceleration.
~~17~~ C.A.16	Apply the derivative to find tangent lines and normal lines to given curves at given points.

Calculus

~~18~~ C.A.17	Predict and explain the relationships between functions and their derivatives.
~~19~~ C.A.18	Model rates of change to solve related rate problems.
~~20~~ C.A.19	Solve optimization problems.

Employ various integration properties and techniques to evaluate integrals	
~~21~~ C.A.20	State and apply the First and Second Fundamental Theorem of Calculus.
~~22~~ C.A.21	Apply the power rule and u-substitution to evaluate indefinite integrals.
Geometry	
Use geometric concepts to gain insights into, answer questions about, and graph various implications of differentiation	
~~23~~ C.G.22	Demonstrate and explain the differences between average and instantaneous rates of change.
~~24~~ C.G.23	Apply differentiation techniques to curve sketching
~~25~~ C.G.24	Apply Rolle's Theorem and the Mean Value Theorem and their geometric consequences.
~~26~~ C.G.25	Identify and apply local linear approximations.
~~27~~ C.G.26	Analyze curves with attention to non-decreasing functions (monotonicity) and concavity.
Statistics and Probability	
Adapt integration methods to model situations to problems	
~~28~~ C.SP.27	Apply integration to solve problems of area.
~~29~~ C.SP.28	Utilize integrals to model and find solutions to real-world problems such as calculating displacement and total distance traveled.
Apply appropriate techniques, tools, and formulas to determine values for the definite integral	
~~30~~	Interpret the concept of definite integral as a limit of Riemann sums over equal

Calculus

C.SP.29	subdivisions.

~~Additional Resource~~

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Standards for Mathematical Practice

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~~High School—~~SREB Math Ready

The Southern Region Education Board (SREB) Math Ready Course, a one-credit course, is only for students classified as seniors, with an ACT sub-score of **below 15** in mathematics (Exception- may include students classified as juniors planning to graduate prior to the spring of their senior year).

This course is designed ~~to assist~~ for students ~~who are~~ in need of a fourth-year mathematics preparatory course to address skill gaps and build readiness for postsecondary academic or career paths, particularly in non-STEM fields or majors. Tailored for those who have not yet mastered the skills for Advanced Placement courses, the program emphasizes rigor, innovative instructional strategies, and conceptual learning to move beyond procedural memorization and engage students in real-world applications. ~~prior to entering college. This course is best suited for students who have not mastered skills needed for Advanced Placement courses. The course is built with rigor, innovative instructional strategies, and a concentration on contextual learning that departs from procedural memorization and focuses on engaging the students in a real-world context. In short, this course targets students with weaknesses and college-ready skill gaps and re- educates them in new ways to ensure they are prepared for postsecondary-level mathematics.~~

~~The Math Ready course focuses on the key readiness standards from the *MS CCRS,* as well as, the eight Standards for Mathematical Practice needed for students to be ready to undertake postsecondary academic or career preparation in non-STEM fields or majors. The course addresses content standards taught throughout high school, including content from Algebra I, Geometry, and Algebra II that are essential for college and careers.~~

~~The SREB Math Ready Course consists of seven mandatory modules (or units): algebraic expressions, equations, measurement and proportional reasoning, linear functions, linear systems of equations, quadratic functions, exponential functions, and an optional module on summarizing and interpreting statistical data. While this course covers the basics in math practices and reviews the procedural steps needed to be successful in math, it is designed to be taught in a new, engaging way based heavily on conceptual teaching and learning. Eight units comprise this course. They are described below.~~

The content within the SREB Math Ready course consists of eight units: algebraic expressions, equations, measurement and proportional reasoning, linear functions, linear systems of equations, quadratic functions, exponential functions, and an optional module on summarizing and interpreting statistical data, focused on essential concepts and skills from the Algebra I, Geometry, and Algebra II MS CCRS and the eight Standards for Mathematical Practice, to ensure students are prepared for college-level mathematics and career requirements. These units are aligned with the high school conceptual categories of Algebra, Functions, Number and Quantity, Geometry, and Statistics & Probability. Instruction in these domains should be designed to expose students to experiences, which reflect the value of mathematics, to enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

For the most current SREB Math Ready course description, standards, and materials, visit: *https://www.sreb.org/math-ready*.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER ▼	MS CCR STANDARD ▼
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
R.SMP.1	Make sense of problems and persevere in solving them.
R.SMP.2	Reason abstractly and quantitatively.
R.SMP.3	Construct viable arguments and critique the reasoning of others.
R.SMP.4	Model with mathematics.
R.SMP.5	Use appropriate tools strategically.
R.SMP.6	Attend to precision.
R.SMP.7	Look for and make use of structure.
R.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

Unit 1: Algebraic Expressions
The algebraic expressions unit was designed to solidify student understanding of expressions while providing the students with an opportunity to have success early in the course. The recurring theme integrated in this unit focuses on engaging students using and expanding the concepts found within purposefully chosen activities. Through guided lessons, students will manipulate, create and analyze algebraic expressions, and look at the idea of whether different sets of numbers are closed under certain operations.

Unit 2: Equations
The equations unit calls for students to construct and evaluate problems that involve one or two steps while seeking understanding of how and why equations and inequalities are used in their daily lives. Students also use the structure of word problems and equations to rewrite and solve equations in different forms revealing different relationships.

~~High School— SREB Math Ready~~

~~**(continued)**~~

Unit 3: Measurement and Proportional Reasoning
This unit deals with unit conversions, using proportions for scaling, and area and volume. The unit requires higher-order thinking and number sense in order to get to the true intent of the standards covered. It is useful in helping students make connections with math and science or other subjects.

Unit 4: Linear Functions
~~This unit takes students back to the foundation of all high school mathematics—an in-depth study of linear functions. Along with allowing students to differentiate between relations that are functions and those that are not, the unit helps students specifically examine characteristics of linear functions. By looking closely at linear functions in multiple forms, students are expected to graph and write equations, as well as interpret their meaning in context of the slope and y-intercept. Students conclude with a project allowing them to collect their own data and write a line of best fit from that data.~~
The systems unit deals with solving systems of linear equations. This involves helping students classify solutions (one, none, or infinitely many), as well as set up and solve problems using systems of equations. Students also choose the best way to solve a system of equations and explain their solutions.

Unit 5: Linear Systems of Equations
~~The systems unit deals with solving systems of linear equations. This involves helping students classify solutions (one, none or infinitely many), as well as set up and solve problems using systems of equations. Students also choose the best way to solve a system of equations and explain their solutions.~~
This unit solidifies students' understanding of the structure of expressions and solving equations. Illustrations, drawings and models are used to represent and solve equations and inequalities, helping to develop understanding of acceptable solutions. Students explore the relationships between properties of equations and algebraic expressions.

Unit 6: Quadratic Functions
This unit is an expansive look at quadratic functions: their graphs, tables and algebraic functions. It stresses multiple approaches to graphing, solving and understanding quadratics, as students explore, make conjectures and draw conclusions in group-work settings. In this unit, students explore and learn from multiple applications of quadratics. The unit assumes students have seen quadratics before but may not have a concrete, transferrable understanding of quadratic functions. The unit does not cover algebraic manipulations (multiplying and factoring), as these are addressed in previous units.

Unit 7: Exponential Functions
This unit develops students' fluency in exponential functions through varying real-life financial applications/inquiries.

Unit 8: Summarizing and Interpreting Statistical Data (*optional*)
In this unit, students further develop skills to read, analyze, and communicate (using words, tables, and graphs) relationships and patterns found in data sets of one or more variables. Students learn how to choose the appropriate statistical tools and measurements to assist in analysis, communicate results, and read and inter interpret graphs, measurements, and formulas which are crucial skills in a world overflowing with data. Students explore these concepts while modeling real contexts based on data they collect.

~~School districts that are interested in offering this course should visit **http://www.sreb.org/page/1684/math_ready.html** to review and download course materials.~~

Essentials for College Math

The Southern Region Education Board (SREB) Essentials for College Math Course, ***a one-credit course***, is only for students classified as seniors, with an ACT sub-score of **15-18** in mathematics (Exception- may include students classified as juniors planning to graduate prior to the spring of their senior year).

For additional information pertaining specifically to this course, see the ***Essentials for College Math and Essentials for College Literacy Requirements MS State Board Policy Manual:*** *Rule 28.6, and the* ***Mississippi Institutions for Higher Learning Policy*** *608*.

This course is designed for students who need a fourth-year mathematics preparatory course to address skill gaps and build readiness for postsecondary academic or career paths, particularly in non-STEM fields or majors. Tailored for those who have not yet mastered the skills for Advanced Placement courses, the program emphasizes rigor, innovative instructional strategies, and conceptual learning to move beyond procedural memorization and engage students in real-world applications.

The content within the Essentials for College Math course consists of eight units: algebraic expressions, equations, measurement and proportional reasoning, linear functions, linear systems of equations, quadratic functions, exponential functions, and an optional module on summarizing and interpreting statistical data, focused on essential concepts and skills from the Algebra I, Geometry, and Algebra II MS CCRS and the eight Standards for Mathematical Practice, to ensure students are prepared for college-level mathematics and career requirements. These units are aligned with the high school conceptual categories of **Algebra**, **Functions**, **Number and Quantity**, **Geometry**, and **Statistics & Probability**. Instruction in these domains should be designed to expose students to experiences, which reflect the value of mathematics, to enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

For the most current SREB Essentials for College Math course description, standards, and materials, visit: *https://www.sreb.org/math-ready*.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER ▼	MS CCR STANDARD ▼
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
R.SMP.1	Make sense of problems and persevere in solving them.
R.SMP.2	Reason abstractly and quantitatively.
R.SMP.3	Construct viable arguments and critique the reasoning of others.
R.SMP.4	Model with mathematics.
R.SMP.5	Use appropriate tools strategically.
R.SMP.6	Attend to precision.
R.SMP.7	Look for and make use of structure.
R.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

Unit 1: Algebraic Expressions

The algebraic expressions unit was designed to solidify student understanding of expressions while providing the students with an opportunity to have success early in the course. The recurring theme integrated in this unit focuses on engaging students using and expanding the concepts found within purposefully chosen activities. Through guided lessons, students will manipulate, create and analyze algebraic expressions, and look at the idea of whether different sets of numbers are closed under certain operations.

Unit 2: Equations

The equations unit calls for students to construct and evaluate problems that involve one or two steps while seeking understanding of how and why equations and inequalities are used in their daily lives. Students also use the structure of word problems and equations to rewrite and solve equations in different forms revealing different relationships.

Unit 3: Measurement and Proportional Reasoning

This unit deals with unit conversions, using proportions for scaling, and area and volume. The unit requires higher-order thinking and number sense in order to get to the true intent of the standards covered. It is useful in helping students make connections with math and science or other subjects.

Unit 4: Linear Functions

The systems unit deals with solving systems of linear equations. This involves helping students classify solutions (one, none, or infinitely many), as well as set up and solve problems using systems of equations. Students also choose the best way to solve a system of equations and explain their solutions.

Unit 5: Linear Systems of Equations

This unit solidifies students' understanding of the structure of expressions and solving equations. Illustrations, drawings and models are used to represent and solve equations and inequalities, helping to develop understanding of acceptable solutions. Students explore the relationships between properties of equations and algebraic expressions.

Unit 6: Quadratic Functions

This unit is an expansive look at quadratic functions: their graphs, tables and algebraic functions. It stresses multiple approaches to graphing, solving and understanding quadratics, as students explore, make conjectures and draw conclusions in group-work settings. In this unit, students explore and learn from multiple applications of quadratics. The unit assumes students have seen quadratics before but may not have a concrete, transferrable understanding of quadratic functions. The unit does not cover algebraic manipulations (multiplying and factoring), as these are addressed in previous units.

Unit 7: Exponential Functions

This unit develops students' fluency in exponential functions through varying real-life financial applications/inquiries.

Unit 8: Summarizing and Interpreting Statistical Data (*optional*)

In this unit, students further develop skills to read, analyze, and communicate (using words, tables, and graphs) relationships and patterns found in data sets of one or more variables. Students learn how to choose the appropriate statistical tools and measurements to assist in analysis, communicate results, and read and inter interpret graphs, measurements, and formulas which are crucial skills in a world overflowing with data. Students explore these concepts while modeling real contexts based on data they collect.

~~Additional Resource~~

~~2016 Mississippi College- and Career-Standards Scaffolding Document~~

~~The primary purpose of the *2016 Mississippi College- and Career-Readiness Standards Scaffolding Document* is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career-Readiness Standards for Mathematics, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery. The Scaffolding Document can be found at **http://www.mde.k12.ms.us/ESE/ccr**.~~

Standards for Mathematical Practice

1. Make sense of problems and persevere in solving them.
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3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

NOTE: Standards for Mathematical Practice have been assigned Standard Numbers for each grade-level and course and precede the content standards for that grade level or course.

~~High School—~~Advanced Placement (AP) Precalculus

AP Precalculus, ***a one-credit course***, is designed to be the equivalent of a first-semester college precalculus course, and provides students with an understanding of the concepts of college algebra, trigonometry, and additional topics that prepare students for further college-level mathematics courses. This course explores a variety of function types and their applications—polynomial, rational, exponential, logarithmic, trigonometric, polar, parametric, vector-valued, implicitly defined, and linear transformation functions using matrices. The mathematical practices of procedural and symbolic fluency, multiple representations, and communication and reasoning are developed throughout the course.

The AP Precalculus course aims to prepare students for advanced coursework in mathematics or other fields engaged in modeling change (e.g., pure sciences, engineering, or economics) and for creating useful, reasonable solutions to problems encountered in an ever-changing world.

Teachers and students should regularly use technology to reinforce the following AP Precalculus concepts:

- Perform calculations (e.g., exponents, roots, trigonometric values, logarithms)
- Graph functions and analyze graphs
- Generate a table of values for a function
- Find real zeros of functions
- Find points of intersection of graphs of functions
- Find minima/maxima of functions
- Find numerical solutions to equations in one variable
- Find regression equations to model data (linear, quadratic, cubic, quartic, exponential, logarithmic, and sinusoidal) and plot the corresponding residuals
- Perform matrix operations (e.g., multiplication, finding inverses)

For the most current Advanced Placement (AP) Precalculus for High School Math course description, standards, and materials, visit: *https://apstudents.collegeboard.org/courses/ap-precalculus* .

~~High School—~~Advanced Placement (AP)

~~Calculus AB~~
~~Calculus BC~~

~~*Note: Since AP Course Descriptions are updated regularly, please visit AP Central® (**apcentral.collegeboard.org**) to determine whether a more recent Course Description is available.*~~

~~AP courses in Calculus consist of a full high school academic year of work, and are one-credit courses comparable to calculus courses in colleges and universities. It is expected that students who take an AP course in calculus will seek college credit, college placement, or both from institutions of higher learning.~~

~~The AP Program includes specifications for two calculus courses and the exam for each course. The two courses and the two corresponding exams are designated as Calculus AB and Calculus BC.~~

~~**Calculus AB** can be offered as an AP course by any school that can organize a curriculum for students with mathematical ability. Calculus AB is designed to be taught over a full high school academic year. It is possible to spend some time on elementary functions and still teach the Calculus AB curriculum within a year. However, if students are to be adequately prepared for the Calculus AB Exam, most of the year must be devoted to the topics in differential and integral calculus. These topics are the focus of the AP Exam questions.~~

~~**Calculus BC** is a full-year course in the calculus of functions of a single variable. It includes all topics taught in Calculus AB plus additional topics, but both courses are intended to be challenging and demanding; they require a similar depth of understanding of common topics.~~

~~A *Calculus AB* subscore is reported based on performance on the portion of the Calculus BC Exam devoted to Calculus AB topics. Both courses described here represent college-level mathematics for which most colleges grant advanced placement and/or credit. Most colleges and universities offer a sequence of several courses in calculus, and entering students are placed within this sequence according to the extent of their preparation, as measured by the results of an AP Exam or other criteria. Appropriate credit and placement are granted by each institution in accordance with local policies.~~

~~The content of *Calculus BC* is designed to qualify the student for placement and credit in a course that is one course beyond that granted for Calculus AB. Many colleges provide statements regarding their AP policies in their catalogs and on their websites.~~

~~High School—Advanced Placement (AP)~~ ~~(continued)~~

~~Calculus AB~~
~~Calculus BC~~

~~Success in AP Calculus is closely tied to the preparation students have had in courses leading up to their AP courses. Students should have demonstrated mastery of material from courses that are the equivalent of four full years of high school mathematics before attempting calculus. These courses should include the study of algebra, geometry, coordinate geometry, and trigonometry, with the fourth year of study including advanced topics in algebra, trigonometry, analytic geometry, and elementary functions. Even though schools may choose from a variety of ways to accomplish these studies — including beginning the study of high school mathematics in grade 8; encouraging the election of more than one mathematics course in grade 9, 10, or 11; or instituting a program of summer study or guided independent study — it should be emphasized that eliminating preparatory course work in order to take an AP course is not appropriate.~~

~~Calculus AB and Calculus BC are primarily concerned with developing the students' understanding of the concepts of calculus and providing experience with its methods and applications. The courses emphasize a multi-representational approach to calculus, with concepts, results, and problems being expressed graphically, numerically, analytically, and verbally. The connections among these representations also are important.~~

~~Technology should be used regularly by students and teachers to reinforce the relationships among the multiple representations of functions, to confirm written work, to implement experimentation, and to assist in interpreting results. Through the use of the unifying themes of derivatives, integrals, limits, approximation, and applications and modeling, the course becomes a cohesive whole rather than a collection of unrelated topics. These themes are developed using all the functions listed in the prerequisites.~~

~~Goals of AP Calculus AB and AP Calculus BC:~~

- ~~Students should be able to work with functions represented in a variety of ways: graphical, numerical, analytical, or verbal. They should understand the connections among these representations.~~

- ~~Students should understand the meaning of the derivative in terms of a rate of change and local linear approximation, and should be able to use derivatives to solve a variety of problems.~~

- ~~Students should understand the meaning of the definite integral both as a limit of Riemann sums and as the net accumulation of change, and should be able to use integrals to solve a variety of problems.~~

~~High School—Advanced Placement (AP)~~ ~~(continued)~~

~~Calculus AB~~
~~Calculus BC~~

- ~~Students should understand the relationship between the derivative and the definite integral as expressed in both parts of the Fundamental Theorem of Calculus.~~

- ~~Students should be able to communicate mathematics and explain solutions to problems both verbally and in written sentences.~~
- ~~Students should be able to model a written description of a physical situation with a function, a differential equation, or an integral.~~

- ~~Students should be able to use technology to help solve problems, experiment, interpret results, and support conclusions.~~

- ~~Students should be able to determine the reasonableness of solutions, including sign, size, relative accuracy, and units of measurement.~~

- ~~Students should develop an appreciation of calculus as a coherent body of knowledge and as a human accomplishment.~~

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~~Interested parties can find the following Web resources at AP Central:~~

- ~~AP Course Descriptions, information about the AP Course Audit, AP Exam questions and scoring guidelines, sample syllabi, and feature articles.~~

- ~~A searchable Institutes and Workshops database, providing information about professional development events.~~

- ~~The Course Home Pages (apcentral.collegeboard.org/course homepages), which contain articles, teaching tips, activities, lab ideas, and other course-specific content contributed by colleagues in the AP community.~~

- ~~Moderated electronic discussion groups (EDGs) for each AP course, provided to facilitate the exchange of ideas and practices.~~

~~Additional Resources~~
~~Teacher's Guides and Course Descriptions may be downloaded free of charge from AP Central; printed copies may be purchased through the College Board Store (store.collegeboard.org).~~

~~High School—~~Advanced Placement (AP) Calculus AB

AP Calculus AB, a ***one-credit course***, is designed to be the equivalent of a first-semester college calculus course devoted to topics in differential and integral calculus. This course requires students to use definitions and theorems to build arguments and justify conclusions. The AP Calculus AB course also features a multirepresentational approach to calculus, with concepts, results, and problems expressed graphically, numerically, analytically, and verbally. A sustained emphasis on clear communication of methods, reasoning, justifications, and conclusions is essential. Teachers and students should regularly use technology to reinforce relationships among functions, to confirm written work, to implement experimentation, and to assist in interpreting results.

The AP Calculus AB course aims to prepare students for advanced coursework in mathematics or other fields engaged in modeling change (e.g., pure sciences, engineering, or economics) and for creating useful, reasonable solutions to problems encountered in an ever-changing world. Each big idea is described below.

(1) **Change (CHA)-**Using derivatives to describe rates of change of one variable with respect to another or using definite integrals to describe the net change in one variable over an interval of another allows students to understand change in a variety of contexts. It is critical that students grasp the relationship between integration and differentiation as expressed in the Fundamental Theorem of Calculus—a central idea in AP Calculus.

(2) **Limits (LIM)-** Beginning with a discrete model and then considering the consequences of a limiting case allows us to model real-world behavior and to discover and understand important ideas, definitions, formulas, and theorems in calculus: for example, continuity, differentiation, and integration.

(3) **Analysis of Functions (FUN)-** Calculus allows us to analyze the behaviors of functions by relating limits to differentiation, integration, and infinite series and relating each of these concepts to the others.

For the most current Advanced Placement (AP) Calculus AB for High School Math course description, standards, and materials, visit: *https://apstudents.collegeboard.org/courses/ap-calculus-ab*.

~~High School—~~Advanced Placement (AP) Calculus BC

AP Calculus BC, a ***one-credit course***, is designed to be the equivalent of a first- and second-semester college calculus course and applies the content and skills learned in AP Calculus AB to parametrically defined curves, polar curves, and vector-valued functions; develops additional integration techniques and applications; and introduces the topics of sequences and series. This course requires students to use definitions and theorems to build arguments and justify conclusions. The AP Calculus BC course also features a multirepresentational approach to calculus, with concepts, results, and problems expressed graphically, numerically, analytically, and verbally. A sustained emphasis on clear communication of methods, reasoning, justifications, and conclusions is essential. Teachers and students should regularly use technology to reinforce relationships among functions, to confirm written work, to implement experimentation, and to assist in interpreting results.

The AP Calculus BC course aims to prepare students for advanced coursework in mathematics or other fields engaged in modeling change (e.g., pure sciences, engineering, or economics) and for creating useful, reasonable solutions to problems encountered in an ever-changing world. Each big idea is described below.

(1) **Change (CHA)-**Using derivatives to describe rates of change of one variable with respect to another or using definite integrals to describe the net change in one variable over an interval of another allows students to understand change in a variety of contexts. It is critical that students grasp the relationship between integration and differentiation as expressed in the Fundamental Theorem of Calculus—a central idea in AP Calculus.

(2) **Limits (LIM)-** Beginning with a discrete model and then considering the consequences of a limiting case allows students to model real-world behavior and discover and understand important ideas, definitions, formulas, and theorems in calculus: for example, continuity, differentiation, integration, **and series**.

(3) **Analysis of Functions (FUN)-** Calculus allows the analysis of the behaviors of functions by relating limits to differentiation, integration, and infinite series and relating each of these concepts to the others.

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~~Additional Resource~~

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~~Standards for Mathematical Practice~~

1. ~~Make sense of problems and persevere in solving them.~~
2. ~~Reason abstractly and quantitatively.~~
3. ~~Construct viable arguments and critique the reasoning of others.~~
4. ~~Model with mathematics.~~
5. ~~Use appropriate tools strategically.~~
6. ~~Attend to precision.~~
7. ~~Look for and make use of structure.~~
8. ~~Look for and express regularity in repeated reasoning.~~

~~High School—~~Advanced Placement (AP) Statistics

~~*Note: Since AP Course Descriptions are updated regularly, please visit AP Central® (**apcentral.collegeboard.org**) to determine whether a more recent Course Description is available.*~~

~~The AP statistics course, a one-credit course, introduces students to the major concepts and tools for collecting, analyzing and drawing conclusions from data. Students are exposed to four broad conceptual themes:~~

1. ~~Exploring Data: Describing patterns and departures from patterns~~
2. ~~Sampling and Experimentation: Planning and conducting a study~~
3. ~~Anticipating Patterns: Exploring random phenomena using probability and simulation~~
4. ~~Statistical Inference: Estimating population parameters and testing hypotheses~~

~~Students who successfully complete the course and exam may receive credit, advanced placement or both for a one-semester introductory college statistics course. This does not necessarily imply that the high school course should be one semester long. Each high school needs to determine the length of its AP Statistics course to best serve the needs of its students. The four themes are described below.~~

~~I. **Exploratory analysis of data makes use of graphical and numerical techniques to study patterns and departures from patterns**.~~
~~In examining distributions of data, students should be able to detect important characteristics, such as shape, location, variability and unusual values. From careful observations of patterns in data, students can generate conjectures about relationships among variables. The notion of how one variable may be associated with another permeates almost all of statistics, from simple comparisons of proportions~~
~~through linear regression. The difference between association and causation must accompany this conceptual development throughout.~~

~~**II. Data must be collected according to a well-developed plan if valid information is to be obtained.**~~
~~If data are to be collected to provide an answer to a question of interest, a careful plan must be developed. Both the type of analysis that is appropriate and the nature of conclusions that can be drawn from that analysis depend in a critical way on how the data was collected. Collecting data in a reasonable way, through either sampling or experimentation, is an essential step in the data analysis process.~~

~~**III. Probability is the tool used for anticipating what the distribution of data should look like under a given model**.~~
~~Random phenomena are not haphazard: they display an order that emerges only in the long run and is described by a distribution. The mathematical description~~

~~High School—Advanced Placement (AP) Statistics (continued)~~

~~of variation is central to statistics. The probability required for statistical inference is not primarily axiomatic or combinatorial but is oriented toward using probability distributions to describe data.~~

~~**IV. Statistical inference guides the selection of appropriate models.**~~
~~Models and data interact in statistical work: models are used to draw conclusions from data, while the data are allowed to criticize and even falsify the model through inferential and diagnostic methods. Inference from data can be thought of as the process of selecting a reasonable model, including a statement in probability language, of how confident one can be about the selection.~~

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- ~~Moderated electronic discussion groups (EDGs) for each AP course, provided to facilitate the exchange of ideas and practices.~~

~~**Additional Resources**~~
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~~High School—~~Advanced Placement (AP) Statistics

The AP Statistics course, ***a one-credit course***, is equivalent to a one-semester, introductory, non-calculus-based college course in statistics, and introduces students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. There are four themes evident in the content, skills, and assessment in the AP Statistics course: exploring data, sampling and experimentation, probability and simulation, and statistical inference. Students use technology, investigations, problem solving, and writing as they build conceptual understanding.

The AP Statistics course aims to prepare students for advanced coursework in statistics or other fields using statistical reasoning and for active, informed engagement with a world of data to be interpreted appropriately and applied wisely to make informed decisions. Each big idea is described below.

(1) **Variation and Distribution (VAR)-**The distribution of measures for individuals within a sample or population describes variation. The value of a statistic varies from sample to sample. Statistical methods based on probabilistic reasoning provide the basis for shared understandings about variation and about the likelihood that variation between and among measures, samples, and populations is random or meaningful.

(2) **Patterns and Uncertainty (UNC)-** Statistical tools allow students to represent and describe patterns in data and to classify departures from patterns. Simulation and probabilistic reasoning allow students to anticipate patterns in data and to determine the likelihood of errors in inference.

(3) **Data-based Predictions, Decisions, and Conclusions (DAT)-** Data-based regression models describe relationships between variables and are a tool for making predictions for values of a response variable. Collecting data using random sampling or randomized experimental design means that findings may be generalized to the part of the population from which the selection was made. Statistical inference allows students to make data-based decisions.

For the most current Advanced Placement (AP) Statistics for High School Math course description, standards, and materials, visit: *https://apstudents.collegeboard.org/courses/ap-statistics*.

~~Additional Resource~~

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8. ~~Look for and express regularity in repeated reasoning.~~

Dual Credit (DC) Math Courses

The purpose of the Dual Enrollment and Credit Program is to offer structured opportunities for qualified high school students to simultaneously enroll in college courses at Mississippi (public) Institutions of Higher Learning (IHLs) or Mississippi Community or Junior Colleges (CJCs) that provide pathways leading to academic or career technical postsecondary credit. (see *Mississippi Code Title 37, § 37-15-38*.)

Students enrolled in a community college or state institution of higher learning while enrolled in high school, "a dual credit student", receives both high school and postsecondary credit for coursework regardless of the course location (high school campus, postsecondary campus, or online). One three-hour postsecondary course is equal to ***one*** high school Carnegie unit. Four-hour postsecondary lab science course(s), either in a four-hour combined format or three-hour lecture plus one-hour matching lab format, is equal to ***one*** high school Carnegie unit.

The following math courses are identified in the list of articulated courses in Appendix V of the *Procedures Manual of the State of Mississippi Dual Enrollment and Accelerated Programs (2024-2025)*. Additional courses may be available, based on local offerings.

College Algebra (906401/MAT 1313)
Trigonometry (906411/MAT 1323)
Finite Math (906451/ MAT 1333)
Business Calculus I (906920/MAT 1513)
Statistics (906450/MAT 2323)

For specifics on Dual Credit and Dual Enrollment options, contact the local partnering postsecondary institution for detailed student learning outcomes and course syllabus information, and visit *https://mdek12.org/secondaryeducation/accelerated-programs/*, *http://www.mississippi.edu/cjc/dual_enrollment.asp* and/or reference the *Procedures Manual for the State of Mississippi Dual Enrollment and Accelerated Programs.*

~~Compensatory Mathematics Course Description~~

Supplemental High School Math Courses

Supplemental Mathematics I, II, III, & IV (Grades 9-12) courses, formerly Compensatory Mathematics I, II, III, & IV, are designed to provide targeted interventions of core mathematics concepts.[1]

Students in need of instructional support, intervention or remediation may be enrolled in a ~~Compensatory~~ Supplemental Mathematics course under the following stipulations:

The ~~Compensatory~~ Supplemental mathematics course:

1. must be taken in concert with a credit-bearing course at the same grade level;
2. includes content supportive of the accompanying credit-bearing course;
3. should make every attempt to incorporate the Standards for Mathematical Practice; and
4. may be taken as an elective, but ~~**will**~~ will **not** satisfy the number of mathematics Carnegie units required for graduation.

Instruction within the supplemental mathematics courses should be designed to expose students to experiences, which reflect the value of mathematics, to enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

[1] Documentation of Tier II and III interventions is required. ***MS State Board Policy Manual:*** *Rule 41.1 intervention*.

~~Additional Resource~~

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~~Foundations of Algebra Course~~

~~*Foundations of Algebra* is a one-math credit course offered only to 9th grade students. The primary purpose of the *Foundations of Algebra* course is to provide a basis for curriculum development for rising 9th grade students in need of substantial support prior to taking Algebra I. The content of the *Foundations of* Algebra course focuses on equations, inequalities, functions, polynomials, geometry, and statistics as well as the standards of mathematical practice. The standards for this course were developed based on core content that should have been mastered by the end of the grade 8 and key skills that will be introduced in Algebra I. These standards are indicated in red font.~~

~~Additional standards have been developed to ensure conceptual understanding. Students who have already successfully completed Algebra I may not take this course. Teachers of this course are encouraged to incorporate real-world contexts, appropriate manipulatives, and technology to assist students in developing the conceptual understanding needed to master course content.~~

~~Foundations of Algebra Course~~

	~~Equations and Inequalities~~
~~1~~	~~Interpret key features of an expression (i.e., terms, factors, and coefficients). (A-SSE.1a)~~
~~2~~	~~Create expressions that can be modeled by a real-world context.~~
~~3~~	~~Use the structure of an expression to identify ways to rewrite it. (A-SSE.2)~~
~~4~~	~~Simplify and evaluate numerical and algebraic expressions. (7.EE.1)~~
~~5~~	~~Compare and contrast an expression and an equation and give examples of each.~~
~~6~~	~~Given an equation, solve for a specified variable of degree one (i.e. *isolate a variable*). (6.EE.7, 7.EE.4)~~
~~7~~	~~Fluently solve and check multi-step equations and inequalities with an emphasis on the distributive property, variables on both sides, and rational coefficients. Explain each step when solving a multi-step equation and inequality. Justify each step using the properties of real numbers.~~
~~8~~	~~Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. (7.EE.4a)~~
~~9~~	~~Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Solve inequalities of these forms fluently. (7.EE.4b)~~
~~10~~	~~Graph the solution point of an equation and the solution set of an inequality in one variable on a horizontal number line. For inequalities, be able to interpret and write the solution set in a variety of ways (e.g., set notation).~~
~~11~~	~~Justify when linear equations in one variable will yield one solution, infinitely many solutions, or no solution. (8.EE.7a)~~
	~~Functions~~
~~12~~	~~Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. Use function notation, where appropriate. (F-IF.1, F-IF.2)~~
~~13~~	~~Compare and contrast a function and a relation. Use appropriate strategies to assess whether a given situation represents a function or a relation (e.g,. the vertical line test).~~
~~14~~	~~Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. (F-IF.7)~~
~~15~~	~~Determine the rate of change of a linear function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. (8.F.4) Use the rate of change to determine if two lines are parallel, perpendicular, or neither.~~
~~16~~	~~Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values. (8.F.4)~~
~~17~~	~~Create and graph the equation of a linear function given the rate of change and y-intercept. Compare and contrast up to three linear functions written in a various forms (i.e., point-slope, slope-intercept, standard form).~~
~~18~~	~~Given two points, a graph, a table of values, a mapping, or a real-world context determine the linear function that models this information. Fluently convert between the point-slope, slope-intercept, and standard form of a line.~~

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~~19~~	~~Create and identify the parent function for linear and quadratic functions in the Coordinate Plane.~~
~~20~~	~~Compare the properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.* (Limited to linear and quadratic functions only.) (8.F.2)~~
~~21~~	~~Describe the following characteristics of linear and quadratic parent functions by inspection: domain/range, increasing/decreasing intervals, intercepts, symmetry, and asymptotic behavior. Identify each characteristic in set notation or words, where appropriate. (Algebra III, standard 8)~~
~~22~~	~~Graph a system of two functions, *f(x)* and *g(x)*, on the same Coordinate Plane by hand for simple cases, and with technology for complicated cases. Explain the relationship between the point(s) of intersection and the solution to the system. Determine the solution(s) using technology, a tables of values, substitution, or successive approximations. (Limited to linear and quadratic functions only.) (8.EE.7b, A-REI.6, A-REI.11)~~
~~23~~	~~With accuracy, graph the solutions to a linear inequality in two variables as a half-plane, and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes on the same Coordinate Plane. (A-REI.12) Construct graphs of linear inequalities and systems of linear inequalities without technology. Use appropriate strategies to verify points that may or may not belong to the solution set.~~
~~24~~	~~Identify real-world contexts that can be modeled by a system of inequalities in two variables. (Limited to three inequalities.)~~
~~25~~	~~Identify when systems of equations and inequalities have constraints. (A-CED.3)~~
~~26~~	~~Perform simple translations on linear functions given in a variety of forms (e.g., two points, a graph, a table of values, a mapping, slope-intercept form, or standard form). Explain the impact on the parent function when the slope is greater than one or less than one and the effect of increasing/decreasing the y-intercept.~~
~~27~~	~~Given the graph of function in the form $f(x)+k$, $kf(x)$, $f(kx)$, or $f(x+k)$, where k belongs to the set of integers, identify the domain/range, increasing/decreasing intervals, intercepts, symmetry, and asymptotic behavior, where appropriate. (F-BF.3) Identify each characteristic in set notation or as an inequality, where appropriate. (Limited to linear and quadratic functions only.)~~
~~28~~	~~Identify and graph real-world contexts that can be modeled by a quadratic equation.~~
~~29~~	~~Solve quadratic equations in standard form by factoring, graphing, tables, and the Quadratic Formula. Know when the Quadratic Formula might yield complex solutions and the location of the solutions in relationship to the x-axis. Know suitable alternatives for the terminology "*solution of a quadratic*" and when each is appropriate to use.~~
~~30~~	~~Understand the relationship between the constants of a quadratic equation and the attributes of the graph. Recognize the relationship between the value of the discriminant and the type and number of solutions (i.e., *predict the characteristics of a graph given the equation*).~~
	~~Polynomials~~
~~31~~	~~Describe and identify a polynomial of degree one, two, three and four by examining a polynomial expression or a graph.~~

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~~32~~	~~Add and subtract polynomials using appropriate strategies (e.g. by using Algebra Tiles).~~
~~33~~	~~Factor polynomials using the greatest common factor and factor quadratics that have only rational zeros.~~
~~34~~	~~Justify why some polynomials are prime over the rational number system.~~
~~35~~	~~Use the zeros of a polynomial to construct a rough graph of the function. (A-APR.3)~~
	~~Geometry~~
~~36~~	~~Explain and apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions. (8.G.7)~~
~~37~~	~~Apply the Pythagorean Theorem to find the distance between two points in a coordinate system. (8.G.8)~~
~~38~~	~~Fluently use formulas and/or appropriate measuring tools to find length and angle measures, perimeter, area, volume, and surface area of polygons, circles, spheres, cones, cylinders, pyramids, and composite or irregular figures. Use them to solve real-world and mathematical problems. (8.G.9)~~
~~39~~	~~Solve real-world and mathematical problems involving two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. (7.G.6,)~~
	~~Statistics~~
~~40~~	~~Without technology, fluently calculate the measures of central tendency (mean, median, mode), measures of spread (range, interquartile range), and understand the impact of extreme values (outliers) on each of these values. (6.SP.5, 8.SP.1, S-ID.3) Justify which measure is appropriate to use when describing a data set or a real-world context.~~
~~41~~	~~Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association. (8.SP.1)~~
~~42~~	~~Know when it is and is not appropriate to use a linear model to make predictions about a data set beyond a given set of values. Explain extrapolation and interpolation and the impact both have on predicted values.~~
~~43~~	~~For scatter plots that suggest a linear association, informally fit a straight line and predict the equation for the line of best fit. (8.SP.2)~~
~~44~~	~~Justify the relationship between the correlation coefficient and the rate of change for the line of best fit.~~
~~45~~	~~Understand the difference between correlation and causation and identify real-world contexts that depict each of them. (S-ID.9)~~

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~~**Additional Resource**~~

~~2016 Mississippi College- and Career-Standards Scaffolding Document~~

~~The primary purpose of the *2016 Mississippi College- and Career-Readiness Standards Scaffolding Document* is to provide teachers with a deeper understanding of the Standards as they plan for classroom instruction. Based on the 2016 Mississippi College- and Career-Readiness Standards for Mathematics, this document provides a close analysis of the requirements for student mastery. Because of the rigor and depth of the Standards, scaffolding instruction to meet the needs of all learners is essential to individual success. The Scaffolding Document will aid teachers' understanding of how to teach the Standards through a natural progression of student mastery. The Scaffolding Document can be found at **http://www.mde.k12.ms.us/ESE/ccr**.~~

~~**Standards for Mathematical Practice**~~

1. ~~Make sense of problems and persevere in solving them.~~
2. ~~Reason abstractly and quantitatively.~~
3. ~~Construct viable arguments and critique the reasoning of others.~~
4. ~~Model with mathematics.~~
5. ~~Use appropriate tools strategically.~~
6. ~~Attend to precision.~~
7. ~~Look for and make use of structure.~~
8. ~~Look for and express regularity in repeated reasoning.~~

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Additional Support
Appendix A :Glossary

Glossary

K-12 Academic Vocabulary

Note: The words that are defined here pertain to courses derived from the *Mississippi College- and Career-Readiness Standards* for Mathematics.

- **Absolute value**. The distance a number is from zero. Distance is expressed as a positive value.

- **Addend**. A number that is added to another.

- **Addition and subtraction within 5, 10, 20, 100, or 1000**. Addition or subtraction of two whole numbers with whole number answers, and with sum or minuend in the range 0-5, 0-10, 0-20, or 0-100, respectively. Example: 8 + 2 = 10 is an addition within 10, 14 – 5 = 9 is a subtraction within 20, and 55 – 18 = 37 is a subtraction within 100.

- **Additive inverses.** Two numbers whose sum is 0 are additive inverses of one another. Example: 3/4 and – 3/4 are additive inverses of one another because 3/4 + (– 3/4) = (– 3/4) + 3/4 = 0.

- **Algebra**. The part of mathematics in which patterns and properties of numbers are generalized using variables in expressions, equations, and formulas.

- **Associative property of addition**. See Table 3 in this Glossary.

- **Associative property of multiplication.** See Table 3 in this Glossary.

- **Bivariate data.** Pairs of linked numerical observations. Example: a list of heights and weights for each player on a football team.

- **Box plot.** (Also called a box-and-whisker plot) A method of visually displaying a distribution of data values by using the median, quartiles, and extremes of the data set. A box shows the middle 50% of the data.[1]

- **Coefficient**. The multiplicative factor of a term.

- **Commutative property.** See Table 3 in this Glossary.

- **Complex fraction**.A fraction *A*/*B* where *A* and/or *B* are fractions (*B* nonzero).

- **Computation algorithm.** A set of predefined steps applicable to a class of problems that gives the correct result in every case when the steps are carried out correctly. *See also:* computation strategy.

Glossary (continued)

- **Computation strategy.** Purposeful manipulations that may be chosen for specific problems, may not have a fixed order, and may be aimed at converting one problem into another. *See also:* computation algorithm.

- **Congruent**. Two plane or solid figures are congruent if one can be obtained from the other by rigid motion (a sequence of rotations, reflections, and translations).

- **Constant**. Any well-defined real number in an expression or equation that has a fixed value. For example, in the equation x + 5 = 9, 5 and 9 are both constants.

- **Counting on.** A strategy for finding the number of objects in a group without having to count every member of the group. For example, if a stack of books is known to have 8 books and 3 more books are added to the top, it is not necessary to count the stack all over again. One can find the total by *counting on*—pointing to the top book and saying "eight," following this with "nine, ten, eleven. There are eleven books now."

- **Difference**. The result of removing a quantity from a set. The difference describes how much one quantity differs from another quantity. For example, in the equation 10 – 2 = 8, 8 is the difference.

- **Dilation**. A transformation that moves each point along the ray through the point emanating from a fixed center, and multiplies distances from the center by a common scale factor.

- **Dividend**. The quantity to be divided.

- **Divisor**. The quantity by which another quantity, the dividend, is to be divided.

- **Dot plot.** *See:* line plot.

- **Expanded form**. A multi-digit number is expressed in expanded form when it is written as a sum of single-digit multiples of powers of ten. For example, 643 = 600 + 40 + 3.

- **Expected value.** For a random variable, the weighted average of its possible values, with weights given by their respective probabilities.

- **First quartile.** For a data set with median *M*, the first quartile is the median of the data values less than *M*. Example: For the data set {1, 3, 6, 7, 10, 12, 14, 15, 22, 120}, the first quartile is 6.[2] *See also:* median, third quartile, interquartile range.

Glossary (continued)

- **Fraction.** A number expressible in the form *a*/*b* where *a* is a whole number and *b* is a positive whole number. (The word *fraction* in these standards always refers to a non-negative number.) *See also:* rational number.

- **Identity property of 0.** See Table 3 in this Glossary.

- **Independently combined probability models.** Two probability models are said to be combined independently if the probability of each ordered pair in the combined model equals the product of the original probabilities of the two individual outcomes in the ordered pair.

- **Integer**. A number expressible in the form *a* or –*a* for some whole number *a.*

- **Interquartile Range.** A measure of variation in a set of numerical data, the interquartile range is the distance between the first and third quartiles of the data set. Example: For the data set {1, 3, 6, 7, 10, 12, 14, 15, 22, 120}, the interquartile range is 15 – 6 = 9. *See also:* first quartile, third quartile.

- **Line plot.** A method of visually displaying a distribution of data values where each data value is shown as a dot or mark above a number line. Also known as a dot plot.[3]

- **Mean.** A measure of center in a set of numerical data, computed by adding the values in a list and then dividing by the number of values in the list. [4] *Example: For the data set {1, 3, 6, 7, 10, 12, 14, 15, 22, 120}, the mean is 21.*

- **Measures of Center.** A measure of central tendency is a value that attempts to describe a set of data by identifying the central position of the data set (as representative of a "typical" value in the set). The measures of central tendency are called the mean, median, and mode.

- **Measures of Variability.** A measure that describes how spread out or scattered a set of data is. It is also known as measures of dispersion or measures of spread. Some measures of variation are called the range, interquartile range, and standard deviation.

- **Median.** A measure of center in a set of numerical data. The median of a list of values is the value appearing at the center of a sorted version of the list—or the mean of the two central values, if the list contains an even number of values. Example: For the data set {2, 3, 6, 7, 10, 12, 14, 15, 22, 90}, the median is 11.

- **Midline.** In the graph of a trigonometric function, the horizontal line halfway between its maximum and minimum values.

Glossary (continued)

- **Minuend**. A quantity from which another is to be subtracted. For example, in the equation 10 – 2 = 8, 10 is the minuend.
- **Mode.** The number which appears most often in a set of data.
- **Multiplication and division within 100**. Multiplication or division of two whole numbers with whole number answers, and with product or dividend in the range 0-100. Example: 72 ÷ 8 = 9.
- **Multiplicative inverses.** Two numbers whose product is 1 are multiplicative inverses of one another. Example: 3/4 and 4/3 are multiplicative inverses of one another because 3/4 × 4/3 = 4/3 × 3/4 = 1.
- **Number line diagram.** A diagram of the number line used to represent numbers and support reasoning about them. In a number line diagram for measurement quantities, the interval from 0 to 1 on the diagram represents the unit of measure for the quantity.
- **Percent rate of change.** A rate of change expressed as a percent. Example: if a population grows from 50 to 55 in a year, it grows by 5/50 = 10% per year.
- **Polygon**. A plane, closed two-dimensional figure formed by segments that do not cross. Some examples include: triangles, rectangles, and pentagons.
- **Probability.** A number between 0 and 1 used to quantify likelihood for processes that have uncertain outcomes (such as tossing a coin, selecting a person at random from a group of people, tossing a ball at a target, or testing for a medical condition).
- **Probability distribution.** The set of possible values of a random variable with a probability assigned to each.
- **Probability model.** A probability model is used to assign probabilities to outcomes of a chance process by examining the nature of the process. The set of all outcomes is called the sample space, and their probabilities sum to 1. *See also:* uniform probability model.
- **Product**. The result when two or more numbers are multiplied together.
- **Properties of equality.** See Table 4 in this Glossary.
- **Properties of inequality.** See Table 5 in this Glossary.
- **Properties of operations**. See Table 3 in this Glossary.

Glossary (continued)

- **Quadrilateral**. A polygon formed by four lines segments.
- **Qualitative data**. Qualitative data is information that describes something, usually characteristics or categories relating to, measuring, or measured by the quality of something rather than its quantity.
- **Quantitative data**. Quantitative data is data expressing a certain quantity, amount, or range. Usually, there are measurements of units relating to, measuring, or measured by the quantity of something rather than its quality.
- **Quantity**. How much there is of something.
- **Quotient**. The result of division. Division is the determination of how many groups can be formed or how many are in each group.
- **Random variable.** An assignment of a numerical value to each outcome in a sample space.
- **Rational expression.** A quotient of two polynomials with a non-zero denominator.
- **Rational number.** A number expressible in the form *a*/*b* or – *a*/*b* for some fraction *a*/*b*. The rational numbers include the integers.
- **Rectangle.** A quadrilateral and/or parallelogram where every angle is a right angle.
- **Rectilinear figure.** A polygon all angles of which are right angles.
- **Regular Polygon.** A polygon is "regular" only when all angles are equal and all sides are equal. Otherwise, it is an *irregular polygon*.
- **Reflection**. A rigid transformation in which the resulting figure (image) is the mirror image of the original figure (pre-image). A transformation where each point in a shape appears at an equal distance on the opposite side of a given the line of reflection.
- **Repeating decimal.** The decimal form of a rational number. *See also:* terminating decimal.
- **Rhombus**. A quadrilateral and/or equilateral parallelogram; a plane two-dimensional figure with opposite sides parallel and opposite angles parallel. Plural rhombi or rhombuses.

Glossary (continued)

- **Rigid motion.** A transformation of points in space consisting of a sequence of one or more translations, reflections, and/or rotations. Rigid motions are here assumed to preserve distances and angle measures.

- **Rotation**. A rigid transformation where a figure is turned about a given, fixed point.

- **Sample space.** In a probability model for a random process, a list of the individual outcomes that are to be considered.

- **Scatter plot.** A graph in the coordinate plane representing a set of bivariate data. For example, the heights and weights of a group of people could be displayed on a scatter plot.[5]

- **Similarity transformation.** A rigid motion followed by a dilation.

- **Square**. An equilateral, equiangular parallelogram; a plane two-dimensional, four-sided regular polygon with all sides equal and all internal angles equal to right angles.

- **Subtrahend**. A quantity to be subtracted from another. For example, in the equation 10 – 2 = 8, 2 is the subtrahend.

- **Sum**. The result of addition. Addition means to add to a set or combine sets.

- **Tape diagram.** A drawing that looks like a segment of tape, used to illustrate number relationships. Also known as a strip diagram, bar model, fraction strip, or length model.

- **Term**. Either a single number or variable, or numbers and variables multiplied together. Terms are separated by + or – signs. For example, in the equation 4x – 7 = 5, 4x, 7, and 5 are all terms.

- **Terminating decimal.** A decimal is called terminating if its repeating digit is 0.

- **Third quartile.** For a data set with median *M*, the third quartile is the median of the data values greater than *M*. Example: For the data set {2, 3, 6, 7, 10, 12, 14, 15, 22, 120}, the third quartile is 15. *See also:* median, first quartile, interquartile range.

- **Translation**. A rigid transformation that moves every point in a figure a constant distance in a specified direction.

Glossary (continued)

- **Transitivity principle for indirect measurement.** If the length of object A is greater than the length of object B, and the length of object B is greater than the length of object C, then the length of object A is greater than the length of object C. This principle applies to measurement of other quantities as well.

- **Trapezoid**. A quadrilateral with at least one set of parallel sides.

- **Uniform probability model.** A probability model which assigns equal probability to all outcomes. *See also:* probability model.

- **Variable.** A letter or other symbol used in an expression to represent an unspecified number; it may have many values, one value, or no possible value depending on its use. In a polynomial, the variables correspond to the base symbols themselves stripped of coefficients and any powers or products.

- **Vector.** A quantity with magnitude and direction in the plane or in space, defined by an ordered pair or triple of real numbers.

- **Visual fraction model.** A tape diagram, number line diagram, or area model.

- **Whole numbers.** The numbers 0, 1, 2, 3…

[1] Adapted from Wisconsin Department of Public Instruction, **http://dpi.wi.gov/standards/mathglos.html,** accessed March 2, 2010.

[2] Many different methods for computing quartiles are in use. The method defined here is sometimes called the Moore and McCabe method. See Langford, E., "Quartiles in Elementary Statistics," *Journal of Statistics Education* Volume 14, Number 3 (2006).

[3] Adapted from Wisconsin Department of Public Instruction, *op. cit*.

[4] To be more precise, this defines the *arithmetic mean*.

[5] Adapted from Wisconsin Department of Public Instruction, *op. cit*.

Additional Support
Appendix B :Tables

Tables 1-~~5~~

TABLE 1. Common addition and subtraction situations.[6]

	Result Unknown	Change Unknown	Start Unknown
Add to	Two bunnies sat on the grass. Three more bunnies hopped there. How many bunnies are on the grass now? 2 + 3 = ?	Two bunnies were sitting on the grass. Some more bunnies hopped there. Then there were five bunnies. How many bunnies hopped over to the first two? 2 + ? = 5	Some bunnies were sitting on the grass. Three more bunnies hopped there. Then there were five bunnies. How many bunnies were on the grass before? ? + 3 = 5
Take from	Five apples were on the table. I ate two apples. How many apples are on the table now? 5 - 2 = ?	Five apples were on the table. I ate some apples. Then there were three apples. How many apples did I eat? 5 - ? = 3	Some apples were on the table. I ate two apples. Then there were three apples. How many apples were on the table before? ? - 2 = 3
	Total Unknown	**Addend Unknown**	**Both Addends Unknown[1]**
Put Together/ Take Apart[2]	Three red apples and two green apples are on the table. How many apples are on the table? 3 + 2 = ?	Five apples are on the table. Three are red and the rest are green. How many apples are green? 3 + ? = 5, 5 - 3 = ?	Grandma has five flowers. How many can she put in her red vase and how many in her blue vase? 5 = 0 + 5, 5 = 5 + 0 5 = 1 + 4, 5 = 4 + 1 5 = 2 + 3, 5 = 3 + 2
	Difference Unknown	**Bigger Unknown**	**Smaller Unknown**
Compare[3]	("How many more?" version): Lucy has two apples. Julie has five apples. How many more apples does Julie have than Lucy? ("How many fewer?" version): Lucy has two apples. Julie has five apples. How many fewer apples does Lucy have than Julie? 2 + ? = 5, 5 - 2 = ?	(Version with "more"): Julie has three more apples than Lucy. Lucy has two apples. How many apples does Julie have? (Version with "fewer"): Lucy has 3 fewer apples than Julie. Lucy has two apples. How many apples does Julie have? 2 + 3 = ?, 3 + 2 = ?	(Version with "more"): Julie has three more apples than Lucy. Julie has five apples. How many apples does Lucy have? (Version with "fewer"): Lucy has 3 fewer apples than Julie. Julie has five apples. How many apples does Lucy have? 5 - 3 = ?, ? + 3 = 5

[1]These take apart situations can be used to show all the decompositions of a given number. The associated equations, which have the total on the left of the equal sign, help children understand that the = sign does not always mean makes or results in but always does mean is the same number as.
[2]Either addend can be unknown, so there are three variations of these problem situations. Both Addends Unknown is a productive extension of this basic situation, especially for small numbers less than or equal to 10.
[3]For the Bigger Unknown or Smaller Unknown situations, one version directs the correct operation (the version using more for the bigger unknown and using less for the smaller unknown). The other versions are more difficult.

[6] Adapted from Box 2-4 of Mathematics Learning in Early Childhood, National Research Council (2009, pp.32, 33).

Table 2

TABLE 2. Common multiplication and division situations.[7]

	Unknown Product	Group Size Unknown ("How many in each group?" Division)	Number of Groups Unknown ("How many groups?" Division)
	$3 \times 6 = ?$	$3 \times ? = 18$, and $18 \div 3 = ?$	$? \times 6 = 18$, and $18 \div 6 = ?$
Equal Groups	There are 3 bags with 6 plums in each bag. How many plums are there in all? *Measurement example.* You need 3 lengths of string, each 6 inches long. How much string will you need altogether?	If 18 plums are shared equally into 3 bags, then how many plums will be in each bag? *Measurement example.* You have 18 inches of string, which you will cut into 3 equal pieces. How long will each piece of string be?	If 18 plums are to be packed 6 to a bag, then how many bags are needed? *Measurement example.* You have 18 inches of string, which you will cut into pieces that are 6 inches long. How many pieces of string will you have?
Arrays,[4] Area[5]	There are 3 rows of apples with 6 apples in each row. How many apples are there? *Area example.* What is the area of a 3 cm by 6 cm rectangle?	If 18 apples are arranged into 3 equal rows, how many apples will be in each row? *Area example.* A rectangle has area 18 square centimeters. If one side is 3 cm long, how long is a side next to it?	If 18 apples are arranged into equal rows of 6 apples, how many rows will there be? *Area example.* A rectangle has area 18 square centimeters. If one side is 6 cm long, how long is a side next to it?
Compare	A blue hat costs \$6. A red hat costs 3 times as much as the blue hat. How much does the red hat cost? *Measurement example.* A rubber band is 6 cm long. How long will the rubber band be when it is stretched to be 3 times as long?	A red hat costs \$18 and that is 3 times as much as a blue hat costs. How much does a blue hat cost? *Measurement example.* A rubber band is stretched to be 18 cm long and that is 3 times as long as it was at first. How long was the rubber band at first?	A red hat costs \$18 and a blue hat costs \$6. How many times as much does the red hat cost as the blue hat? *Measurement example.* A rubber band was 6 cm long at first. Now it is stretched to be 18 cm long. How many times as long is the rubber band now as it was at first?
General	$a \times b = ?$	$a \times ? = p$, and $p \div a = ?$	$? \times b = p$, and $p \div b = ?$

[4]The language in the array examples shows the easiest form of array problems. A harder form is to use the terms rows and columns: The apples in the grocery window are in 3 rows and 6 columns. How many apples are in there? Both forms are valuable.

[5]Area involves arrays of squares that have been pushed together so that there are no gaps or overlaps, so array problems include these especially important measurement situations.

[7] The first examples in each cell are examples of discrete things. These are easier for students and should be given before the measurement examples.

Tables 3-5

TABLE 3. The properties of operations. Here a, b and c stand for arbitrary numbers in a given number system. The properties of operations apply to the rational number system, the real number system, and the complex number system.

Associative property of addition	$(a + b) + c = a + (b + c)$
Commutative property of addition	$a + b = b + a$
Additive identity property of 0	$a + 0 = 0 + a = a$
Existence of additive inverses	For every a there exists $-a$ so that $a + (-a) = (-a) + a = 0$.
Associative property of multiplication	$(a \times b) \times c = a \times (b \times c)$
Commutative property of multiplication	$a \times b = b \times a$
Multiplicative identity property of 1	$a \times 1 = 1 \times a = a$
Existence of multiplicative inverses	For every $a \neq 0$ there exists $1/a$ so that $a \times 1/a = 1/a \times a = 1$.
Distributive property of multiplication over addition	$a \times (b + c) = a \times b + a \times c$

TABLE 4. The properties of equality. Here a, b and c stand for arbitrary numbers in the rational, real, or complex number systems.

Reflexive property of equality	$a = a$
Symmetric property of equality	If $a = b$, then $b = a$.
Transitive property of equality	If $a = b$ and $b = c$, then $a = c$.
Addition property of equality	If $a = b$, then $a + c = b + c$.
Subtraction property of equality	If $a = b$, then $a - c = b - c$.
Multiplication property of equality	If $a = b$, then $a \times c = b \times c$.
Division property of equality	If $a = b$ and $c \neq 0$, then $a \div c = b \div c$.
Substitution property of equality	If $a = b$, then b may be substituted for a in any expression containing a.

TABLE 5. The properties of inequality. Here a, b and c stand for arbitrary numbers in the rational or real number systems.

Exactly one of the following is true: $a < b$, $a = b$, $a > b$.
If $a > b$ and $b > c$ then $a > c$.
If $a > b$, then $b < a$.
If $a > b$, then $-a < -b$.
If $a > b$, then $a \pm c > b \pm c$.
If $a > b$ and $c > 0$, then $a \times c > b \times c$.
If $a > b$ and $c < 0$, then $a \times c < b \times c$.
If $a > b$ and $c > 0$, then $a \div c > b \div c$.
If $a > b$ and $c < 0$, then $a \div c < b \div c$.

Source: *Miss. Code Ann. §37-1-3* ~~(Revised 1/2016)~~

Table 6

MS CCRS Widely Applicable as Prerequisites for a Range of College Majors, Postsecondary Programs and Careers.

Number and Quantity	Algebra	Functions	Geometry	Statistics and Probability	Applying Key Takeaways from Grades 6–8**
N-RN, Real Numbers: Both clusters in this domain contain widely applicable prerequisites. **N-Q★, Quantities**: Every standard in this domain is a widely applicable prerequisite. Note, this domain is especially important in the high school content standards overall as a widely applicable prerequisite.	**Every domain in this category** contains widely applicable prerequisites.° Note, the **A-SSE** domain is especially important in the high school content standards overall as a widely applicable prerequisite.	**F-IF, Interpreting Functions**: Every cluster in this domain contains widely applicable prerequisites.° Additionally, standards **F-BF.1** and **F-LE.1** are relatively important within this category as widely applicable prerequisites.	**The following standards and clusters** are relatively important within this category as widely applicable prerequisites: **G-CO.1** **G-CO.9** **G-CO.10** **G-SRT.B** **G-SRT.C** Note, the above standards in turn have learning prerequisites within the Geometry category, including: G-CO.A G-CO.B G-SRT.A	**The following standards** are relatively important within this category as widely applicable prerequisites: **S-ID.2** **S-ID.7** **S-IC.1** Note, the above standards in turn have learning prerequisites within 6-8.SP.	**Solving problems at a level of sophistication appropriate to high school by**: • Applying ratios and proportional relationships. • Applying percentages and unit conversions, e.g., in the context of complicated measurement problems involving quantities with derived or compound units (such as mg/mL, kg/m^3, acre-feet, etc.). • Applying basic function concepts, e.g., by interpreting the features of a graph in the context of an applied problem. • Applying concepts and skills of geometric measurement e.g., when analyzing a diagram or schematic. • Applying concepts and skills of basic statistics and probability (see 6-8.SP). • Performing rational number arithmetic fluently.

A note about the codes: Letter codes (A, B, C) are used to denote cluster headings. For example, G-SRT.**B** refers to the ***second*** cluster heading in the domain G-SRT*, "Prove theorems using similarity"* (MS CCRS p. 191).

[8] Informed by postsecondary survey data in Conley et al. (2011), *http://www.epiconline.org/publications/documents/ReachingtheGoal-FullReport.pdf*.

[9] See MS CCRS, p. 85 "…some of the highest priority content for college and career readiness comes from Grades 6-8. This body of material includes powerfully useful proficiencies such as applying ratio reasoning in real-world and mathematical problems, computing fluently with positive and negative fractions and decimals, and solving real-world and mathematical problems involving angle measure, area, surface area, and volume."

* Modeling Standards (present in HS CCRS)

[10] Only the standards without a (+) sign are being cited here.

Additional Support Appendix C: Supporting Resources

MS CCRS NAVIGATOR: COMPREHENSIVE SUPPORT FOR INSTRUCTIONAL PREPARATION

PURPOSE

The primary purpose of the 2025 Mississippi College- and Career-Readiness Standards Navigator: Comprehensive Support for Instructional Preparation Document (MS CCRS Navigator), *formally known as the MS CCRS Scaffolding Document*, is to equip teachers with a deeper understanding of the Standards, enabling them to effectively prepare for classroom instruction. Grounded in the 2025 Mississippi College- and Career-Readiness Standards for Mathematics, this document provides a detailed analysis of what is required for student mastery in an effort to help teachers prepare to deliver high-quality, intentional instruction that aligns with the rigor of the Standards.

ORGANIZATION

The 2025 MS CCRS Navigator is divided by grade level. Within each grade level, the MS CCRS Navigator is color-coded by mathematical domains (Grades K-8) or high school conceptual categories (Grades 9-12). Each standard is divided into three categories to guide instructional preparation:

1. **Prerequisite Knowledge**: This column outlines the skills students should have previously mastered to engage with and work toward mastery of the grade-specific standard. It clarifies what students need to **KNOW** to build a strong foundation for learning.
2. **Conceptual Understanding**: This column explains the deeper understanding of concepts—not just actions or skills—required for mastery. It details what students need to **UNDERSTAND** to fully grasp the grade-specific standard.
3. **Evidence of Knowledge**: This column describes how student mastery is demonstrated, including the work students produce to exhibit understanding. It specifies what students need to **DO** to show they have achieved mastery.

To further support instructional preparation, the document includes suggested Standards for Mathematical Practice (SMPs) and key academic vocabulary for each standard. The MS Navigator is located at *www.mdek12.org/secondaryeducation/mathematics.*

2016 AND 2025 STANDARDS COMPARISON GUIDE

MS CCR STANDARD IDENTIFIER ▼	2016 MS CCR STANDARD ▼	2025 MS CCR STANDARD ▼
KINDERGARTEN		
K.CC.1	Count to 100 by ones and by tens.	**New/Split Standard** K.CC.1a- Count to 100 by ones. K.CC.1b- Count to 100 by tens.
K.OA.5	***Fluently*** add and subtract within 5.	**New/Split Standard** K.OA.5a- ***Fluently*** add within 5. K.OA.5b- ***Fluently*** subtract within 5.
GRADE 1		
1.MD.3b	Identify the days of the week, the number of days in a week, and the number of weeks in each month.	**New/Split Standard** 1.MD.3b Identify the days of the week and the number of days in a week. 1.MD.3c Identify the months of the year, number of months in a year, and the number of weeks in a month.
GRADE 4		
4.G.2	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Categorize triangles by sides and angles (equilateral, isosceles, right, and scalene).
GRADE 5		
5.MD.5b	Apply the formulas V = l ×w×h and V = b ×h for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the	5.MD.5b-Apply the formulas V = l ×w×h and V = B ×h for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the

MS CCR STANDARD IDENTIFIER ▼	2016 MS CCR STANDARD ▼	2025 MS CCR STANDARD ▼
	context of solving real-world and mathematical problems.	context of solving real-world and mathematical problems.
6.EE.5	Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	Solve an equation or inequality and understand the process by answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
6.G.2	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = lwh and V = bh to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = lwh and V = Bh to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
	GRADE 7	
7.G.6	Solve real-world and mathematical problems involving area, volume and surface area of two and three dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.	Solve real-world and mathematical problems involving area, volume, and surface area of two and three-dimensional objects composed of triangles, quadrilaterals, and polygons, including cubes, right prisms, and pyramids.
	ALGEBRA I	
A-CED.1	Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and	Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and

MS CCR STANDARD IDENTIFIER ▼	2016 MS CCR STANDARD ▼	2025 MS CCR STANDARD ▼
	quadratic functions, and simple rational and exponential functions.*	quadratic functions, ~~and simple rational~~ and exponential functions.*
A-REI.6	Solve systems of linear equations algebraically, exactly, and graphically while focusing on pairs of linear equations in two variables.	Solve systems of linear equations exactly using algebraic processes and approximately (e.g. graphically) while focusing on pairs of linear equations in two variables.
F-IF.3	Recognize that sequences are functions whose domain is a subset of the integers.	Use the fact that sequences are functions whose domain is a subset of the integers to identify sequences and generate their explicit formulas.
F-IF.4	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.*	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; and end behavior~~; and periodicity~~.*
F-BF.3	Identify the effect on the graph of replacing f(x) by f(x) + k,kf(x), f(kx), and f(x+k) for specific values of k(both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.	Identify the effect on the graph of replacing f(x) by f(x) + k,kf(x), f(kx), and f(x+k) for specific values of k(both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. ~~Include recognizing even and odd functions from their graphs and algebraic expressions for them.~~

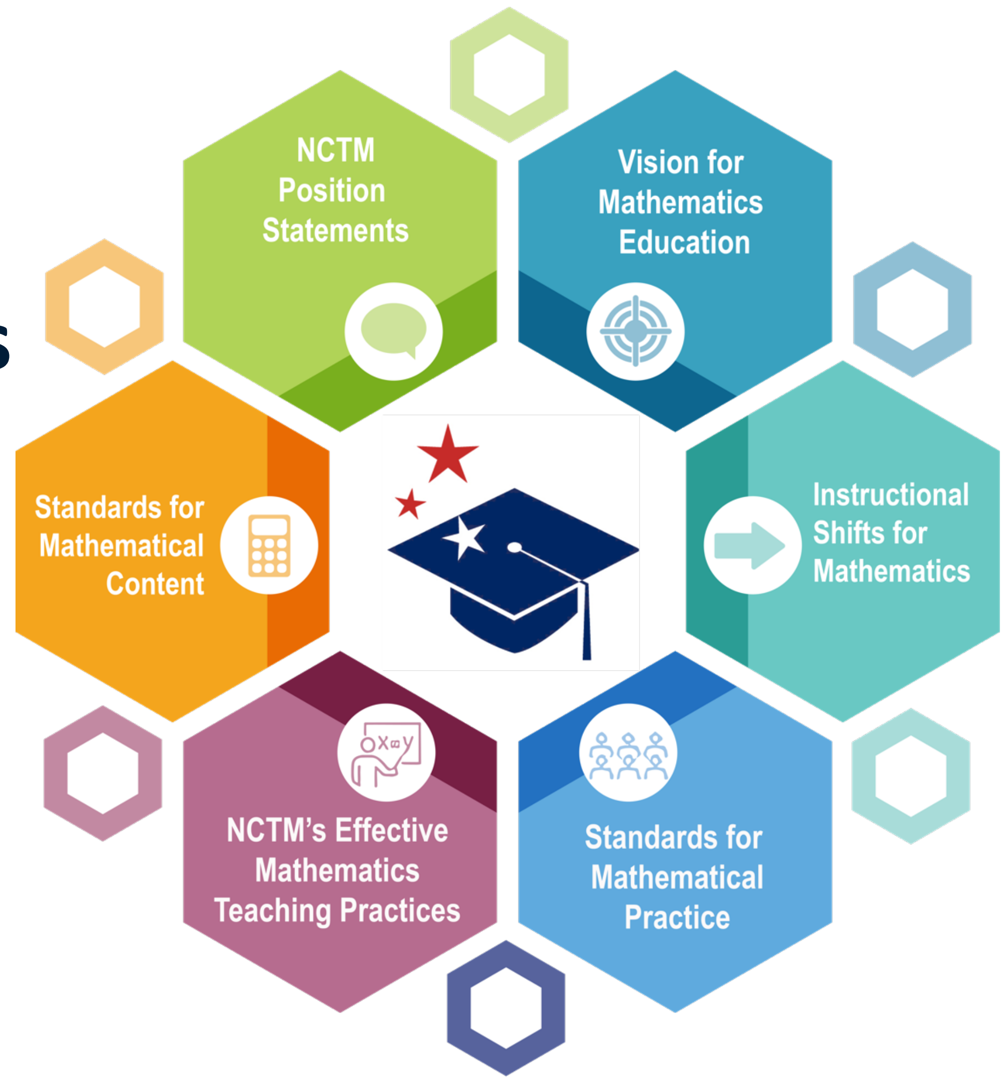
MS CCR STANDARD IDENTIFIER ▼	2016 MS CCR STANDARD ▼	2025 MS CCR STANDARD ▼
G-SRT.8	Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.*	G.SRT.8 Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems and rewrite expressions involving radicals to simplify and interpret solutions.*
A-CED.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.

PRINTABLES: MS CCRS FOR MATHEMATICS BY GRADE BAND, GRADE LEVEL, OR COURSE

2025

MISSISSIPPI

College- and Career-Readiness Standards



▶ Mathematics

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READOPTION PROCESS

2025 MS CCR STANDARDS FOR MATHEMATICS

The 2016 Mississippi College- and Career-Readiness Standards (MS CCRS) were reviewed through a stakeholder survey, as no national updates necessitated a full-scale revision. The survey aimed to validate the standards or identify specific areas for review to ensure continued relevance and alignment with educational goals.

The survey included three sections:

1. **Demographics**: Collected data on respondents' congressional district, grade levels taught, teaching experience, role, highest degree, and notable achievements.
2. **Standards Rating**: Used a Likert scale to evaluate perceptions of the MS CCRS, assessing clarity, grade-level progression, relevance to real-world skills, and alignment with workplace competencies like problem-solving and collaboration.
3. **Standards Review (Optional)**: Allowed respondents to submit specific standards for review, focusing on clarity, grade-level appropriateness, learning progression, and content accuracy, accompanied by actionable feedback.

The survey yielded 418 responses, with 77 submissions of a K-12 Mathematics standard for review.

The mathematics review committee included a diverse group of veteran educators from all congressional districts with specific grade band experience, aided by 6 MDE employees serving as facilitators or note-takers. Each mathematics review committee comprised seven members for each grade band, K–5, 6–8, and 9–12. The committee reviews resulted in 15 total edits to the mathematics standards: five in grades K–5, three in grades 6–8, and seven in the high school courses.

For a full list of edits, refer to the *2016 and 2025 Standards Comparison Guide* in Appendix C.

INTRODUCTION

MISSION STATEMENT

The Mississippi Department of Education (MDE) is dedicated to student success, including the improvement of student achievement in mathematics in order to produce citizens who are capable of making complex decisions, solving complex problems, and communicating fluently in a technological society. The 2025 Mississippi College- and Career-Readiness Standards for Mathematics ("The Standards") provide a consistent, clear understanding of what students are expected to know and be able to do by the end of each grade level and course. The Standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills that students need for success in college and careers and to compete in the global economy.

PURPOSE

In an effort to closely align instruction for students who are progressing toward postsecondary study and the workforce, the 2025 Mississippi College- and Career-Readiness Standards for Mathematics include grade- and course-specific standards for K-12 mathematics.

The primary purpose of this document is to provide a basis for curriculum development for Grades K-12 mathematics teachers within the state of Mississippi, outlining what students should know and be able to do by the end of each grade level and course. Courses for grades K-12 are based on the Mississippi College- and Career-Readiness Standards (MS CCRS) for Mathematics. Mississippi-specific courses revised or developed in alignment with the (MS CCRS) for Mathematics include Foundations of Algebra, Advanced Technical Mathematics, Advanced Mathematics Plus, Algebra III (formerly Pre-Calculus), and Calculus.

The Southern Regional Education Board (SREB) Ready for High School Math serves as a transition course to high school mathematics, while the Essentials for College Math and SREB Math Ready courses act as transition courses to college mathematics.

IMPLEMENTATION

The required year for the 2025 Mississippi College- and Career-Readiness Standards for Mathematics is 2025-2026.

OVERVIEW

For over a decade, research studies of mathematics education in high-performing countries have pointed to the conclusion that the mathematics curriculum in the United States must become substantially more focused and coherent in order to improve mathematics achievement in this country. To deliver on the promise of common standards, the standards must address the problem of a curriculum that is "a mile wide and an inch deep." These Standards are a substantial answer to that challenge. Aiming for clarity and specificity, these Standards endeavor to follow a design that not only stresses conceptual understanding of key ideas, but also by continually returning to organizing principles such as place value or the laws of arithmetic to structure those ideas.

2025 MS CCRS IN MATHEMATICS INSTRUCTIONAL FRAMEWORK

VISION FOR MATHEMATICS EDUCATION

The instructional framework for the *2025 Mississippi College- and Career-Readiness Standards* (MS CCRS) in Mathematics encapsulates the vision for ensuring that all Mississippi students are equipped with the mathematical knowledge and skills necessary to access higher education opportunities, thrive in professional careers, and become informed citizens capable of understanding and influencing the world around them.

This framework is a dynamic, interconnected approach to mathematics education that integrates the *Instructional Shifts for Mathematics*, *Standards for Mathematical Content*, *Standards for Mathematical Practice*, *Effective Mathematics Teaching Practices*, and the *National Council of Teachers of Mathematics (NCTM) Position Statements*. These elements collectively contribute to the development of a **mathematically proficient individual.** The cyclical structure of the framework emphasizes that all components are essential and interconnected. This continuous integration of practices, standards, and values ensures a robust and coherent mathematics education program for Mississippi's public schools.

INSTRUCTIONAL SHIFTS FOR MATHEMATICS

The Instructional Shifts for Mathematics emphasize changes in mathematics teaching to improve student outcomes. These shifts, grounded in the MS CCRS, promote:

1. **Focus**: *Focus* where the Standards *focus*.

The MS CCRS calls for a greater focus in mathematics. Focus means significantly narrowing the scope of content in each grade so that students achieve at higher levels and experience more deeply that which remains. Rather than racing to cover many topics in a mile-wide, inch-deep curriculum, the MS CCRS are intentionally designed with a clear focus on key concepts and skills at each grade level. This instructional shift requires teachers to narrow and deepen significantly the way time and energy is spent in the classroom. With a greater focus on fewer topics, instruction is directed toward deeply engaging with the major work of each grade level as follows:

- In grades K–2: Concepts, skills, and problem solving related to addition, subtraction, and place value
- In grades 3–5: Concepts, skills, and problem solving related to multiplication and division of whole numbers and fractions
- In grade 6: Ratios and proportional relationships, and early algebraic expressions and equations
- In grade 7: Ratios and proportional relationships, and arithmetic of rational numbers
- In grade 8: Linear algebra and linear functions
- In HS courses: CCRS content Widely Applicable as Prerequisites for a Range of College Majors, Postsecondary Programs and Careers[1]

The strong focus of the Standards in early grades is arithmetic, along with the components of measurement that support it. That includes the concepts underlying arithmetic, the skills of arithmetic computation, and the ability to apply arithmetic to solve problems and put arithmetic to engaging uses. Arithmetic in the K–5 standards is an important life skill, as well as a thinking subject and a rehearsal for algebra in the middle grades. This focus will help students gain strong foundations, including a solid understanding of concepts, a high degree of procedural skill and fluency, and the ability to apply the math they know to solve problems inside and outside the classroom.

Focus remains important through the middle and high school grades in order to prepare students for college and careers. National surveys have repeatedly concluded that postsecondary instructors value greater mastery of a smaller set of prerequisites over shallow exposure to a wide array of topics so that students can build on what they know and apply what they know to solve substantial problems. Therefore, a college- and career-ready curriculum should devote most of the high school students' time to building the knowledge and skills that are the essential prerequisites for a wide range of college majors, postsecondary programs, and careers.

2. **Coherence**: Think across grades/courses and link to major topics within each grade/course.

Coherence is about making math make sense. Mathematics is not a list of disconnected topics, tricks, or mnemonics; it is a coherent body of knowledge made up of interconnected concepts. Ensuring coherence involves attending to connections between topics, where the learning connects across grades and links to major mathematical ideas, ensuring a logical progression of concepts. Consequently, the Standards are designed around coherent progressions that build and expand knowledge from grade to grade.

To achieve coherence, vertical connections are crucial: these are the links from one grade to the next that allow students to progress in their mathematical education. For example, a kindergarten student might add two numbers using a "count all" strategy, but grade 1 students are expected to use "counting on" and more sophisticated strategies. In 4th grade, students must "apply and extend previous understandings of multiplication to multiply a fraction by a whole number" (Standard 4.NF.4). This extends to 5th grade, when students are expected to build on that skill to "apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction" (Standard 5.NF.4). Each standard is not a new event, but an extension of previous learning. Therefore, it is critical for teachers to think across grades and examine the progressions in the standards to see how major content develops over time.

Coherence across grades relies on the careful, deliberate, and progressive development of ideas within each grade level. This intentional progression ensures that foundational concepts are solidified before moving to more complex ideas.[2] In high school, a lack of coherence often leads to students memorizing too many isolated techniques without understanding the underlying structure that connects them. Emphasizing coherence reduces this clutter in the curriculum. For instance, recognizing that the distance formula and the trigonometric identity $\sin^2(t) + \cos^2(t) = 1$ are both rooted in the Pythagorean theorem helps students understand and reconstruct these concepts rather than merely memorizing them.

It should also be noted that the Standards do not specify the progression of material within a single grade, but connections at a single grade level can be used to improve focus by closely linking secondary topics to the major work of the grade. For example, in grade 3, bar graphs are not "just another topic to cover." Rather, the standard about bar graphs asks students to use information presented in bar graphs to solve word problems using the four operations of arithmetic. Instead of allowing bar graphs to detract from the focus on arithmetic, the Standards are showing how bar graphs can be positioned in support of the major work of the grade. In this way, coherence can also support focus.

To help identify coherence, the Standards within each domain, or conceptual categories in high school, are organized under cluster headings. These cluster headings play a vital role in connecting related concepts, building on prior knowledge, and extending learning to future concepts.

3. **Rigor**: Maintain Pursue conceptual understanding, procedural skill and fluency, and application with equal intensity.

Rigor refers to a deep, authentic command of mathematical concepts, not making math harder or introducing topics at earlier grades. To help students meet the expectations of the Standards, educators will need to pursue, with equal intensity, three aspects of rigor in the major work of each grade: (1) conceptual understanding, (2) procedural skill and fluency, and (3) applications.

Conceptual understanding: The standards call for conceptual understanding of key concepts, such as place value and ratios. Students must be able to access concepts from a number of perspectives in order to see math as more than a set of mnemonics or discrete procedures.

Procedural skills and fluency: The standards call for speed and accuracy in calculation. Students must practice core functions, such as single-digit multiplication, in order to have access to more complex concepts and procedures. Fluency must be addressed in the classroom or through supporting materials, as some students might require more practice than others.

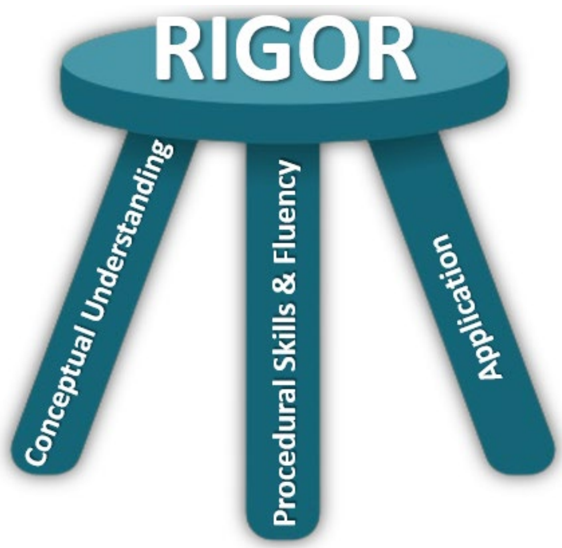
> ***NOTE:*** *The Standards for Mathematical Practice set expectations for using mathematical language and representations to reason, solve problems, and model. These expectations are related to fluency: precision in the use of language, seeing structure in expressions, and reasoning from the concrete to the abstract correspond to high orders of fluency in the acquisition of mathematical language, especially in the form of symbolic expressions and graphs. Though the High School content standards do not set explicit expectations for fluency, fluency is important in high school mathematics. High School mathematics builds new and more sophisticated fluencies on top of the earlier fluencies from K-8 that centered on numerical calculation.*

Application: The standards call for students to use math in situations that require mathematical knowledge. Correctly applying mathematical knowledge depends on students having a solid conceptual understanding and procedural fluency.

Identifying the aspect of Rigor called for by the Standard:

The language of the Standards provides clear clues to the specific aspect of rigor being emphasized, guiding educators in aligning instruction to the intended focus. Words such as “understand” are used in the Standards to set explicit expectations for conceptual understanding, and those such as “fluently” are used to set explicit expectations for fluency. Phrases like “real-world problems” are used to highlight opportunities for application, while the star symbol (*) flags opportunities for modeling. (Modeling is both a Standard for Mathematical Practice and a content category in High School.)

The image of a three-legged stool effectively represents the instructional shift of rigor, illustrating how students' mathematical proficiency and mastery of content rely on three essential components: conceptual understanding, procedural skill and fluency, and application. Just as a stool cannot stand with one leg removed, a student's mathematical foundation becomes unstable if any one of these components is neglected, underscoring the importance of maintaining balance and emphasis on all three to fully support student success.



Instruction that overemphasizes one aspect of rigor at the expense of others should be avoided. For example, stressing fluency in computation without incorporating conceptual understanding undermines students' ability to make sense of algorithms and learn them effectively. Similarly, focusing solely on conceptual understanding without dedicating time to developing fluency fails to prepare students for practical applications. Overemphasizing pure mathematics neglects the motivational and practical benefits of real-world applications, while a focus solely on applications disregards the foundational understanding necessary for deeper mathematical learning. Such imbalances place unnecessary strain on teachers and students. Instead, instruction should aim to integrate and balance all three components of rigor—conceptual understanding, fluency, and application—within the major work of each grade.

[1] See Table 6, Appendix C.

[2] See the MS CCRS Progressions Document, *https://mathematicalmusings.org/* .

STANDARDS FOR MATHEMATICAL CONTENT

These Standards define what students should understand and be able to do in their study of mathematics. Asking a student to understand something means asking a teacher to assess whether the student has understood it. But what does mathematical understanding look like? One hallmark of mathematical understanding is the ability to justify, in a way appropriate to the student's mathematical maturity, why a particular mathematical statement is true or where a mathematical rule comes from. There is a world of difference between a student who can summon a mnemonic device to expand a product such as $(a + b)(x + y)$ and a student who can explain where the mnemonic comes from. The student who can explain the rule understands the mathematics and may have a better chance to succeed at a less familiar task such as expanding $(a + b + c)(x + y)$. Mathematical understanding and procedural skill are equally important, and both are assessable using mathematical tasks of sufficient richness.

The Standards set grade-specific expectations but do not define the intervention methods or materials necessary to support students who are well below or well above grade-level expectations. It is also beyond the scope of the Standards to define the full range of supports appropriate for English language learners and for students with special needs. At the same time, all students must have the opportunity to learn and meet the same high standards if they are to access the knowledge and skills necessary for college and/or careers. The Standards should be read as allowing for the widest possible range of students to participate fully from the outset, along with appropriate accommodations to ensure maximum participation of students with special education needs. For example, for students with reading disabilities the use of Braille, screen reader technology, or other assistive devices should be made available. In addition, while writing, these students should have access to a scribe, computer, or speech-to-text technology in their classroom. In a similar vein, speaking and listening should be interpreted broadly to include sign language. No set of grade-specific standards can fully reflect the great variety in abilities, needs, learning rates, and achievement levels of students in any given classroom. However, the Standards do provide clear signposts along the way to the goal of College- and Career-Readiness for all students.

STANDARDS FOR MATHEMATICAL PRACTICE

The Standards for Mathematical Practice (SMPs) describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important "processes and proficiencies" with longstanding importance in mathematics education. The first of these are the NCTM process standards of problem solving, reasoning and proof, communication, representation, and connections. The second are the strands of mathematical proficiency specified in the National Research Council's report Adding It Up: adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one's own efficacy).

1. Make sense of problems and persevere in solving them.

Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.

2. Reason abstractly and quantitatively.

Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to decontextualize—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to contextualize, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

3. Construct viable arguments and critique the reasoning of others.

Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument— explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

4. Model with mathematics.

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

5. Use appropriate tools strategically.

Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.

6. Attend to precision.

Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.

7. Look for and make use of structure.

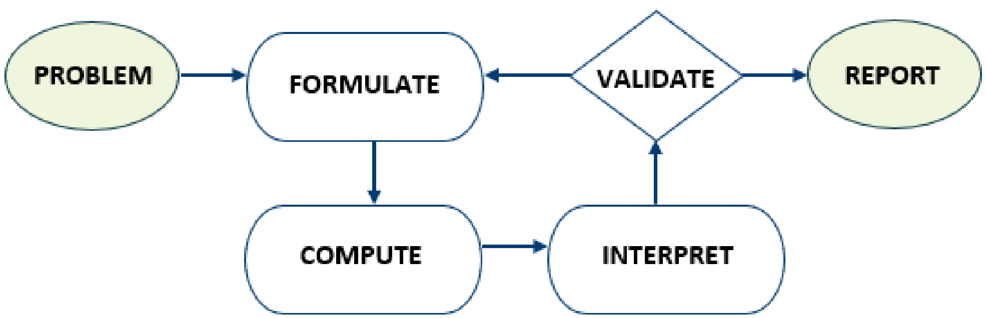
Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7×8 equals the well-remembered $7 \times 5 + 7 \times 3$, in preparation for learning about the distributive property. In the expression x2 + 9x + 14, older students can see the 14 as 2×7 and the 9 as $2 + 7$. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, they can see 5 – 3(x –y)2 as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers x and y.

8. Look for and express regularity in repeated reasoning.

Mathematically proficient students notice if calculations are repeated and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $(y – 2)/(x – 1) = 3$. Noticing the regularity in the way terms cancel when expanding $(x – 1)(x + 1)$, $(x – 1)(x2 + x + 1)$, and $(x – 1)(x3 + x2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.

Modeling (High School Courses only)

Modeling standards are noted throughout the high school courses with an asterisk (*). Modeling links classroom mathematics and statistics to everyday life, work, and decision-making. Modeling is the process of choosing and using appropriate mathematics and statistics to analyze empirical situations, to understand them better, and to improve decisions. Quantities and their relationships in physical, economic, public policy, social, and everyday situations can be modeled using mathematical and statistical methods. When making mathematical models, technology is valuable for varying assumptions, exploring consequences, and comparing predictions with data.



Making mathematical models is a Standard for Mathematical Practice, and specific Modeling standards appear throughout the high school standards. The basic modeling cycle above involves (1) identifying variables in the situation and selecting those that represent essential features, (2) formulating a model by creating and selecting geometric, graphical, tabular, algebraic, or statistical representations that describe relationships between the variables, (3) analyzing and performing operations on these relationships to draw conclusions, (4) interpreting the results of the mathematics in terms of the original situation, (5) validating the conclusions by comparing them with the situation, and then either improving the model or, if it is acceptable, (6) reporting on the conclusions and the reasoning behind them.

CONNECTING THE STANDARDS FOR MATHEMATICAL PRACTICE TO THE STANDARDS FOR MATHEMATICS CONTENT

The Standards for Mathematical Practice describe ways in which developing student practitioners of the discipline of mathematics increasingly ought to engage with the subject matter as they grow in mathematical maturity and expertise throughout the elementary, middle, and high school years. Designers of curricula, assessments, and professional development should all attend to the need to connect the mathematical practices to the Standards in mathematics instruction.

The Standards are a balanced combination of procedure and understanding. Expectations that begin with the word "understand" are often especially good opportunities to connect the practices to the content. Students who lack understanding of a topic may rely on procedures too heavily. Without a flexible base from which to work, they may be less likely to consider analogous problems, represent problems coherently, justify conclusions, apply the mathematics to practical situations, use technology mindfully to work with the mathematics, explain the mathematics accurately to other students, step back for an overview, or deviate from a known procedure to find a shortcut. In short, a lack of understanding effectively prevents a student from engaging in the mathematical practices.

In this respect, those content standards which set an expectation of understanding are potential "points of intersection" between the Standards for Mathematical Content and the Standards for Mathematical Practice. These points of intersection are intended to be weighted toward central and generative concepts in the school mathematics curriculum that most merit the time, resources, innovative energies, and focus necessary to qualitatively improve the curriculum, instruction, assessment, professional development, and student achievement in mathematics.

THE EFFECTIVE MATHEMATICS TEACHING PRACTICES

An excellent mathematics program requires effective teaching that engages students in meaningful learning through individual and collaborative experiences that promote their ability to make sense of mathematical ideas and reason mathematically (*Principles to Actions: Ensuring Mathematical Success for All*, NCTM, 2014).

The eight Effective Mathematics Teaching Practices (EMTPs) provide a framework for strengthening the teaching and learning of mathematics. This research-informed framework of teaching and learning identifies these eight Mathematics Teaching Practices, which represent a core set of high-leverage practices and essential teaching skills necessary to promote deep mathematics learning.

1. Establish mathematics goals to focus learning.

Effective teaching of mathematics establishes clear goals for the mathematics that students are learning, situates goals within learning progressions, and uses the goals to guide instructional decisions.

2. Implement tasks that promote reasoning and problem solving.

Effective teaching of mathematics engages students in solving and discussing tasks that promote mathematical reasoning and problem solving and allow multiple entry points and varied solution strategies.

3. Use and Connect Mathematical Representations.

Effective teaching of mathematics engages students in making connections among mathematical representations to deepen understanding of mathematics concepts and procedures and as tools for problem solving.

4. Facilitate Meaningful Mathematical Discourse.

Effective teaching of mathematics facilitates discourse among students to build a shared understanding of mathematical ideas by analyzing and comparing student approaches and arguments.

5. Pose Purposeful Questions

Effective teaching of mathematics uses purposeful questions to assess and advance students' reasoning and sense making about important mathematical ideas and relationships.

6. Build Procedural Fluency from Conceptual Understanding

Effective teaching of mathematics builds fluency with procedures on a foundation of conceptual understanding so that students, over time, become skillful in using procedures flexibly as they solve contextual and mathematical problems.

7. Support Productive Struggle in Learning Mathematics

Effective teaching of mathematics consistently provides students, individually and collectively, with opportunities and supports to engage in productive struggle as they grapple with mathematical ideas and relationships.

8. Elicit and Use Evidence of Student Thinking

Effective teaching of mathematics uses evidence of student thinking to assess progress toward mathematical understanding and to adjust instruction continually in ways that support and extend learning.

CONNECTING THE EFFECTIVE MATHEMATICS TEACHING PRACTICES TO THE STANDARDS FOR MATHEMATICAL PRACTICES

The **Effective Mathematics Teaching Practices (EMTPs)**, as outlined by the National Council of Teachers of Mathematics (NCTM), provide actionable strategies for educators to facilitate meaningful mathematics instruction. The **Standards for Mathematical Practice (SMPs)**, embedded in the Mississippi College- and Career-Readiness Standards (MS CCRS), describe the mathematical behaviors and dispositions students should develop. Aligning the EMTPs with the SMPs creates a coherent framework that ensures teaching practices elicit and cultivate the desired practices in students. Below, is a sample of how the EMTPs can be connected to corresponding SMPs to illustrate how teachers can use high-leverage strategies to promote these behaviors.

EMTP 1 Establish Mathematics Goals to Focus Learning ↔ EMTP 8: Elicit and Use Evidence of Student Thinking

Establishing clear, specific mathematical goals provides instruction focus and direction, ensuring that teachers and students have a shared understanding of the intended learning outcomes. These goals create a framework for teachers to identify and assess evidence of student thinking during lessons. By eliciting and using this evidence, teachers can monitor student progress toward the learning goals, make informed instructional adjustments, and provide targeted feedback. Together, these practices create a cohesive system where goals guide learning, and evidence ensures that the learning is meaningful, precise, and aligned with the desired outcomes.

EMTP 2: Implement Tasks That Promote Reasoning and Problem Solving ⟷ SMP 2: Reason abstractly and quantitatively

High-quality tasks encourage students to reason abstractly by analyzing the relationships between quantities and engage quantitatively by contextualizing problems, fostering a balance between intuition and logic.

EMTP 4 Facilitate Meaningful Mathematical Discourse and EMTP 5: Pose Purposeful Questions ⟷ SMP: Construct viable arguments and critique the reasoning of others

Meaningful discourse and purposeful questioning provide students opportunities to articulate their reasoning, critique the logic of peers, and build strong arguments, creating a collaborative and reflective mathematical culture.

EMTP 3: Use and Connect Mathematical Representations ⟷ SMP 4: Model with mathematics and SMP 5 Use appropriate tools strategically

By engaging students in varied representations, teachers help them model real-world situations effectively and make strategic decisions about which tools and representations best support their problem-solving processes.

EMTP 6: Build Procedural Fluency from Conceptual Understanding ⟷ SMP 7: Look for and make use of structure and SMP 8: Look for and express regularity in repeated reasoning

Building fluency from conceptual understanding ensures students recognize patterns and structures, enabling them to approach problems efficiently and with a strong conceptual foundation that supports long-term success.

EMTP 7: Support Productive Struggle in Learning Mathematics ⟷ SMP 1: Make sense of problems and persevere in solving them and SMP 6: Attend to precision

Encouraging productive struggle allows students to grapple with challenging tasks, promoting perseverance and careful attention to detail as they refine their understanding and develop mathematical resilience.

The alignment between EMTPs and SMPs emphasizes the interdependence of effective teaching practices and student mathematical behaviors. By leveraging these connections, educators can create dynamic and responsive instructional environments that foster both procedural skill and conceptual understanding, ensuring all students are equipped for success in mathematics and beyond.

NCTM POSITION STATEMENTS

ACCESS AND EQUITY IN MATHEMATICS EDUCATION

The Mississippi Department of Education (MDE) strongly advocates for fostering access and equity in all mathematics classrooms to ensure that every student can succeed.

Achieving access and equity in mathematics education requires maintaining high expectations, providing access to high-quality curriculum and instruction, allocating adequate learning time, and employing differentiated strategies to effectively engage all students. Educators must believe in the potential of every student and focus on creating opportunities for growth through challenging curriculum, innovative technologies, extracurricular offerings, and tailored supports. Collaboration among teachers and specialists is crucial for addressing diverse student needs, fostering growth mindsets, and implementing equitable teaching practices. High-quality professional development is essential to equip educators with the skills and knowledge needed to support success for all learners.

The **Access and Equity in Mathematics Education** Position of the National Council of Teachers of Mathematics (NCTM) states:

> *"Creating, supporting, and sustaining a culture of access and equity require being responsive to students' backgrounds, experiences, cultural perspectives, traditions, and knowledge when designing and implementing a mathematics program and assessing its effectiveness. Acknowledging and addressing factors that contribute to differential outcomes among groups of students are critical to ensuring that all students routinely have opportunities to experience high-quality mathematics instruction, learn challenging mathematics content, and receive the support necessary to be successful. Addressing equity and access includes both ensuring that all students attain mathematics proficiency and increasing the numbers of students from all racial, ethnic, linguistic, gender, and socioeconomic groups who attain the highest levels of mathematics achievement." (NCTM, 2014,* ***http://www.nctm.org****.)*

TEACHING MATHEMATICS TO STUDENTS WITH DISABILITIES

The MDE strongly advocates for ensuring that students with disabilities receive the necessary supports to succeed in mathematics.

Students with disabilities have the right to equitable access and appropriate support that enable them to succeed with grade- or course-level mathematics content. High-quality instruction, aligned with rigorous academic standards and targeted interventions, is crucial for their achievement. Additionally, it is essential that educators believe in the abilities of all students, creating a supportive learning environment where students with disabilities are empowered to reach their full potential in mathematics.

The **Teaching Mathematics to Students with Disabilities** Position of the National Council for Teachers of Mathematics (NCTM) and the Council for Exceptional Children (CEC) states:

> *"The National Council of Teachers of Mathematics (NCTM) and the Council for Exceptional Children (CEC) jointly recognize the important role of educators in ensuring students with disabilities have access to and success with grade/course-level standards, receive high-quality instruction and are supported by systems that believe in their abilities." (NCTM, 2024, **http://www.nctm.org**.)*

HIGH EXPECTATIONS

The MDE strongly advocates for maintaining high expectations in mathematics education by fostering mathematical communities focused on ensuring all students have access to challenging tasks and curricula that emphasize reasoning, problem-solving, and real-world applications.

Students bring diverse mathematical understandings and backgrounds to the classroom, which can be leveraged to enhance learning for all. These differences highlight individual strengths in various mathematical problems and topics, supporting their identity as accomplished learners. To maintain high expectations, it is essential to foster classroom experiences that create a mathematical community—one focused on problem-solving, communication, and making sense of mathematics. Engaging students in challenging tasks that require effort and perseverance builds motivation and strengthens their mathematical reasoning and problem-solving skills.

The **High Expectations** Position of the National Council for Teachers of Mathematics (NCTM) states:

> *"To teach mathematics with high expectations means that teachers (1) recognize that each and every student, from prekindergarten through college, is able to solve challenging mathematical tasks successfully; (2) build in each student a positive mathematical identity and a sense of agency; (3) design instruction that builds on students' prior knowledge and experiences; (4) teach in ways that ensure that each and every student is reasoning and making sense of mathematics on a daily basis; and (5) reflect on ways that tasks and teaching can be improved to provide greater access, challenge, and support for every learner. " (NCTM, 2016,* **http://www.nctm.org**.*)*

PROCEDURAL FLUENCY: REASONING AND DECISION-MAKING, NOT ROTE APPLICATION OF PROCEDURES

The MDE emphasizes the importance of the effective development of procedural fluency. Procedural fluency is the ability to apply mathematical procedures efficiently, flexibly, and accurately, transfer them to different contexts, and recognize when a particular strategy is more appropriate. It goes beyond simple memorization of algorithms and includes relational thinking and strategic reasoning. Ensuring that conceptual understanding precedes procedural instruction and that both are explicitly connected meaningfully is crucial. Students should be exposed to various strategies and taught basic facts using number relationships rather than rote memorization. Effective assessment methods attend to efficiency and flexibility, avoiding timed tests that may hinder students. High-quality teaching of procedural fluency positions students as capable learners with reasoning and decision-making skills at the core, fostering mathematical agency.

The **Procedural Fluency: Reasoning and Decision-Making, Not Rote Application of Procedures** Position of the National Council for Teachers of Mathematics (NCTM) states:

> “Procedural fluency is an essential component of equitable teaching and is necessary to developing mathematical proficiency and mathematical agency. Each and every student must have access to teaching that connects concepts to procedures, explicitly develops a reasonable repertoire of strategies and algorithms, provides substantial opportunities for students to learn to choose from among the strategies and algorithms in their repertoire, and implements assessment practices that attend to all components of fluency." *(NCTM, 2023,* ***http://www.nctm.org****.)*

CURRICULAR COHERENCE

The Mississippi Department of Education (MDE) strongly advocates for the adoption and implementation of a high-quality mathematics curriculum in all schools.

A well-articulated, high-quality, and coherent mathematics curriculum is essential for establishing clear learning goals, supporting teachers in understanding students' pathways through mathematical progressions, and fostering conceptual understanding. As described in *Principles and Standards for School Mathematics* (NCTM, 2000), such a curriculum emphasizes the development of key mathematical ideas across grades, specifying when concepts and skills should be introduced and mastered. High-quality curricula situate mathematics in problem-solving contexts, promoting students' understanding and reasoning while linking topics within and across mathematical domains to present mathematics as a unified discipline. Schools, districts, and publishers play a critical role by providing resources, professional learning communities (PLCs), and time for collaboration, ensuring teachers can adopt consistent instructional strategies, assessments, and tools that create a cohesive learning environment with clear and consistent expectations for all students.

The **Curriculum Coherence and Open Education Resources** Position of the National Council for Teachers of Mathematics (NCTM) states:

> *"A coherent, well-articulated curriculum is an essential tool for guiding teacher collaboration, goal-setting, analysis of student thinking, and implementation. In a time when open educational resources are increasingly available, it is imperative that teachers be provided with curricular materials that clearly lay out well-reasoned organizations of student learning progressions with regard to mathematical content and reasoning. " (NCTM, 2016,* ***http://www.nctm.org****.)*

EQUITABLE INTEGRATION OF TECHNOLOGY FOR MATHEMATICS

The MDE strongly advocates for the use of technology in all mathematics classrooms and recognizes its pivotal role in advancing mathematics education. It enables students to identify, interpret, evaluate, and critique the mathematics embedded in various social, scientific, commercial, and political contexts. Technology influences the mathematics that is taught and enhances students' learning.

As a catalyst for change and innovation, technological advancements allow for the creation of mathematical models and the exploration of large data sets, fundamentally transforming how mathematics is taught and learned. It is essential that these technological developments are thoughtfully integrated into mathematics programs and classrooms to keep the focus on effective and meaningful student learning experiences.

The appropriate use of instructional technology is to be integrated throughout the 2025 Mississippi College- and Career-Readiness Standards for Mathematics. Teaching strategies at each grade level course incorporate technology in the form of instructional software, physical or virtual manipulatives, online resources, and calculators in grades 6-12.

The **Equitable Integration of Technology for Mathematics Learning** Position of the National Council for Teachers of Mathematics (NCTM) states:

> *" Using the capabilities of technology is essential for educators and learners to inform and transform how they learn, experience, communicate, assess, and do mathematics. Technology should be used to develop and deepen learner understanding, stimulate interest in the mathematics being learned, and increase mathematical proficiency. When technology is used strategically, it provides more equitable access and opportunities for each and every learner to actively engage and participate in the learning of mathematics."*
> *(NCTM, 2023,* ***http://www.nctm.org****.)*

ARTIFICIAL INTELLIGENCE AND MATHEMATICS TEACHING

The MDE strongly advocates for the equitable integration of technology in all mathematics classrooms. With widely available technology tools, it is crucial for educators to consider the capabilities, benefits, risks, and ethical ramifications associated with using Artificial Intelligence (AI).

Historical context shows that mathematics educators have long grappled with the integration of knowledge-generating tools like calculators and search engines, and now AI tools. While these tools offer computational assistance, they do not replace the need for teaching math fundamentals and problem-solving skills. AI outputs can be biased or inaccurate, so it is crucial to educate students on verifying and using primary sources. The use of AI tools encourages a shift from shallow assessments to those that blend computational skills with creative problem solving, emphasizing a deeper understanding of mathematical concepts. AI tools can also facilitate personalized learning by reducing the need for creating multiple test versions, streamlining the assessment process while maintaining focus on core learning goals.

The **Artificial Intelligence and Mathematics Teaching** Position of the National Council for Teachers of Mathematics (NCTM) states:

> *" Artificial Intelligence (AI)-driven tools can respond to students' thinking and interests in ways that previous tools could not. By drawing from large language sets, AI has the potential to adjust application-based problems to student interests and identify the sense students have made even in their incorrect answers. Students will continue to need teachers' mathematical, pedagogical, and relational expertise, though teachers are also likely to benefit from AI-driven tools. In some cases, AI may serve as a teaching assistant, but students will need teachers to help them create a bridge between prior knowledge, new knowledge, and shared knowledge. Teachers must tell students to be very skeptical about AI results, especially about the unique challenges of using tools that may have been trained on biased datasets. This skepticism can be woven into existing pedagogical and assessment techniques. Knowing this, educators need to be involved in developing and testing AI tools in math education to stay up to date with current AI trends to best prepare students for an AI future. Contrary to some popular opinions, this effort will require teachers with even deeper knowledge of math instruction and assessment—math teachers with more experience, not less.." (NCTM, 2024,* ***http://www.nctm.org****.)*

DOCUMENT ORGANIZATION

The MS CCRS encompass all currently available mathematics course options for grades K–12 and is organized into grade bands: Lower and Upper Elementary (K–5), Middle School (6–8), and High School (9–12).

- **For grades K–8**, the standards are grouped by **conceptual domains**, which are further broken down into smaller clusters.
- **For high school**, the standards are organized by **major conceptual categories**, which are then divided into domains and clusters.

To provide a visual reference, the conceptual domains and categories are color-coded to highlight the progression of content across grades K–12. *Refer to the Mathematics Concept Progression Diagram on page 31*.

The domains and conceptual categories for each grade level are as follows:

- **Grade K:** Counting and Cardinality
- **Grades K–5:** Operations and Algebraic Thinking; Numbers and Operations in Base Ten; Numbers and Operations—Fractions (Grades 3–5); Measurement and Data
- **Grades 6–8:** Ratios and Proportional Relationships (Grades 6–7); The Number System; Expressions and Equations; Geometry; Statistics and Probability; Functions (Grade 8)
- **High School (Grades 9-12):** Number and Quantity; Algebra; Functions; Modeling; Geometry; Statistics and Probability

The following two pages provide guidance on **how to read the standards**, offering clarity for interpretation. After the standards, the appendices include a **Glossary**, **Tables**, and **Additional Resources**.

HOW TO READ K-8 GRADE LEVEL STANDARDS

Conceptual Domain[1]

Standard Identifier

- Grade Level
- Conceptual Domain
- Standard Number

Cluster Heading[2]

Standards Cluster[2]

Standards[3]

Footnote[4]

COUNTING AND CARDINALITY (CC)	
MS CCR STANDARD IDENTIFIER ▼	MS CCR STANDARD ▼
KNOW NUMBER NAMES AND THE COUNT SEQUENCE	
K.CC.1	a. Count to 100 by ones. b. Count to 100 by tens.
K.CC.2	Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
K.CC.3	Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).
COUNT TO TELL THE NUMBER OF OBJECTS	
K.CC.4	Understand the relationship between numbers and quantities; connect counting to cardinality. a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted. c. Understand that each successive number name refers to a quantity that is one larger.
K.CC.5	Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.
COUNT TO TELL THE NUMBER OF OBJECTS	
K.CC.6	Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.[1]
K.CC.7	Compare two numbers between 1 and 20 presented as written numerals.

[1] Conceptual domains are larger groups of related standards. Standards from different domains may sometimes be closely related.

[2] Clusters are groups of related standards within a domain. Note that standards from different clusters may sometimes be closely related, because mathematics is a connected subject.

[3] Standards define what students should understand and be able to do.

[4] Footnotes provide additional information or clarification about specific standards or concepts. They often include explanations, examples, or references to related standards to support deeper understanding or application.

These Standards do not dictate curriculum or teaching methods. *For example, just because topic A appears before topic B in the standards for a given grade, does not necessarily mean that topic A must be taught before topic B.*

HOW TO READ HIGH SCHOOL COURSE STANDARDS

Conceptual Category [1]

Conceptual Domain [2]

Standard Identifier [5]

- Conceptual Category
- Conceptual Domain
- Standard Number

Cluster Heading [3]

Standards Cluster [3]

Standards [4]

Modeling Standards [6]

NUMBER AND QUANTITY	
MS CCR STANDARD IDENTIFIER ▼	MS CCR STANDARD ▼
THE REAL NUMBER SYSTEM (N-RN)	
USE PROPERTIES OF RATIONAL AND IRRATIONAL NUMBERS	
N-RN.3	Explain why: • the sum or product of two rational numbers is rational; • the sum of a rational number and an irrational number is irrational; and • the product of a nonzero rational number and an irrational number is irrational.
QUANTITIES (N-Q) *	
REASON QUANTITATIVELY AND USE UNITS TO SOLVE PROBLEMS	
N-Q.1	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. *
N-Q.2	Define appropriate quantities for the purpose of descriptive modeling. * [Refer to *Quantities* section of the High School *Number and Quantity* Conceptual Category in the previous pages of this document.]
N-Q.3	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. *

[1] Conceptual categories portray a coherent view of high school mathematics and cross a number of traditional course boundaries, potentially up through and including calculus.

[2] Conceptual domains are larger groups of related standards within a conceptual category. Standards from different conceptual domains may sometimes be closely related.

[3] Clusters are groups of related standards within a domain. Note that standards from different clusters may sometimes be closely related because mathematics is a connected subject.

[4] Standards define what students should understand and be able to do.

[5] Standards Identifiers for courses Foundations of Algebra, Advanced Technical Math, Advanced Mathematics Plus, and Calculus follow the identification of **Course Name.Conceptual Category.Standard Number** (*i.e., the Calculus course, Conceptual Category Algebra, standard one would read as C.A.1*).

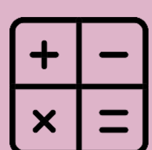
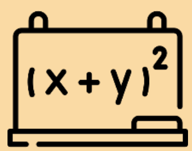
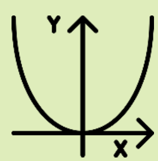
[6] Modeling Standards appear throughout the high school standards indicated by a star symbol (*). The star symbol sometimes appears on the heading for a group of standards; in that case, it should be understood to apply to all standards in that group.

These Standards do not dictate curriculum or teaching methods. *For example, just because topic A appears before topic B in the standards for a given grade, does not necessarily mean that topic A must be taught before topic B.*

MATHEMATICS CONCEPTUAL PROGRESSION

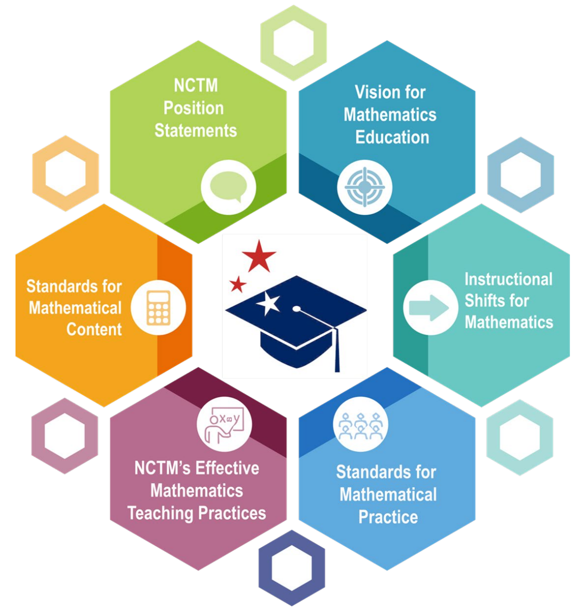
<table>
<tr><th colspan="9">KINDERGARTEN-GRADE EIGHT DOMAINS</th></tr>
<tr><th>K</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th></tr>
<tr><td>Counting and Cardinality (CC)</td><td colspan="8"></td></tr>
<tr><td colspan="6">Number and Operations in Base Ten (NBT)</td><td colspan="2">Ratios and Proportional Relationships (RP)</td><td></td></tr>
<tr><td colspan="3"></td><td colspan="3">Number and Operations – Fractions (NF)</td><td colspan="3">The Number System (NS)</td></tr>
<tr><td colspan="6" rowspan="2">Operations and Algebraic Thinking (OA)</td><td colspan="3">Expressions and Equations (EE)</td></tr>
<tr><td colspan="2"></td><td>Functions (F)</td></tr>
<tr><td colspan="6">Geometry (G)</td><td colspan="3">Geometry (G)</td></tr>
<tr><td colspan="6">Measurement and Data (MD)</td><td colspan="3">Statistics and Probability (SP)</td></tr>
</table>

HIGH SCHOOL CONCEPTUAL CATEGORIES

Number and Quantity (NQ)	Algebra (A)	Functions (F)	Geometry (G)	Statistics and Probability (SP)
				

Lower & Upper

Elementary School



▶ Grades K-5

CCR KINDERGARTEN

In Kindergarten, instruction should focus on two critical areas: (1) representing, relating, and operating on whole numbers- initially with sets of objects; and (2) describing shapes and space. More learning time in Kindergarten should be devoted to number than to other topics. Each critical area is described below.

(1) Students use numbers, including written numerals, to represent quantities and to solve quantitative problems, such as counting objects in a set; counting out a given number of objects; comparing sets or numerals; and modeling simple joining and separating situations with sets of objects, or eventually with equations such as 5 + 2 = 7 and 7 – 2 = 5. (Kindergarten students should see addition and subtraction equations, and student writing of equations in kindergarten is encouraged, but it is not required.) Students choose, combine, and apply effective strategies for answering quantitative questions, including quickly recognizing the cardinalities of small sets of objects, counting and producing sets of given sizes, counting the number of objects in combined sets, or counting the number of objects that remain in a set after some are taken away.

(2) Students describe their physical world using geometric ideas (e.g., shape, orientation, spatial relations) and vocabulary. They identify, name, and describe basic two-dimensional shapes, such as squares, triangles, circles, rectangles, and hexagons, presented in a variety of ways (e.g., with different sizes and orientations), as well as three-dimensional shapes such as cubes, cones, cylinders, and spheres. They use basic shapes and spatial reasoning to model objects in their environment and to construct more complex shapes.

The content of this grade level is centered on the mathematics domains of **Counting and Cardinality** (Grade K), **Operations and Algebraic Thinking** (Grades K-5), **Numbers and Operations in Base Ten** (Grades K-5), **Measurement and Data** (Grades K-5), and **Geometry** (Grades K-8). Instruction in these domains should be designed to expose students to experiences that reflect the value of mathematics, enhance students' confidence in their ability to do mathematics and help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
K.SMP.1	Make sense of problems and persevere in solving them.
K.SMP.2	Reason abstractly and quantitatively.
K.SMP.3	Construct viable arguments and critique the reasoning of others.
K.SMP.4	Model with mathematics.
K.SMP.5	Use appropriate tools strategically.
K.SMP.6	Attend to precision.
K.SMP.7	Look for and make use of structure.
K.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

COUNTING AND CARDINALITY (CC)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
KNOW NUMBER NAMES AND THE COUNT SEQUENCE	
K.CC.1	a. Count to 100 by ones. b. Count to 100 by tens.
K.CC.2	Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
K.CC.3	Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).
COUNT TO TELL THE NUMBER OF OBJECTS	
K.CC.4	Understand the relationship between numbers and quantities; connect counting to cardinality. a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted. c. Understand that each successive number name refers to a quantity that is one larger.
K.CC.5	Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.
COMPARE NUMBERS	
K.CC.6	Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.[1]
K.CC.7	Compare two numbers between 1 and 20 presented as written numerals.

OPERATIONS AND ALGEBRAIC THINKING (OA)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
UNDERSTAND ADDITION AS PUTTING TOGETHER AND ADDING TO, AND UNDERSTAND SUBTRACTION AS TAKING APART AND TAKING FROM	
K.OA.1	Represent addition and subtraction, *in which all parts and whole of the problem are within 10*, with objects, fingers, mental images, drawings[2], sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
K.OA.2	Solve addition and subtraction word problems *within 10 involving situations of adding to, taking from, putting together and taking apart with unknowns in all positions* by using objects or drawings to represent the problem.
K.OA.3	Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1).
K.OA.4	For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.
K.OA.5	a. ***FLUENTLY*** add within 5. b. ***FLUENTLY*** subtract within 5.

NUMBER AND OPERATIONS IN BASE TEN (NBT)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
WORK WITH NUMBERS 11-19 TO GAIN FOUNDATIONS FOR PLACE VALUE	
K.NBT.1	Compose and decompose numbers from 11 to 19 into ten ones and some further ones to understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., 18 = 10 + 8).

MEASUREMENT AND DATA (MD)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
DESCRIBE AND COMPARE MEASURABLE ATTRIBUTES	
K.MD.1	Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
K.MD.2	Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. *For example, directly compare the heights of two children and describe one child as taller/shorter.*
CLASSIFY OBJECTS AND COUNT THE NUMBER OF OBJECTS IN EACH CATEGORY	
K.MD.3	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.[3]

GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
IDENTIFY AND DESCRIBE SHAPES (SQUARES, CIRCLES, TRIANGLES, RECTANGLES, HEXAGONS, CUBES, CONES, CYLINDERS, AND SPHERES)	
K.G.1	Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above, below, beside, in front of, behind,* and *next to*.
K.G.2	Correctly name shapes regardless of their orientations or overall size.
K.G.3	Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").
ANALYZE, COMPARE, CREATE, AND COMPOSE SHAPES	
K.G.4	Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).
K.G.5	Model objects in the world by drawing two-dimensional shapes and building three-dimensional shapes.
K.G.6	Compose simple shapes to form larger shapes. For example, *"Can you join these two triangles with full sides touching to make a rectangle?"*

NOTES

[1] Include groups with up to ten objects.

[2] Drawings need not show details, but should show the mathematics in the problem. (This applies wherever drawings are mentioned in the Standards.)

[3] Limit category counts to be less than or equal to 10.

CCR MATH GRADE 1

In Grade 1, instruction should focus on four critical areas: (1) developing understanding of addition, subtraction, and strategies for addition and subtraction within 20; (2) developing understanding of whole number relationships and place value, including grouping in tens and ones; (3) developing understanding of linear measurement and measuring lengths as iterating length units; and (4) reasoning about attributes of, and composing and decomposing geometric shapes. Each critical area is described below.

(1) Students develop strategies for adding and subtracting whole numbers based on their prior work with small numbers. They use a variety of models, including discrete objects and length-based models (e.g., cubes connected to form lengths), to model add-to, take-from, put-together, take-apart, and compare situations to develop meaning for the operations of addition and subtraction, and to develop strategies to solve arithmetic problems with these operations. Students understand connections between counting and addition and subtraction (e.g., adding two is the same as counting on two). They use properties of addition to add whole numbers and to create and use increasingly sophisticated strategies based on these properties (e.g., "making tens") to solve addition and subtraction problems within 20. By comparing a variety of solution strategies, children build their understanding of the relationship between addition and subtraction.

(2) Students develop, discuss, and use efficient, accurate, and generalizable methods to add within 100 and subtract multiples of 10. They compare whole numbers (at least to 100) to develop understanding of and solve problems involving their relative sizes. They think of whole numbers between 10 and 100 in terms of tens and ones (especially recognizing the numbers 11 to 19 as composed of a ten and some ones). Through activities that build number sense, they understand the order of the counting numbers and their relative magnitudes.The content of this document is centered on the mathematics domains of Counting and Cardinality (Grade K), Operations and Algebraic Thinking; Numbers and Operations in Base Ten (Grades K-5); Numbers and Operations—Fractions (Grades 3-5); Measurement and Data (Grades K-5); Ratios and Proportional Relationships (Grades 67); the Number System, Expressions & Equations, Geometry, Statistics & Probability (Grades 6-8); Functions (Grade 8), and the high school conceptual categories of Number and Quantity, Algebra, Functions, Modeling, Geometry, and Statistics & Probability. Instruction in these domains and conceptual categories should be designed to expose students to experiences, which reflect the value of mathematics, to enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

(3) Students develop an understanding of the meaning and processes of measurement, including underlying concepts such as iterating (the mental activity of building up the length of an object with equal-sized units) and the transitivity principle for indirect measurement.[1]

(4) Students compose and decompose plane or solid figures (e.g., put two triangles together to make a quadrilateral) and build understanding of part-whole relationships as well as the properties of the original and composite shapes. As they combine shapes, they recognize them from different perspectives and orientations, describe their geometric attributes, and determine how they are alike and different, to develop the background for measurement and for initial understandings of properties such as congruence and symmetry.

The content within this grade level is centered on the mathematics domains of **Operations and Algebraic Thinking** (Grades K-5), **Numbers and Operations in Base Ten** (Grades K-5), **Measurement and Data** (Grades K-5), and **Geometry** (Grades K-8). Instruction in these domains should be designed to expose students to experiences that reflect the value of mathematics, enhance students' confidence in their ability to do mathematics and help students communicate and reason mathematically.

[1] Students should apply the principle of transitivity of measurement to make indirect comparisons, but they need not use this technical term.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
1.SMP.1	Make sense of problems and persevere in solving them.
1.SMP.2	Reason abstractly and quantitatively.
1.SMP.3	Construct viable arguments and critique the reasoning of others.
1.SMP.4	Model with mathematics.
1.SMP.5	Use appropriate tools strategically.
1.SMP.6	Attend to precision.
1.SMP.7	Look for and make use of structure.
1.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

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OPERATIONS AND ALGEBRAIC THINKING (OA)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
REPRESENT AND SOLVE PROBLEMS INVOLVING ADDITION AND SUBTRACTION	
1.OA.1	Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, *e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem*.[2]
1.OA.2	Solve word problems that call for the addition of three whole numbers whose sum is less than or equal to 20, *e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.*
UNDERSTAND AND APPLY PROPERTIES OF OPERATIONS AND THE RELATIONSHIP BETWEEN ADDITION AND SUBTRACTION	
1.OA.3	Apply properties of operations as strategies to add and subtract.[3] *Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.)*
1.OA.4	Understand subtraction as an unknown-addend problem. *For example, subtract 10 – 8 by finding the number that makes 10 when added to 8.*
ADD AND SUBTRACT WITHIN 20	
1.OA.5	Relate counting to addition and subtraction (*e.g., by counting on 2 to add 2*).
1.OA.6	Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (*e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14*); decomposing a number leading to a ten (*e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9*); using the relationship between addition and subtraction (*e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4*); and creating equivalent but easier or known sums (*e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13*).

OPERATIONS AND ALGEBRAIC THINKING (OA)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
WORK WITH ADDITION AND SUBTRACTION EQUATIONS	
1.OA.7	Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 – 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.*
1.OA.8	Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = □ – 3, 6 + 6 = □.*

NUMBER AND OPERATIONS IN BASE TEN (NBT)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
EXTEND THE COUNTING SEQUENCE	
1.NBT.1	Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
UNDERSTAND PLACE VALUE	
1.NBT.2	Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: a. 10 can be thought of as a bundle of ten ones — called a "ten." b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, and 90 refer to one, two, three, four, five, six, seven,

NUMBER AND OPERATIONS IN BASE TEN (NBT)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
	eight, or nine tens (and 0 ones).
1.NBT.3	Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.
USE PLACE VALUE UNDERSTANDING AND PROPERTIES OF OPERATIONS TO ADD AND SUBTRACT	
1.NBT.4	Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.
1.NBT.5	Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.
1.NBT.6	Subtract multiples of 10 in the range 10–90 from multiples of 10 in the range 10–90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

MEASUREMENT AND DATA (MD)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
MEASURE LENGTHS INDIRECTLY AND BY ITERATING LENGTH UNITS	
1.MD.1	Order three objects by length; compare the lengths of two objects indirectly by using a third object.
1.MD.2	Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps*.
TELL AND WRITE TIME WITH RESPECT TO A CLOCK AND A CALENDAR	
1.MD.3a	Tell and write time in hours and half hours using analog and digital clocks.
1.MD.3b	Identify the days of the week and the number of days in a week.
1.MD.3c	Identify the months of the year, the number of months in a year, and the number of weeks in a month.
REPRESENT AND INTERPRET DATA	
1.MD.4	Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.
WORK WITH MONEY	
1.MD.5a	Identify the value of all U.S. coins (penny, nickel, dime, quarter, half-dollar, and dollar coins). Use appropriate cent and dollar notation (*e.g., 25¢, $1*).
1.MD.5b	Know the comparative values of all U.S. coins (*e.g., a dime is of greater value than a nickel*).
1.MD.5c	Count like U.S. coins up to the equivalent of a dollar.

MEASUREMENT AND DATA (MD)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
1.MD.5d	Find the equivalent value for all greater value U.S. coins using like-value smaller coins (*e.g., 5 pennies equal 1 nickel; 10 pennies equal a dime, but not 1 nickel, and 5 pennies equal 1 dime*).

GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
REASON WITH SHAPES AND THEIR ATTRIBUTES	
1.G.1	Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.
1.G.2	Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.[4]
1.G.3	Partition circles and rectangles into two and four equal shares; describe the shares using the words *halves*, *fourths*, and *quarters*, and use the phrases *half of*, *fourth of*, and *quarter of*. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.

NOTES

[2] See Glossary, Table 1.

[3] Students need not use formal terms for these properties.

[4] Students do not need to learn formal names such as "right rectangular prism."

CCR MATH GRADE 2

In Grade 2, instruction should focus on four critical areas: (1) extending understanding of base-ten notation; (2) building fluency with addition and subtraction; (3) using standard units of measure; and (4) describing and analyzing shapes. Each critical area is described below.

(1) Students extend their understanding of the base-ten system. This includes ideas of counting in fives, tens, and multiples of hundreds, tens, and ones, as well as number relationships involving these units, including comparing. Students understand multi-digit numbers (up to 1000) written in base-ten notation, recognizing that the digits in each place represent amounts of thousands, hundreds, tens, or ones (e.g., 853 is 8 hundreds + 5 tens + 3 ones).

(2) Students use their understanding of addition to develop fluency with addition and subtraction within 100. They solve problems within 1000 by applying their understanding of models for addition and subtraction, and they develop, discuss, and use efficient, accurate, and generalizable methods to compute sums and differences of whole numbers in base-ten notation, using their understanding of place value and the properties of operations. They select and accurately apply methods that are appropriate for the context and the numbers involved to mentally calculate sums and differences for numbers with only tens or only hundreds.

(3) Students recognize the need for standard units of measure (centimeter and inch) and they use rulers and other measurement tools with the understanding that linear measure involves an iteration of units. They recognize that the smaller the unit, the more iterations they need to cover a given length.

(4) Students describe and analyze shapes by examining their sides and angles. Students investigate, describe, and reason about decomposing and combining shapes to make other shapes. Through building, drawing, and analyzing two- and three-dimensional shapes, students develop a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades.

The content within this grade level is centered on the mathematics domains of **Operations and Algebraic Thinking** (Grades K-5), **Numbers and Operations in Base Ten** (Grades K-5), **Measurement and Data** (Grades K-5), and **Geometry** (Grades K-8). Instruction in these domains should be designed to expose students to experiences that reflect the value of mathematics, enhance students' confidence in their ability to do mathematics and help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
2.SMP.1	Make sense of problems and persevere in solving them.
2.SMP.2	Reason abstractly and quantitatively.
2.SMP.3	Construct viable arguments and critique the reasoning of others.
2.SMP.4	Model with mathematics.
2.SMP.5	Use appropriate tools strategically.
2.SMP.6	Attend to precision**.**
2.SMP.7	Look for and make use of structure.
2.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

OPERATIONS AND ALGEBRAIC THINKING (OA)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
REPRESENT AND SOLVE PROBLEMS INVOLVING ADDITION AND SUBTRACTION	
2.OA.1	Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.[1]
ADD AND SUBTRACT WITHIN 20	
2.OA.2	Fluently add and subtract within 20 using mental strategies[2]. By end of Grade 2, know from memory all sums of two one-digit numbers.
WORK WITH EQUAL GROUPS OF OBJECTS TO GAIN FOUNDATIONS FOR MULTIPLICATION	
2.OA.3	Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.
2.OA.4	Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.

NUMBER AND OPERATIONS IN BASE TEN (NBT)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
UNDERSTAND PLACE VALUE	
2.NBT.1	Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; *e.g., 706 equals 7 hundreds, 0 tens, and 6 ones*. Understand the following as special cases: a. 100 can be thought of as a bundle of ten tens — called a "hundred." b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).
2.NBT.2	Count within 1000; skip-count by 5s starting at any number ending in 5 or 0. Skip-count by 10s and 100s starting at any number.
2.NBT.3	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
2.NBT.4	Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.
USE PLACE VALUE UNDERSTANDING AND PROPERTIES OF OPERATIONS TO ADD AND SUBTRACT	
2.NBT.5	***Fluently*** add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
2.NBT.6	Add up to four two-digit numbers using strategies based on place value and properties of operations.
2.NBT.7	Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.

NUMBER AND OPERATIONS IN BASE TEN (NBT)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
2.NBT.8	Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.
2.NBT.9	Explain why addition and subtraction strategies work, using place value and the properties of operations.[3]

MEASUREMENT AND DATA (MD)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
MEASURE AND ESTIMATE LENGTHS IN STANDARD UNITS	
2.MD.1	Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
2.MD.2	Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.
2.MD.3	Estimate lengths using units of inches, feet, centimeters, and meters.
2.MD.4	Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard-length unit.
RELATE ADDITION AND SUBTRACTION TO LENGTH	
2.MD.5	Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.

MEASUREMENT AND DATA (MD)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
2.MD.6	Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.
WORK WITH TIME WITH RESPECT TO A CLOCK AND A CALENDAR, AND WORK WITH MONEY	
2.MD.7	Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
2.MD.8a	Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. *Example: If you have 2 dimes and 3 pennies, how many cents do you have?*
2.MD.8b	Fluently use a calendar to answer simple real-world problems such as "*How many weeks are in a year?*" or "*James gets a $5 allowance every 2 months; how much money will he have at the end of each year?*"
REPRESENT AND INTERPRET DATA	
2.MD.9	Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.
2.MD.10	Draw a picture graph and a bar graph (with a single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems[4] using information presented in a bar graph.

GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
REASON WITH SHAPES AND THEIR ATTRIBUTES	
2.G.1	Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.[5] Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.
2.G.2	Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.
2.G.3	Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words *halves, thirds, half of, a third of*, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.

NOTES

[1] See Glossary, Table 1.

[2] See standard 1.OA.6 for a list of mental strategies.

[3] Explanations may be supported by drawings or objects.

[4] See Glossary, Table 1.

[5] Sizes are compared directly or visually, not compared by measuring.

CCR MATH GRADE 3

In Grade 3, instruction should focus on four critical areas: (1) developing an understanding of multiplication and division and strategies for Multiplication and division within 100; (2) developing an understanding of fractions, especially unit fractions (fractions with a numerator of 1); (3) developing an understanding of the structure of rectangular arrays and of area; and (4) describing and analyzing two-dimensional shapes. Each critical area is described below.

(1) Students develop an understanding of the meanings of multiplication and division of whole numbers through activities and problems involving equal-sized groups, arrays, and area models; multiplication is finding an unknown product, and division is finding an unknown factor in these situations. For equal-sized group situations, division can require finding the unknown number of groups or the unknown group size. Students use properties of operations to calculate products of whole numbers, using increasingly sophisticated strategies based on these properties to solve multiplication and division problems involving single-digit factors. By comparing a variety of solution strategies, students learn the relationship between multiplication and division.

(2) Students develop an understanding of fractions, beginning with unit fractions. Students view fractions in general as being built out of unit fractions, and they use fractions along with visual fraction models to represent parts of a whole. Students understand that the size of a fractional part is relative to the size of the whole. For example, 1/2 of the paint in a small bucket could be less paint than 1/3 of the paint in a larger bucket, but 1/3 of a ribbon is longer than 1/5 of the same ribbon because when the ribbon is divided into 3 equal parts, the parts are longer than when the ribbon is divided into 5 equal parts. Students are able to use fractions to represent numbers equal to, less than, and greater than one. They solve problems that involve comparing fractions by using visual fraction models and strategies based on noticing equal numerators or denominators.

(3) Students recognize area as an attribute of two-dimensional regions. They measure the area of a shape by finding the total number of same-size units of area required to cover the shape without gaps or overlaps, a square with sides of unit length being the standard unit for measuring area. Students understand that rectangular arrays can be decomposed into identical rows or into identical columns. By decomposing rectangles into rectangular arrays of squares, students connect area to multiplication, and justify using multiplication to determine the area of a rectangle.

(4) Students describe, analyze, and compare properties of two-dimensional shapes. They compare and classify shapes by their sides and angles, and connect these with definitions of shapes. Students also relate their fraction work to geometry by expressing the area of part of a shape as a unit fraction of the whole.

The content within this grade level is centered on the mathematics domains of **Operations and Algebraic Thinking** (Grades K-5), **Numbers and Operations in Base Ten** (Grades K-5), **Numbers and Operations—Fractions** (Grades 3-5), **Measurement and Data** (Grades K-5), and **Geometry** (Grades K-8). Instruction in these domains should be designed to expose students to experiences that reflect the value of mathematics, enhance students' confidence in their ability to do mathematics and help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
3.SMP.1	Make sense of problems and persevere in solving them.
3.SMP.2	Reason abstractly and quantitatively.
3.SMP.3	Construct viable arguments and critique the reasoning of others.
3.SMP.4	Model with mathematics.
3.SMP.5	Use appropriate tools strategically.
3.SMP.6	Attend to precision.
3.SMP.7	Look for and make use of structure.
3.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

OPERATIONS AND ALGEBRAIC THINKING (OA)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
REPRESENT AND SOLVE PROBLEMS INVOLVING MULTIPLICATION AND DIVISION	
3.OA.1	Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.*
3.OA.2	Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.*
3.OA.3	Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.[1]
3.OA.4	Determine the unknown whole number in a multiplication or division equation relating three whole numbers, with factors 0-10. *For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = ? ÷ 3, 6 × 6 = ?.*
UNDERSTAND PROPERTIES OF MULTIPLICATION AND THE RELATIONSHIP BETWEEN MULTIPLICATION AND DIVISION	
3.OA.5	Apply properties of operations as strategies to multiply and divide.[2] *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)*
3.OA.6	Understand division as an unknown-factor problem, where a remainder does not exist. *For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8 with no remainder.*

OPERATIONS AND ALGEBRAIC THINKING (OA)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
MULTIPLY AND DIVIDE WITHIN 100	
3.OA.7	***Fluently*** multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. Know from memory all products of two one-digit numbers; and fully understand the concept when a remainder does not exist under division.
SOLVE PROBLEMS INVOLVING THE FOUR OPERATIONS, AND IDENTIFY AND EXPLAIN PATTERNS IN ARITHMETIC	
3.OA.8	Solve two-step (two operational steps) word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies, including rounding[3]. Include problems with whole dollar amounts.
3.OA.9	Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*

NUMBER AND OPERATIONS IN BASE TEN (NBT)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
USE PLACE VALUE UNDERSTANDING AND PROPERTIES OF OPERATIONS TO PERFORM MULTI-DIGIT ARITHMETIC[4]	
3.NBT.1	Use place value understanding to round whole numbers to the nearest 10 or 100.
3.NBT.2	***Fluently*** add and subtract (including subtracting across zeros) within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. Include problems with whole dollar amounts.
3.NBT.3	Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.

NUMBER AND OPERATIONS—FRACTIONS[5] (NF)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
DEVELOP UNDERSTANDING OF FRACTIONS AS NUMBERS	
3.NF.1	Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$.
3.NF.2	Understand a fraction as a number on the number line; represent fractions on a number line diagram. a. Represent a fraction $1/b$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $1/b$ and that the endpoint of the part based at 0 locates the number $1/b$ on the number line. b. Represent a fraction a/b on a number line diagram by marking off a lengths $1/b$ from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.

NUMBER AND OPERATIONS—FRACTIONS[5] (NF)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
3.NF.3	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. Recognize that comparisons are valid only when the two fractions refer to the same whole. b. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3. Explain why the fractions are equivalent, e.g., by using a visual fraction model. c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.* d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

MEASUREMENT AND DATA (MD)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
SOLVE PROBLEMS INVOLVING MEASUREMENT AND ESTIMATION OF INTERVALS OF TIME, LIQUID VOLUMES, AND MASSES OF OBJECTS	
3.MD.1	Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.
3.MD.2	Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).[6] Add, subtract, multiply, or divide to solve one- step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.[7]
REPRESENT AND INTERPRET DATA	
3.MD.3	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*
3.MD.4	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.
GEOMETRIC MEASUREMENT: UNDERSTAND CONCEPTS OF AREA AND RELATE AREA TO MULTIPLICATION AND TO ADDITION	
3.MD.5	Recognize area as an attribute of plane figures and understand concepts of area measurement. a. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area. b. A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.

MEASUREMENT AND DATA (MD)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
3.MD.6	Measure areas by counting unit squares (square *cm*, square *m*, square *in*, square *ft*, and improvised units).
3.MD.7	Relate area to the operations of multiplication and addition. a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. b. Multiply side lengths to find areas of rectangles with whole-number side lengths (where factors can be between 1 and 10, inclusively) in the context of solving real-world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning. c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning. d. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real-world problems. Recognize area as additive.
GEOMETRIC MEASUREMENT: RECOGNIZE PERIMETER AS AN ATTRIBUTE OF PLANE FIGURES AND DISTINGUISH BETWEEN LINEAR AND AREA MEASURES	
3.MD.8	Solve real-world and mathematical problems involving perimeters of polygons, including: finding the perimeter given the side lengths, finding an unknown side length, and exhibiting (including, but not limited to: modeling, drawing, designing, and creating) rectangles with the same perimeter and different areas or with the same area and different perimeters.

GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
REASON WITH SHAPES AND THEIR ATTRIBUTES	
3.G.1	Understand that shapes in different categories (e.g., rhombuses, rectangles, circles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.
3.G.2	Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape*.

NOTES

[1] See Glossary, Table 2.

[2] Students need not use formal terms for these properties.

[3] This standard is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations).

[4] A range of algorithms may be used.

[5] Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.

[6] Excludes compound units such as cm^3 and finding the geometric volume of a container.

[7] Excludes multiplicative comparison problems (problems involving notions of “times as much”; see Glossary, Table 2).

CCR MATH GRADE 4

In Grade 4, instruction should focus on three critical areas: (1) developing understanding and fluency with multi-digit multiplication, and developing understanding of dividing to find quotients involving multi-digit dividends; (2) developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers; and (3) understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry. Each critical area is described below.

(1) Students generalize their understanding of place value to 1,000,000, understanding the relative sizes of numbers in each place. They apply their understanding of models for multiplication (equal-sized groups, arrays, and area models), place value, and properties of operations, in particular the distributive property, as they develop, discuss, and use efficient, accurate, and generalizable methods to compute products of multi-digit whole numbers. Depending on the numbers and the context, they select and accurately apply appropriate methods to estimate or mentally calculate products. They develop fluency with efficient procedures for multiplying whole numbers; understand and explain why the procedures work based on place value and properties of operations; and use them to solve problems. Students apply their understanding of models for division, place value, properties of operations, and the relationship of division to multiplication as they develop, discuss, and use efficient, accurate, and generalizable procedures to find quotients involving multi-digit dividends. They select and accurately apply appropriate methods to estimate and mentally calculate quotients, and interpret remainders based upon the context.

(2) Students develop understanding of fraction equivalence and operations with fractions. They recognize that two different fractions can be equal (e.g., 15/9 = 5/3), and they develop methods for generating and recognizing equivalent fractions. Students extend previous understandings about how fractions are built from unit fractions, composing fractions from unit fractions, decomposing fractions into unit fractions, and using the meaning of fractions and the meaning of multiplication to multiply a fraction by a whole number.

(3) Students describe, analyze, compare, and classify two-dimensional shapes. Through building, drawing, and analyzing two-dimensional shapes, students deepen their understanding of properties of two-dimensional objects and the use of them to solve problems involving symmetry.

The content within this grade level is centered on the mathematics domains of **Operations and Algebraic Thinking** (Grades K-5), **Numbers and Operations in Base Ten** (Grades K-5), **Numbers and Operations—Fractions** (Grades 3-5), **Measurement and Data** (Grades K-5), and **Geometry** (Grades K-8). Instruction in these domains should be designed to expose students to experiences that reflect the value of mathematics, enhance students' confidence in their ability to do mathematics and help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
4.SMP.1	Make sense of problems and persevere in solving them.
4.SMP.2	Reason abstractly and quantitatively.
4.SMP.3	Construct viable arguments and critique the reasoning of others.
4.SMP.4	Model with mathematics.
4.SMP.5	Use appropriate tools strategically.
4.SMP.6	Attend to precision.
4.SMP.7	Look for and make use of structure.
4.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

OPERATIONS AND ALGEBRAIC THINKING (OA)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
USE THE FOUR OPERATIONS WITH WHOLE NUMBERS TO SOLVE PROBLEMS	
4.OA.1	Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
4.OA.2	Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.[1]
4.OA.3	Solve multistep (two or more operational steps) word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies, including rounding.
GAIN FAMILIARITY WITH FACTORS AND MULTIPLES	
4.OA.4	Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.
GENERATE AND ANALYZE PATTERNS	
4.OA.5	Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*

NUMBER AND OPERATIONS IN BASE TEN[2] (NBT)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
GENERALIZE PLACE VALUE UNDERSTANDING FOR MULTI-DIGIT WHOLE NUMBERS	
4.NBT.1	Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. *For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division.*
4.NBT.2	Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.
4.NBT.3	Use place value understanding to round multi-digit whole numbers to any place.
USE PLACE VALUE UNDERSTANDING AND PROPERTIES OF OPERATIONS TO PERFORM MULTI-DIGIT ARITHMETIC	
4.NBT.4	***Fluently*** add and subtract (including subtracting across zeros) multi-digit whole numbers using the standard algorithm.
4.NBT.5	Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
4.NBT.6	Find whole-number quotients and remainders with up to four-digit dividends and one- digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

NUMBER AND OPERATIONS—FRACTIONS[3] (NF)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
EXTEND UNDERSTANDING OF FRACTION EQUIVALENCE AND ORDERING	
4.NF.1	Recognizing that the value of "n" cannot be 0, explain why a fraction a/b is equivalent to a fraction (n × a)/(n × b) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.
4.NF.2	Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.
BUILD FRACTIONS FROM UNIT FRACTIONS BY APPLYING AND EXTENDING PREVIOUS UNDERSTANDINGS OF OPERATIONS ON WHOLE NUMBERS	
4.NF.3	Understand a fraction *a/b* with *a* > 1 as a sum of fractions 1/*b*. a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model (including, but not limited to: concrete models, illustrations, tape diagram, number line, area model, etc.). *Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.* c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.

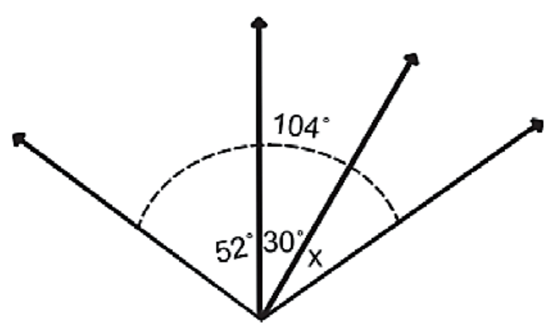
NUMBER AND OPERATIONS—FRACTIONS[3] (NF)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
4.NF.4	Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. a. Understand a fraction *a/b* as a multiple of *1/b*. *For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).* b. Understand a multiple of *a/b* as a multiple of *1/b*, and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.)* c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. *For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers do you expect your answer to lie?*
UNDERSTAND DECIMAL NOTATION FOR FRACTIONS, AND COMPARE DECIMAL FRACTIONS	
4.NF.5	Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.[4] *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.*
4.NF.6	Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram*.
4.NF.7	Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.

MEASUREMENT AND DATA (MD)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
SOLVE PROBLEMS INVOLVING MEASUREMENT AND CONVERSION OF MEASUREMENTS FROM A LARGER UNIT TO A SMALLER UNIT	
4.MD.1	Know relative sizes of measurement units within one system of units including km, m, cm, mm; kg, g, mg; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. *For example, know that 1 ft is 12 times as long as 1in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36),…*
4.MD.2	Use the four operations to solve word problems involving • intervals of time • money • distances • liquid volumes • masses of objects including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.
4.MD.3	Apply the area and perimeter formulas for rectangles in real-world and mathematical problems. *For example, find the width of a rectangular room, given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor*.
REPRESENT AND INTERPRET DATA	
4.MD.4	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*

MEASUREMENT AND DATA (MD)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
GEOMETRIC MEASUREMENT: UNDERSTAND CONCEPTS OF ANGLE AND MEASURE ANGLES	
4.MD.5	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a “one-degree angle,” and can be used to measure angles. b. An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.
4.MD.6	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
4.MD.7	Recognize angle measure as additive. When an angle is decomposed into non- overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure. *Example: Find the missing angle using an equation.* 

GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
DRAW AND IDENTIFY LINES AND ANGLES, AND CLASSIFY SHAPES BY PROPERTIES OF THEIR LINES AND ANGLES	
4.G.1	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
4.G.2	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Categorize triangles by sides and angles (equilateral, isosceles, right, and scalene).
4.G.3	Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

NOTES

[1] See Glossary, Table 2.
[2] Grade 4 expectations in this domain are limited to whole numbers less than or equal l to 1,000,000.
[3] Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.
[4] Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.

CCR MATH GRADE 5

In Grade 5, instruction should focus on three critical areas: (1) developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions); (2) extending division to 2-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations; and (3) developing understanding of volume. Each critical area is described below.

(1) Students apply their understanding of fractions and fraction models to represent the addition and subtraction of fractions with unlike denominators as equivalent calculations with like denominators. They develop fluency in calculating sums and differences of fractions, and make reasonable estimates of them. Students also use the meaning of fractions, of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for multiplying and dividing fractions make sense. (Note: this is limited to the case of dividing unit fractions by whole numbers and whole numbers by unit fractions.)

(2) Students develop understanding of why division procedures work based on the meaning of base-ten numerals and properties of operations. They finalize fluency with multi-digit addition, subtraction, multiplication, and division. They apply their understandings of models for decimals, decimal notation, and properties of operations to add and subtract decimals to hundredths. They develop fluency in these computations, and make reasonable estimates of their results. Students use the relationship between decimals and fractions, as well as the relationship between finite decimals and whole numbers (i.e., a finite decimal multiplied by an appropriate power of 10 is a whole number), to understand and explain why the procedures for multiplying and dividing finite decimals make sense. They compute products and quotients of decimals to hundredths efficiently and accurately.

(3) Students recognize volume as an attribute of three-dimensional space. They understand that volume can be measured by finding the total number of same-size units of volume required to fill the space without gaps or overlaps. They understand that a 1- unit by 1-unit by 1-unit cube is the standard unit for measuring volume. They select appropriate units, strategies, and tools for solving problems that involve estimating and measuring volume. They decompose three-dimensional shapes and find volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes. They measure necessary attributes of shapes in order to determine volumes to solve real world and mathematical problems.

The content within this grade level is centered on the mathematics domains of **Operations and Algebraic Thinking** (Grades K-5), **Numbers and Operations in Base Ten** (Grades K-5), **Numbers and Operations—Fractions** (Grades 3-5), **Measurement and Data** (Grades K-5), and **Geometry**

(Grades K-8). Instruction in these domains should be designed to expose students to experiences that reflect the value of mathematics, enhance students' confidence in their ability to do mathematics and help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
5.SMP.1	Make sense of problems and persevere in solving them.
5.SMP.2	Reason abstractly and quantitatively.
5.SMP.3	Construct viable arguments and critique the reasoning of others.
5.SMP.4	Model with mathematics.
5.SMP.5	Use appropriate tools strategically.
5.SMP.6	Attend to precision.
5.SMP.7	Look for and make use of structure.
5.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

OPERATIONS AND ALGEBRAIC THINKING (OA)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
WRITE AND INTERPRET NUMERICAL EXPRESSIONS	
5.OA.1	Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
5.OA.2	Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. *For example, express the calculation "add 8 and 7, then multiply by 2" as 2 × (8 + 7). Recognize that 3 × (18,932 + 921) is three times as large as 18,932 + 921, without having to calculate the indicated sum or product.*
ANALYZE PATTERNS AND RELATIONSHIPS	
5.OA.3	Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. *For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.*

NUMBER AND OPERATIONS IN BASE TEN (NBT)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
UNDERSTAND THE PLACE VALUE SYSTEM	
5.NBT.1	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left (e.g., "In the number 3.33, the underlined digit represents 3/10, which is 10 times the amount represented by the digit to its right (3/100) and is 1/10 the amount represented by the digit to its left (3)).
5.NBT.2	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
5.NBT.3	Read, write, and compare decimals to thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000). b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.
5.NBT.4	Use place value understanding to round decimals to any place.
PERFORM OPERATIONS WITH MULTI-DIGIT WHOLE NUMBERS AND WITH DECIMALS TO THE HUNDREDTHS	
5.NBT.5	***Fluently*** multiply multi-digit whole numbers using the standard algorithm.
5.NBT.6	Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

NUMBER AND OPERATIONS IN BASE TEN (NBT)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
5.NBT.7	Add, subtract, multiply, and divide decimals to hundredths, using concrete models (to include, but not limited to: base ten blocks, decimal tiles, etc.) or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

NUMBER AND OPERATIONS—FRACTIONS (NF)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
USE EQUIVALENT FRACTIONS AS A STRATEGY TO ADD AND SUBTRACT FRACTIONS	
5.NF.1	Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example, 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (In general, a/b+ c/d = (ad + bc)/bd.)*
5.NF.2	Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. *For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.*

NUMBER AND OPERATIONS—FRACTIONS (NF)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPLY AND EXTEND PREVIOUS UNDERSTANDINGS OF MULTIPLICATION AND DIVISION TO MULTIPLY AND DIVIDE FRACTIONS	
5.NF.3	Interpret a fraction as division of the numerator by the denominator (*a*/*b* = *a* ÷ *b*). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. *For example, interpret 3/4 as the result of dividing 3 by 4, noting that 3/4 multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size 3/4. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?*
5.NF.4	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. a. Interpret the product (*a*/*b*) × *q* as *a* parts of a partition of *q* into *b* equal parts; equivalently, as the result of a sequence of operations *a* × *q* ÷ *b*. *For example, use a visual fraction model to show (2/3) × 4 = 8/3, and create a story context for this equation. Do the same with (2/3) × (4/5) = 8/15. (In general, (a/b) × (c/d) = ac/bd.)* b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.
5.NF.5	Interpret multiplication as scaling (resizing), by: a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence *a*/*b* = (*n* × *a*)/(*n* ×

NUMBER AND OPERATIONS—FRACTIONS (NF)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
	b) to the effect of multiplying *a/b* by 1.
5.NF.6	Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.
5.NF.7	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.[1] a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. *For example, create a story context for (1/3) ÷ 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) ÷ 4 = 1/12 because (1/12) × 4 = 1/3.* b. Interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for 4 ÷ (1/5), and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 4 ÷ (1/5) = 20 because 20 × (1/5) = 4.* c. Solve real-world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?*

MEASUREMENT AND DATA (MD)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
CONVERT LIKE MEASUREMENT UNITS WITHIN A GIVEN MEASUREMENT SYSTEM	
5.MD.1	Convert among different-sized standard measurement units within a given measurement system (customary and metric) (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.
REPRESENT AND INTERPRET DATA	
5.MD.2	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. *For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.*
GEOMETRIC MEASUREMENT: UNDERSTAND CONCEPTS OF VOLUME AND RELATE VOLUME TO MULTIPLICATION AND TO ADDITION	
5.MD.3	Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume. b. A solid figure which can be packed without gaps or overlaps using *n* unit cubes is said to have a volume of *n* cubic units.
5.MD.4	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

MEASUREMENT AND DATA (MD)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
CONVERT LIKE MEASUREMENT UNITS WITHIN A GIVEN MEASUREMENT SYSTEM	
5.MD.5	Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume. a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication. b. Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real-world and mathematical problems. c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real-world problems.

GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
GRAPH POINTS ON THE COORDINATE PLANE TO SOLVE REAL-WORLD AND MATHEMATICAL PROBLEMS	
5.G.1	Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how

GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
	far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).
5.G.2	Represent real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.
CLASSIFY TWO-DIMENSIONAL FIGURES INTO CATEGORIES BASED ON THEIR PROPERTIES	
5.G.3	Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. *For example, all rectangles have four right angles, and squares are rectangles, so all squares have four right angles.*
5.G.4	Classify two-dimensional figures in a hierarchy based on properties.

NOTES

[1] Students able to multiply fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division. But division of a fraction by a fraction is not a requirement at this grade

SUPPLEMENTAL ELEMENTARY SCHOOL MATH COURSES

Supplemental Mathematics (Grades 1-4) and (Grades 5-6) courses, formerly Compensatory Mathematics, are designed to provide targeted interventions of core mathematics concepts.[1]

Students in need of instructional support, intervention, or remediation may be enrolled in a Supplemental Mathematics course under the following stipulations:

The Supplemental Mathematics course:

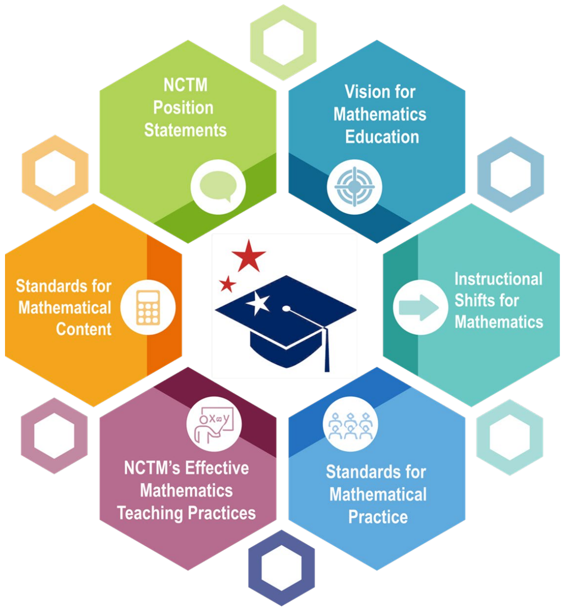
1. must be taken in concert with a credit-bearing course at the same grade level;
2. includes content supportive of the accompanying credit-bearing course;
3. should incorporate the Standards for Mathematical Practice (SMPs); and
4. may be taken as an elective, but will **not** satisfy the number of mathematics Carnegie units required for graduation.

Instruction within the supplemental mathematics courses should be designed to expose students to experiences, which reflect the value of mathematics, to enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

[1] Documentation of Tier II and III interventions is required. ***MS State Board Policy Manual:*** *Rule 41.1 intervention*.

Secondary &

Middle School



▶ Grades 6-8

MIDDLE SCHOOL OVERVIEW

The *2025 Mississippi College- and Career-Readiness Standards* (MS CCRS) recognize grades 6-8 as the middle grades, with secondary education officially beginning in grade 7 and continuing through high school graduation. This distinction reflects the developmental transition during these years and aligns instructional expectations to prepare students for college and career pathways.

Evidence highlights the importance of foundational knowledge, skills, and practices acquired before advanced high school mathematics. Notably, Grades 6-8 provide some of the most critical concepts for college- and career-readiness. These include applying ratio reasoning to real-world and mathematical problems, computing fluently with positive and negative fractions and decimals, and solving problems involving angle measures, area, surface area, and volume.

Grade 7 serves as a critical bridge between middle and secondary education. At this stage, students can begin earning Carnegie units for coursework, marking the start of their progression toward meeting high school graduation requirements. This structure ensures a seamless and coherent development of skills and knowledge across educational levels.

CCR MATH GRADE 6

In Grade 6, instruction should focus on four critical areas: (1) connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems; (2) completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers; (3) writing, interpreting, and using expressions and equations; and (4) developing understanding of statistical thinking. Each critical area is described below.

(1) Students use reasoning about multiplication and division to solve ratio and rate problems about quantities. By viewing equivalent ratios and rates as deriving from, and extending, pairs of rows (or columns) in the multiplication table, and by analyzing simple drawings that indicate the relative size of quantities, students connect their understanding of multiplication and division with ratios and rates. Thus, students expand the scope of problems for which they can use multiplication and division to solve problems, and they connect ratios and fractions. Students solve a wide variety of problems involving ratios and rates.

(2) Students use the meaning of fractions, the meanings of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for dividing fractions make sense. Students use these operations to solve problems. Students extend their previous understandings of number and the ordering of numbers to the full system of rational numbers, which includes negative rational numbers, and in particular negative integers. They reason about the order and absolute value of rational numbers and about the location of points in all four quadrants of the coordinate plane.

(3) Students understand the use of variables in mathematical expressions. They write expressions and equations that correspond to given situations, evaluate expressions, and use expressions and formulas to solve problems. Students understand that expressions in different forms can be equivalent, and they use the properties of operations to rewrite expressions in equivalent forms. Students know that the solutions of an equation are the values of the variables that make the equation true. Students use properties of operations and the idea of maintaining the equality of both sides of an equation to solve simple one-step equations. Students construct and analyze tables, such as tables of quantities that are in equivalent ratios, and they use equations (such as $3x = y$) to describe relationships between quantities.

(4) Building on and reinforcing their understanding of number, students begin to develop their ability to think statistically. Students recognize that a data distribution may not have a definite center and that different ways to measure center yield different values. The median measures center in the sense that it is roughly the middle value. The mean measures center in the sense that it is the value that each data point would take on if the total of the data values were redistributed equally, and also in the sense that it is a balance point. Students recognize that a measure of variability (interquartile range or mean absolute deviation) can also be useful for summarizing data because two very different sets of data can have the

same mean and median yet be distinguished by their variability. Students learn to describe and summarize numerical data sets, identifying clusters, peaks, gaps, and symmetry, considering the context in which the data were collected.

Students in Grade 6 also build on their work with area in elementary school by reasoning about relationships among shapes to determine area, surface area, and volume. They find areas of right triangles, other triangles, and special quadrilaterals by decomposing these shapes, rearranging or removing pieces, and relating the shapes to rectangles. Using these methods, students discuss, develop, and justify formulas for areas of triangles and parallelograms. Students find areas of polygons and surface areas of prisms and pyramids by decomposing them into pieces whose area they can determine. They reason about right rectangular prisms with fractional side lengths to extend formulas for the volume of a right rectangular prism to fractional side lengths. They prepare for work on scale drawings and constructions in Grade 7 by drawing polygons in the coordinate plane.

The content within this grade-level course is centered on the mathematics domains of **Ratios and Proportional Relationships** (Grades 6-7); **the Number System** (Grades 6-8)**, Expressions & Equations** (Grades 6-8)**, Geometry** (Grades K-8)**,** and **Statistics & Probability** (Grades 6-8). Instruction in these domains should be designed to expose students to experiences that reflect the value of mathematics, enhance students' confidence in their ability to do mathematics and help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
6.SMP.1	Make sense of problems and persevere in solving them.
6.SMP.2	Reason abstractly and quantitatively.
6.SMP.3	Construct viable arguments and critique the reasoning of others.
6.SMP.4	Model with mathematics.
6.SMP.5	Use appropriate tools strategically.
6.SMP.6	Attend to precision.
6.SMP.7	Look for and make use of structure.
6.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

RATIOS AND PROPORTIONAL RELATIONSHIPS (RP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
UNDERSTAND RATIO CONCEPTS AND USE RATIO REASONING TO SOLVE PROBLEMS	
6.RP.1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. *For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."*
6.RP.2	Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0, and use rate language in the context of a ratio relationship. *For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is 3/4 cup of flour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger."* [1]
6.RP.3	Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. *b.* Solve unit rate problems including those involving unit pricing and constant speed. *For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?* c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent. d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

THE NUMBER SYSTEM (NS)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPLY AND EXTEND PREVIOUS UNDERSTANDINGS OF MULTIPLICATION AND DIVISION TO DIVIDE FRACTIONS BY FRACTIONS	
6.NS.1	Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (c/d) = ad/bc.) How much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 3/4-cup servings are in 2/3 of a cup of yogurt? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?*
COMPUTE FLUENTLY WITH MULTI-DIGIT NUMBERS AND FIND COMMON FACTORS AND MULTIPLES	
6.NS.2	***Fluently*** divide multi-digit numbers using the standard algorithm.
6.NS.3	***Fluently*** add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
6.NS.4	Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. *For example, express 36 + 8 as 4(9 + 2).*
APPLY AND EXTEND PREVIOUS UNDERSTANDINGS OF NUMBERS TO THE SYSTEM OF RATIONAL NUMBERS	
6.NS.5	Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits,

THE NUMBER SYSTEM (NS)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
	positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.
6.NS.6	Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., -(-3) = 3, and that 0 is its own opposite. b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.
6.NS.7	Understand ordering and absolute value of rational numbers. a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. *For example, interpret –3 > –7 as a statement that –3 is located to the right of –7 on a number line oriented from left to right.* *b.* Write, interpret, and explain statements of order for rational numbers in real-world contexts. *For example, write –3 °C >-7°C to express the fact that –3 °C is warmer than -7°C.* c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. *For example, for an account balance of –30 dollars, write |–30| = 30 to describe the size of the debt in dollars.* d. Distinguish comparisons of absolute value from statements about order. *For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars.*

THE NUMBER SYSTEM (NS)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
6.NS.8	Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.
6.NS.9	Apply and extend previous understandings of addition and subtraction to add and subtract integers; represent addition and subtraction on a horizontal or vertical number line diagram. a. Describe situations in which opposite quantities combine to make 0. *For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged*. b. Understand $p + q$ as the number located a distance $\lvert q \rvert$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of integers by describing real-world contexts. c. Understand subtraction of integers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two integers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. Apply properties of operations as strategies to add and subtract integers.

EXPRESSIONS AND EQUATIONS (EE)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPLY AND EXTEND PREVIOUS UNDERSTANDINGS OF ARITHMETIC TO ALGEBRAIC EXPRESSIONS	
6.EE.1	Write and evaluate numerical expressions involving whole-number exponents.
6.EE.2	Write, read, and evaluate expressions in which letters stand for numbers. *a.* Write expressions that record operations with numbers and with letters standing for numbers. *For example, express the calculation "Subtract y from 5" as 5 – y.* *b.* Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. *For example, describe the expression 2(8 + 7) as a product of two factors; view (8 + 7) as both a single entity and a sum of two terms.* c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). *For example, use the formulas* $V = s^3$ *and* $A = 6\ s^2$ *to find the volume and surface area of a cube with sides of length s = 1/2.*
6.EE.3	Apply the properties of operations to generate equivalent expressions. *For example, apply the distributive property to the expression 3 (2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6 (4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y.*
6.EE.4	Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). *For example, the expressions y + y+ y and 3y are equivalent because they name the same number regardless of which number y stands for.*

EXPRESSIONS AND EQUATIONS (EE)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
REASON ABOUT AND SOLVE ONE-VARIABLE EQUATIONS AND INEQUALITIES	
6.EE.5	Solve an equation or inequality and understand the process by answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
6.EE.6	Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
6.EE.7	Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.
6.EE.8	Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.
REPRESENT AND ANALYZE QUANTITATIVE RELATIONSHIPS BETWEEN DEPENDENT AND INDEPENDENT VARIABLES	
6.EE.9	Use variables to represent two quantities in a real-world problem that change in relationship to one another. • Write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. • Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. *For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation $d = 65t$ to represent the relationship between distance and time.*

GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
SOLVE REAL-WORLD AND MATHEMATICAL PROBLEMS INVOLVING AREA, SURFACE AREA, AND VOLUME	
6.G.1	Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.
6.G.2	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = lwh$ and $V = Bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
6.G.3	Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.
6.G.4	Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real- world and mathematical problems.

STATISTICS AND PROBABILITY (SP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
DEVELOP UNDERSTANDING OF STATISTICAL VARIABILITY	
6.SP.1	Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. *For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.*
6.SP.2	Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.
6.SP.3	Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.
SUMMARIZE AND DESCRIBE DISTRIBUTIONS	
6.SP.4	Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
6.SP.5	Summarize numerical data sets in relation to their context, such as by: a. Reporting the number of observations. b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

NOTES

[1] Expectations for unit rates in this grade are limited to non-complex fractions

CCR MATH GRADE 7

In Grade 7, instruction should focus on four critical areas: (1) developing understanding of and applying proportional relationships; (2) developing understanding of operations with rational numbers and working with expressions and linear equations; (3) solving problems involving scale drawings and informal geometric constructions, and working with two- and three-dimensional shapes to solve problems involving area, surface area, and volume; and (4) drawing inferences about populations based on samples. Each critical area is described below.

(1) Students extend their understanding of ratios and develop understanding of proportionality to solve single- and multi-step problems. Students use their understanding of ratios and proportionality to solve a wide variety of percent problems, including those involving discounts, interest, taxes, tips, and percent increase or decrease. Students solve problems about scale drawings by relating corresponding lengths between the objects or by using the fact that relationships of lengths within an object are preserved in similar objects. Students graph proportional relationships and understand the unit rate informally as a measure of the steepness of the related line, called the slope. They distinguish proportional relationships from other relationships.

(2) Students develop a unified understanding of number, recognizing fractions, decimals (that have a finite or a repeating decimal representation), and percents as different representations of rational numbers. Students extend addition, subtraction, multiplication, and division to all rational numbers, maintaining the properties of operations and the relationships between addition and subtraction, and multiplication and division. By applying these properties, and by viewing negative numbers in terms of everyday contexts (e.g., amounts owed or temperatures below zero), students explain and interpret the rules for adding, subtracting, multiplying, and dividing with negative numbers. They use the arithmetic of rational numbers as they formulate expressions and equations in one variable and use these equations to solve problems.

(3) Students continue their work with area from Grade 6, solving problems involving the area and circumference of a circle and surface area of three-dimensional objects. In preparation for work on congruence and similarity in Grade 8 they reason about relationships among two-dimensional figures using scale drawings and informal geometric constructions, and they gain familiarity with the relationships between angles formed by intersecting lines. Students work with three-dimensional figures, relating them to two- dimensional figures by examining cross-sections. They solve real-world and mathematical problems involving area, surface area, and volume of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

(4) Students build on their previous work with single data distributions to compare two data distributions and address questions about differences between populations. They begin informal work with random sampling to generate data sets and learn about the importance of representative samples for drawing inferences.

The content within this grade-level course is centered on the mathematics domains of **Ratios and Proportional Relationships** (Grades 6-7); **the Number System** (Grades 6-8)**, Expressions & Equations** (Grades 6-8)**, Geometry** (Grades K-8)**,** and **Statistics & Probability** (Grades 6-8). Instruction in these domains should be designed to expose students to experiences that reflect the value of mathematics, enhance students' confidence in their ability to do mathematics and help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
7.SMP.1	Make sense of problems and persevere in solving them.
7.SMP.2	Reason abstractly and quantitatively.
7.SMP.3	Construct viable arguments and critique the reasoning of others.
7.SMP.4	Model with mathematics.
7.SMP.5	Use appropriate tools strategically.
7.SMP.6	Attend to precision.
7.SMP.7	Look for and make use of structure.
7.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

RATIOS AND PROPORTIONAL RELATIONSHIPS (RP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
ANALYZE PROPORTIONAL RELATIONSHIPS AND USE THEM TO SOLVE REAL-WORLD AND MATHEMATICAL PROBLEMS	
7.RP.1	Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. *For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction* $^{1/2}/_{1/4}$ *miles per hour, equivalently 2 miles per hour.*
7.RP.2	Recognize and represent proportional relationships between quantities. a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. c. Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.* d. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.
7.RP.3	Use proportional relationships to solve multistep ratio and percent problems. *Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.*

THE NUMBER SYSTEM (NS)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPLY AND EXTEND PREVIOUS UNDERSTANDINGS OF OPERATIONS WITH FRACTIONS TO ADD, SUBTRACT, MULTIPLY, AND DIVIDE RATIONAL NUMBERS	
7.NS.1	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. a. Describe situations in which opposite quantities combine to make 0. *For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged*. b. Understand $p + q$ as the number located a distance $\|q\|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. c. Understand subtraction of rational numbers as adding the additive inverse, $p – q = p + (–q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. d. Apply properties of operations as strategies to add and subtract rational numbers.
7.NS.2	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(–1)(–1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts. c. Apply properties of operations as strategies to multiply and divide rational numbers. d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.

THE NUMBER SYSTEM (NS)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
7.NS.3	Solve real-world and mathematical problems involving the four operations with rational numbers.[1]

EXPRESSIONS AND EQUATIONS (EE)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
USE PROPERTIES OF OPERATIONS TO GENERATE EQUIVALENT EXPRESSIONS	
7.EE.1	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
7.EE.2	Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05."*
SOLVE REAL-LIFE AND MATHEMATICAL PROBLEMS USING NUMERICAL AND ALGEBRAIC EXPRESSIONS AND EQUATIONS	
7.EE.3	Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a*

EXPRESSIONS AND EQUATIONS (EE)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
7.EE.4	*check on the exact computation.* Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers. Solve equations of these forms ***fluently***. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? b. Solve word problems leading to inequalities of the form *px + q > r* or *px + q < r*, where *p*, *q*, and *r* are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. *For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.*

GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
DRAW, CONSTRUCT, AND DESCRIBE GEOMETRICAL FIGURES AND DESCRIBE THE RELATIONSHIPS BETWEEN THEM	
7.G.1	Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
7.G.2	Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.
7.G.3	Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.
SOLVE REAL-WORLD AND MATHEMATICAL PROBLEMS INVOLVING ANGLE MEASURE, AREA, SURFACE AREA, AND VOLUME	
7.G.4	Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
7.G.5	Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
7.G.6	Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals and polygons including cubes, right prisms, and pyramids.

STATISTICS AND PROBABILITY (SP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
USE RANDOM SAMPLING TO DRAW INFERENCES ABOUT A POPULATION	
7.SP.1	Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.
7.SP.2	Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. *For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.*
DRAW INFORMAL COMPARATIVE INFERENCES ABOUT TWO POPULATIONS	
7.SP.3	Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. *For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability on either team; on a dot plot, the separation between the two distributions of heights is noticeable.*
7.SP.4	Use measures of center and measures of variability (*i.e., inter-quartile range*) for numerical data from random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.*
INVESTIGATE CHANCE PROCESSES AND DEVELOP, USE, AND EVALUATE PROBABILITY MODELS	
7.SP.5	Understand that the probability of a chance event is a number between 0 and 1 that expresses the

STATISTICS AND PROBABILITY (SP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
	likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.
7.SP.6	Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.*
7.SP.7	Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.* b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. *For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?*
7.SP.8	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. b. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., “rolling double sixes”), identify the outcomes in the sample space which compose the event. c. Design and use a simulation to generate frequencies for compound events. *For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?*

NOTES [1] Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

CCR MATH GRADE 8

For Math Grade 8, ***<u>a one-credit course</u>***, instruction should focus on 3 critical areas: (1) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations; (2) grasping the concept of a function and using functions to describe quantitative relationships; and (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean Theorem. Each critical area is described below.

(1) Students use linear equations and systems of linear equations to represent, analyze, and solve a variety of problems. Students recognize equations for proportions ($y/x = m$ or $y = mx$) as special linear equations ($y = mx + b$), understanding that the constant of proportionality (m) is the slope, and the graphs are lines through the origin. They understand that the slope (m) of a line is a constant rate of change, so that if the input or x-coordinate changes by an amount A, the output or y-coordinate changes by the amount $m{\cdot}A$. Students also use a linear equation to describe the association between two quantities in bivariate data (such as arm span vs. height for students in a classroom). At this grade, fitting the model, and assessing its fit to the data are done informally. Interpreting the model in the context of the data requires students to express a relationship between the two quantities in question and to interpret components of the relationship (such as slope and y-intercept) in terms of the situation.

Students strategically choose and efficiently implement procedures to solve linear equations in one variable, understanding that when they use the properties of equality and the concept of logical equivalence, they maintain the solutions of the original equation. Students solve systems of two linear equations in two variables and relate the systems to pairs of lines in the plane; these intersect, are parallel, or are the same line. Students use linear equations, systems of linear equations, linear functions, and their understanding of slope of a line to analyze situations and solve problems.

(2) Students grasp the concept of a function as a rule that assigns to each input exactly one output. They understand that functions describe situations where one quantity determines another. They can translate among representations and partial representations of functions (noting that tabular and graphical representations may be partial representations), and they describe how aspects of the function are reflected in the different representations.

(3) Students use ideas about distance and angles, how they behave under translations, rotations, reflections, and dilations, and ideas about congruence and similarity to describe and analyze two-dimensional figures and to solve problems. Students show that the sum of the angles in a triangle is the angle formed by a straight line, and that various configurations of lines give rise to similar triangles because of the angles created when a transversal cuts parallel lines. Students understand the statement of the Pythagorean Theorem and its converse, and can explain why the Pythagorean Theorem holds, for example, by decomposing a square in two different ways. They apply the Pythagorean Theorem to find distances between points on the coordinate plane, to find lengths, and to analyze polygons. Students complete their work on volume by solving problems involving cones, cylinders, and spheres.

The content within this grade-level course is centered on the mathematics domains of **the Number System** (Grades 6-8)**, Expressions & Equations** (Grades 6-8)**, Functions** (Grade 8), **Geometry** (Grades K-8)**,** and **Statistics & Probability** (Grades 6-8). Instruction in these domains should be designed to expose students to experiences that reflect the value of mathematics, enhance students' confidence in their ability to do mathematics and help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
8.SMP.1	Make sense of problems and persevere in solving them.
8.SMP.2	Reason abstractly and quantitatively.
8.SMP.3	Construct viable arguments and critique the reasoning of others.
8.SMP.4	Model with mathematics.
8.SMP.5	Use appropriate tools strategically.
8.SMP.6	Attend to precision**.**
8.SMP.7	Look for and make use of structure.
8.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

THE NUMBER SYSTEM (NS)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
KNOW THAT THERE ARE NUMBERS THAT ARE NOT RATIONAL, AND APPROXIMATE THEM BY RATIONAL NUMBERS	
8.NS.1	Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.
8.NS.2	Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (*e.g.,* π^2). *For example, by truncating the decimal expansion of* $\sqrt{2}$*, show that* $\sqrt{2}$ *is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.*

EXPRESSIONS AND EQUATIONS (EE)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
WORK WITH RADICALS AND INTEGER EXPONENTS	
8.EE.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions. *For example,* $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.
8.EE.2	Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.

EXPRESSIONS AND EQUATIONS (EE)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
8.EE.3	Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. *For example, estimate the population of the United States as* 3×10^8 *and the population of the world as* 7×10^9*, and determine that the world population is more than 20 times larger.*
8.EE.4	Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.
UNDERSTAND THE CONNECTIONS BETWEEN PROPORTIONAL RELATIONSHIPS, LINES, AND LINEAR EQUATIONS	
8.EE.5	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.*
8.EE.6	Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.
ANALYZE AND SOLVE LINEAR EQUATIONS AND PAIRS OF SIMULTANEOUS LINEAR EQUATIONS	
8.EE.7	Solve linear equations in one variable. a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers). b. Solve linear equations and inequalities with rational number coefficients, including those whose

EXPRESSIONS AND EQUATIONS (EE)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
	solutions require expanding expressions using the distributive property and collecting like terms.
8.EE.8	Analyze and solve pairs of simultaneous linear equations. a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously. b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. *For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6.* c. Solve real-world and mathematical problems leading to two linear equations in two variables. *For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.*

FUNCTIONS (F)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
DEFINE, EVALUATE, AND COMPARE FUNCTIONS	
8.F.1	Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.[1]
8.F.2	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.*

FUNCTIONS (F)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
8.F.3	Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. *For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.*
USE FUNCTIONS TO MODEL RELATIONSHIPS BETWEEN QUANTITIES	
8.F.4	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
8.F.5	Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
UNDERSTAND CONGRUENCE AND SIMILARITY USING PHYSICAL MODELS, TRANSPARENCIES, OR GEOMETRY SOFTWARE	
8.G.1	Verify experimentally the properties of rotations, reflections, and translations a. Lines are taken to lines, and line segments to line segments of the same length. b. Angles are taken to angles of the same measure.

GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
	c. Parallel lines are taken to parallel lines.
8.G.2	Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
8.G.3	Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
8.G.4	Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.
8.G.5	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. *For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.*
UNDERSTAND AND APPLY THE PYTHAGOREAN THEOREM	
8.G.6	Explain a proof of the Pythagorean Theorem and its converse.
8.G.7	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real- world and mathematical problems in two and three dimensions.
8.G.8	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.
SOLVE REAL-WORLD AND MATHEMATICAL PROBLEMS INVOLVING VOLUME OF CYLINDERS, CONES, AND SPHERES	
8.G.9	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems

STATISTICS AND PROBABILITY (SP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
INVESTIGATE PATTERNS OF ASSOCIATION IN BIVARIATE DATA	
8.SP.1	Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.
8.SP.2	Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.
8.SP.3	Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. *For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.*
8.SP.4	Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. *For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?*

NOTE

[1] Function notation is not required in Grade 8.

MIDDLE SCHOOL—ACCELERATION

The Standards ensure students are prepared for Algebra I in 8th grade by incorporating the necessary prerequisites in grades K–7. Mastery of this content enables students to successfully engage in Algebra I, while the grade 8 standards provide rigorous algebraic concepts that seamlessly transition students into the Algebra I course. Some students can move through mathematics quickly. These students may take high school mathematics beginning in eighth grade or earlier to take college-level mathematics in high school.

Students capable of progressing more quickly deserve thoughtful attention to ensure they are both challenged and mastering the full range of mathematical content and skills without skipping critical concepts. It is essential to maintain continuity in the mathematics learning progression, ensuring students fully understand all important topics. To support this, the MDE has developed a carefully designed sequence of **compacted courses**.

> *The term "compacted" refers to condensing or streamlining content to allow students to progress through material more quickly, often at an accelerated pace. This approach, commonly used in gifted education or advanced programs, enables students to master standard curriculum topics efficiently, creating space for more advanced content. Unlike skipping content, compacting involves compressing material, requiring a faster pace to complete while ensuring all key concepts are covered.*

The Middle School Compacted Math Pathway compresses three courses—MS CCRS Grade 7, MS CCRS Grade 8, and MS CCRS Algebra I—into two years (a 3:2 compaction). The MS CCRS Compacted Grade 7 course covers all Grade 7 standards and part of Grade 8 standards, while the MS CCRS Compacted Grade 8 course includes the remaining Grade 8 standards and all MS CCRS Algebra I content.[1] *See the Suggested Middle School Math Pathways below.*

CCR Math Grade 6 (279901)	**CCR Math Grade 7** (270101)	**CCR Math Grade 8** (270720)
CCR Math Grade 6 (279901)	**CCR Compacted Math Grade 7** (270710)	**CCR Compacted Math Grade 8 with Algebra I** (270721)

[1] The CCR Compacted Math Grade 8 with Algebra I course includes the High School Conceptual Categories (*see pp. 155-163*)

1. ***Compacted courses should include the same Mississippi College- and Career- Readiness Standards as the non-compacted courses.***

   It is recommended to compact three years of material into two years, rather than compacting two years into one. The rationale is that mathematical concepts are likely to be omitted when trying to squeeze two years of material into one. This is to be avoided, as the standards have been carefully developed to define clear learning progressions through the major mathematical domains. Moreover, the compacted courses should not sacrifice attention to the Mathematical Practices Standard.

2. ***Decisions to accelerate students into the Mississippi College- and Career- Readiness Standards for high school mathematics before ninth grade should not be rushed.***

   Placing students into tracks too early should be avoided at all costs. It is not recommended to compact the standards before grade seven.

3. ***Decisions to accelerate students into high school mathematics before ninth grade should be based on solid evidence of student learning.***

   Research has shown discrepancies in the placement of students into "advanced" classes by race/ethnicity and socioeconomic background. While such decisions to accelerate are almost always a joint decision between the school and the family, serious efforts must be made to consider solid evidence of student learning in order to avoid unwittingly disadvantaging the opportunities of particular groups of students.

4. ***A menu of challenging options should be available for students after their third year of mathematics—and all students should be strongly encouraged to take mathematics in all years of high school.***

   Traditionally, students taking high school mathematics in the eighth grade are expected to take the Algebra III course in their junior years and then Calculus in their senior years. This is a good and worthy goal, but it should not be the only option for students. An array of challenging options will keep mathematics relevant for students and give them a new set of tools for their futures in college and career.

CCR COMPACTED MATH GRADE 7

In Compacted Mathematics Grade 7 (with Grade 8), ***a one-credit course***, instruction should focus on four critical areas from Grade 7: (1) applying proportional relationships; (2) developing understanding of operations with rational numbers and working with expressions and linear equations; (3) solving problems involving scale drawings and informal geometric constructions, and working with two- and three-dimensional shapes to solve problems involving area, surface area, and volume; and (4) drawing inferences about populations based on samples. Each critical area is described below.

(1) Students extend their understanding of ratios and develop understanding of proportionality to solve single- and multi-step problems. Students use their understanding of ratios and proportionality to solve a wide variety of percent problems, including those involving discounts, interest, taxes, tips, and percent increase or decrease. Students solve problems about scale drawings by relating corresponding lengths between the objects or by using the fact that relationships of lengths within an object are preserved in similar objects. Students graph proportional relationships and understand the unit rate informally as a measure of the steepness of the related line, called the slope. They distinguish proportional relationships from other relationships.

(2) Students develop a unified understanding of number, recognizing fractions, decimals (that have a finite or a repeating decimal representation), and percents as different representations of rational numbers. Students extend addition, subtraction, multiplication, and division to all rational numbers, maintaining the properties of operations and the relationships between addition and subtraction, and multiplication and division. By applying these properties, and by viewing negative numbers in terms of everyday contexts (e.g., amounts owed or temperatures below zero), students explain and interpret the rules for adding, subtracting, multiplying, and dividing with negative numbers. They use the arithmetic of rational numbers as they formulate expressions and equations in one variable and use these equations to solve problems.

(3) Students continue their work with area from Grade 6, solving problems involving the area and circumference of a circle and surface area of three-dimensional objects. In preparation for work on congruence and similarity in Grade 8 they reason about relationships among two-dimensional figures using scale drawings and informal geometric constructions, and they gain familiarity with the relationships between angles formed by intersecting lines. Students work with three-dimensional figures, relating them to two- dimensional figures by examining cross-sections. They solve real-world problems involving area, surface area, and volume of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes and right prisms.

(4) Students build on their previous work with single data distributions to compare two data distributions and address questions about differences between populations. They begin informal work with random sampling to generate data sets and learn about the importance of representative samples for drawing inferences.

From Math Grade 8, instruction should focus on 3 critical areas: (1) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations; (2) grasping the concept of a function and using functions to describe quantitative relationships; and (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean Theorem. Each critical area is described below.

(1) Students use linear equations and systems of linear equations to represent, analyze, and solve a variety of problems. Students recognize equations for proportions ($y/x = m$ or $y = mx$) as special linear equations ($y = mx + b$), understanding that the constant of proportionality (m) is the slope, and the graphs are lines through the origin. They understand that the slope (m) of a line is a constant rate of change, so that if the input or x-coordinate changes by an amount A, the output or y-coordinate changes by the amount $m \cdot A$. Students also use a linear equation to describe the association between two quantities in bivariate data (such as arm span vs. height for students in a classroom). At this grade, fitting the model, and assessing its fit to the data are done informally. Interpreting the model in the context of the data requires students to express a relationship between the two quantities in question and to interpret components of the relationship (such as slope and y-intercept) in terms of the situation.

Students strategically choose and efficiently implement procedures to solve linear equations in one variable, understanding that when they use the properties of equality and the concept of logical equivalence, they maintain the solutions of the original equation. Students solve systems of two linear equations in two variables and relate the systems to pairs of lines in the plane; these intersect, are parallel, or are the same line. Students use linear equations, systems of linear equations, linear functions, and their understanding of slope of a line to analyze situations and solve problems.

(2) Students grasp the concept of a function as a rule that assigns to each input exactly one output. They understand that functions describe situations where one quantity determines another. They can translate among representations and partial representations of functions (noting that tabular and graphical representations may be partial representations), and they describe how aspects of the function are reflected in the different representations.

(3) Students use ideas about distance and angles, how they behave under translations, rotations, reflections, and dilations, and ideas about congruence and similarity to describe and analyze two-dimensional figures and to solve problems. Students show that the sum of the angles in a triangle is the angle formed by a straight line, and that various configurations of lines give rise to similar triangles because of the angles created when a transversal cuts parallel lines. Students understand the statement of the Pythagorean Theorem and its converse, and can explain why the Pythagorean Theorem holds, for example, by decomposing a square in two different ways. They apply the Pythagorean Theorem to find distances between points on the coordinate plane, to find lengths, and to analyze polygons. Students complete their work on volume by solving problems involving cones, cylinders, and spheres.

The content within this grade-level course is centered on the mathematics domains of **Ratios and Proportional Relationships** (Grades 6-7); **the Number System** (Grades 6-8), **Expressions & Equations** (Grades 6-8), **Geometry** (Grades K-8), and **Statistics & Probability** (Grades 6-8). Instruction in these domains should be designed to expose students to experiences that reflect the value of mathematics, enhance students' confidence in their ability to do mathematics and help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
7.SMP.1	Make sense of problems and persevere in solving them.
7.SMP.2	Reason abstractly and quantitatively.
7.SMP.3	Construct viable arguments and critique the reasoning of others.
7.SMP.4	Model with mathematics.
7.SMP.5	Use appropriate tools strategically.
7.SMP.6	Attend to precision.
7.SMP.7	Look for and make use of structure.
7.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

RATIOS AND PROPORTIONAL RELATIONSHIPS (RP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
ANALYZE PROPORTIONAL RELATIONSHIPS AND USE THEM TO SOLVE REAL-WORLD AND MATHEMATICAL PROBLEMS	
7.RP.1	Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. *For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction* $^{1/2}/_{1/4}$ *miles per hour, equivalently 2 miles per hour.*
7.RP.2	Recognize and represent proportional relationships between quantities. a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. c. Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.* d. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.
7.RP.3	Use proportional relationships to solve multistep ratio and percent problems. *Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.*

THE NUMBER SYSTEM (NS)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPLY AND EXTEND PREVIOUS UNDERSTANDINGS OF OPERATIONS WITH FRACTIONS TO ADD, SUBTRACT, MULTIPLY, AND DIVIDE RATIONAL NUMBERS	
7.NS.1	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. a. Describe situations in which opposite quantities combine to make 0. *For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged*. b. Understand $p + q$ as the number located a distance $\|q\|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. c. Understand subtraction of rational numbers as adding the additive inverse, $p – q = p + (–q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. d. Apply properties of operations as strategies to add and subtract rational numbers.
7.NS.2	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(–1)(–1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts. c. Apply properties of operations as strategies to multiply and divide rational numbers. d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.

THE NUMBER SYSTEM (NS)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
7.NS.3	Solve real-world and mathematical problems involving the four operations with rational numbers.[1]
KNOW THAT THERE ARE NUMBERS THAT ARE NOT RATIONAL, AND APPROXIMATE THEM BY RATIONAL NUMBERS	
8.NS.1	Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.
8.NS.2	Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (*e.g.,* π^2). *For example, by truncating the decimal expansion of* $\sqrt{2}$*, show that* $\sqrt{2}$ *is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.*

EXPRESSIONS AND EQUATIONS (EE)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
USE PROPERTIES OF OPERATIONS TO GENERATE EQUIVALENT EXPRESSIONS	
7.EE.1	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
7.EE.2	Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05."*

EXPRESSIONS AND EQUATIONS (EE)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
SOLVE REAL-LIFE AND MATHEMATICAL PROBLEMS USING NUMERICAL AND ALGEBRAIC EXPRESSIONS AND EQUATIONS	
7.EE.3	Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.*
7.EE.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers. Solve equations of these forms ***fluently***. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? b. Solve word problems leading to inequalities of the form *px + q > r* or *px + q < r*, where *p*, *q*, and *r* are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. *For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.*
WORK WITH RADICALS AND INTEGER EXPONENTS	
8.EE.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions. *For example,* $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.

EXPRESSIONS AND EQUATIONS (EE)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
8.EE.2	Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.
8.EE.3	Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. *For example, estimate the population of the United States as* 3×10^8 *and the population of the world as* 7×10^9*, and determine that the world population is more than 20 times larger.*
8.EE.4	Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.
UNDERSTAND THE CONNECTIONS BETWEEN PROPORTIONAL RELATIONSHIPS, LINES, AND LINEAR EQUATIONS	
8.EE.5	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.*
8.EE.6	Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.

EXPRESSIONS AND EQUATIONS (EE)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
ANALYZE AND SOLVE LINEAR EQUATIONS AND PAIRS OF SIMULTANEOUS LINEAR EQUATIONS	
8.EE.7	Solve linear equations in one variable. a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers). b. Solve linear equations and inequalities with rational number coefficients, including those whose solutions require expanding expressions using the distributive property and collecting like terms.

GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
DRAW, CONSTRUCT, AND DESCRIBE GEOMETRICAL FIGURES AND DESCRIBE THE RELATIONSHIPS BETWEEN THEM	
7.G.1	Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
7.G.2	Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.

GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
7.G.3	Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.
SOLVE REAL-WORLD AND MATHEMATICAL PROBLEMS INVOLVING ANGLE MEASURE, AREA, SURFACE AREA, AND VOLUME	
7.G.4	Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
7.G.5	Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
7.G.6	Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals and polygons including cubes, right prisms, and pyramids.
UNDERSTAND CONGRUENCE AND SIMILARITY USING PHYSICAL MODELS, TRANSPARENCIES, OR GEOMETRY SOFTWARE	
8.G.1	Verify experimentally the properties of rotations, reflections, and translations a. Lines are taken to lines, and line segments to line segments of the same length. b. Angles are taken to angles of the same measure. c. Parallel lines are taken to parallel lines.
8.G.2	Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
8.G.3	Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.

GEOMETRY (G)

MS CCR STANDARD IDENTIFIER ▼	MS CCR STANDARD ▼
8.G.4	Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.
8.G.5	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. *For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.*
SOLVE REAL-WORLD AND MATHEMATICAL PROBLEMS INVOLVING VOLUME OF CYLINDERS, CONES, AND SPHERES	
8.G.9	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

STATISTICS AND PROBABILITY (SP)

MS CCR STANDARD IDENTIFIER ▼	MS CCR STANDARD ▼
USE RANDOM SAMPLING TO DRAW INFERENCES ABOUT A POPULATION	
7.SP.1	Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

STATISTICS AND PROBABILITY (SP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
7.SP.2	Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. *For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.*
DRAW INFORMAL COMPARATIVE INFERENCES ABOUT TWO POPULATIONS	
7.SP.3	Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. *For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability on either team; on a dot plot, the separation between the two distributions of heights is noticeable.*
7.SP.4	Use measures of center and measures of variability (*i.e., inter-quartile range*) for numerical data from random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.*
INVESTIGATE CHANCE PROCESSES AND DEVELOP, USE, AND EVALUATE PROBABILITY MODELS	
7.SP.5	Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.

STATISTICS AND PROBABILITY (SP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
7.SP.6	Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.*
7.SP.7	Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.* b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. *For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?*
7.SP.8	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. b. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event. c. Design and use a simulation to generate frequencies for compound events. *For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?*

NOTES

[1] Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

CCR COMPACTED MATH GRADE 8

In Compacted Mathematics Grade 8 (with Algebra I), ***a one-credit course***, instruction should focus on 3 critical areas from Grade 8: (1) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations; (2) grasping the concept of a function and using functions to describe quantitative relationships; and (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean Theorem. Each critical area is described below.

(1) Students use linear equations and systems of linear equations to represent, analyze, and solve a variety of problems. Students recognize equations for proportions ($y/x = m$ or $y = mx$) as special linear equations ($y = mx + b$), understanding that the constant of proportionality (m) is the slope, and the graphs are lines through the origin. They understand that the slope (m) of a line is a constant rate of change, so that if the input or x-coordinate changes by an amount A, the output or y-coordinate changes by the amount $m \cdot A$. Students also use a linear equation to describe the association between two quantities in bivariate data (such as arm span vs. height for students in a classroom). At this grade, fitting the model, and assessing its fit to the data are done informally. Interpreting the model in the context of the data requires students to express a relationship between the two quantities in question and to interpret components of the relationship (such as slope and y-intercept) in terms of the situation.

Students strategically choose and efficiently implement procedures to solve linear equations in one variable, understanding that when they use the properties of equality and the concept of logical equivalence, they maintain the solutions of the original equation. Students solve systems of two linear equations in two variables and relate the systems to pairs of lines in the plane; these intersect, are parallel, or are the same line. Students use linear equations, systems of linear equations, linear functions, and their understanding of slope of a line to analyze situations and solve problems.

(2) Students grasp the concept of a function as a rule that assigns to each input exactly one output. They understand that functions describe situations where one quantity determines another. They can translate among representations and partial representations of functions (noting that tabular and graphical representations may be partial representations), and they describe how aspects of the function are reflected in the different representations.

(3) Students use ideas about distance and angles, how they behave under translations, rotations, reflections, and dilations, and ideas about congruence and similarity to describe and analyze two-dimensional figures and to solve problems. Students show that the sum of the angles in a triangle is the angle formed by a straight line, and that various configurations of lines give rise to similar triangles because of the angles created when a transversal cuts parallel lines. Students understand the statement of the Pythagorean Theorem and its converse, and can explain why the Pythagorean Theorem holds, for example, by decomposing a square in two different ways. They apply the Pythagorean Theorem to find distances between points on the coordinate plane, to find lengths, and to analyze polygons. Students complete their work on volume by solving problems involving cones, cylinders, and spheres.

In Algebra I, the fundamental purpose of this course is to formalize and extend the mathematics that students learned in the middle grades. Because it is built on the middle grades' standards, this is a more ambitious version of Algebra I than has generally been offered. Instruction should focus on five critical areas: (1) analyze and explain the process of solving equations and inequalities: (2) learn function notation and develop the concepts of domain and range; (3) use regression techniques; (4) create quadratic and exponential expressions; and (5) select from among these functions to model phenomena. Each critical area is described below.

(1) By the end of eighth grade, students have learned to solve linear equations in one variable and have applied graphical and algebraic methods to analyze and solve systems of linear equations in two variables. Now, students analyze and explain the process of solving an equation. Students develop fluency writing, interpreting, and translating between various forms of linear equations and inequalities, and using them to solve problems. They master the solution of linear equations and apply related solution techniques and the laws of exponents to the creation and solution of simple exponential equations.

(2) In earlier grades, students define, evaluate, and compare functions, and use them to model relationships between quantities. In this unit, students will learn function notation and develop the concepts of domain and range. They explore many examples of functions, including sequences; they interpret functions given graphically, numerically, symbolically, and verbally, translate between representations, and understand the limitations of various representations. Students build on and informally extend their understanding of integer exponents to consider exponential functions. They compare and contrast linear and exponential functions, distinguishing between additive and multiplicative change. Students explore systems of equations and inequalities, and they find and interpret their solutions. They interpret arithmetic sequences as linear functions and geometric sequences as exponential functions.

(3) This area builds upon prior students' prior experiences with data, providing students with more formal means of assessing how a model fits data. Students use regression techniques to describe approximately linear relationships between quantities. They use graphical representations and knowledge of the context to make judgments about the appropriateness of linear models. With linear models, they look at residuals to analyze the goodness of fit.

(4) In this area, students build on their knowledge from unit 2, where they extended the laws of exponents to rational exponents. Students apply this new understanding of number and strengthen their ability to see structure in and create quadratic and exponential expressions. They create and solve equations, inequalities, and systems of equations involving quadratic expressions.

(5) In this area, students consider quadratic functions, comparing the key characteristics of quadratic functions to those of linear and exponential functions. They select from among these functions to model phenomena. Students learn to anticipate the graph of a quadratic function by interpreting various forms of quadratic expressions. In particular, they identify the real solutions of a quadratic equation as the zeros of a related quadratic function. Students expand their experience with functions to include more specialized functions—absolute value, step, and those that are piecewise-defined.

The content within this grade-level course is centered on the mathematics domains of **the Number System** (Grades 6-8)**, Expressions & Equations** (Grades 6-8)**, Functions** (Grade 8), **Geometry** (Grades K-8)**,** and **Statistics & Probability** (Grades 6-8), and the high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling, Geometry**, and **Statistics & Probability**.[1] Instruction in these domains and conceptual categories should be designed to expose students to experiences that reflect the value of mathematics, enhance students' confidence in their ability to do mathematics and help students communicate and reason mathematically.

[1] For a detailed description of each High School Conceptual Category, see the *High School Conceptual Categories* section (pp. 156-163).

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
8.SMP.1	Make sense of problems and persevere in solving them.
8.SMP.2	Reason abstractly and quantitatively.
8.SMP.3	Construct viable arguments and critique the reasoning of others.
8.SMP.4	Model with mathematics.
8.SMP.5	Use appropriate tools strategically.
8.SMP.6	Attend to precision.
8.SMP.7	Look for and make use of structure.
8.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

NUMBER AND QUANTITY

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
THE REAL NUMBER SYSTEM (N-RN)	
USE PROPERTIES OF RATIONAL AND IRRATIONAL NUMBERS	
N-RN.3	Explain why: • the sum or product of two rational numbers is rational; • the sum of a rational number and an irrational number is irrational; and • the product of a nonzero rational number and an irrational number is irrational.
QUANTITIES (N-Q) *	
REASON QUANTITATIVELY AND USE UNITS TO SOLVE PROBLEMS	
N-Q.1	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. *
N-Q.2	Define appropriate quantities for the purpose of descriptive modeling. * [Refer to the *Quantities* section of the High School *Number and Quantity* Conceptual Category section of this document.]
N-Q.3	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. *

ALGEBRA

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
EXPRESSIONS AND EQUATIONS (EE)	
ANALYZE AND SOLVE LINEAR EQUATIONS AND PAIRS SIMULTANEOUS LINEAR EQUATIONS	
8.EE.8	Analyze and solve pairs of simultaneous linear equations. a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously. b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. *For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6.* c. Solve real-world and mathematical problems leading to two linear equations in two variables. *For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.*
SEEING STRUCTURE IN EXPRESSIONS (A-SSE)	
INTERPRET THE STRUCTURE OF EXPRESSIONS	
A-SSE.1	Interpret expressions that represent a quantity in terms of its context. * a. Interpret parts of an expression, such as terms, factors, and coefficients. b. Interpret complicated expressions by viewing one or more of their parts as a single entity. *For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P.*
A-SSE.2	Use the structure of an expression to identify ways to rewrite it. *For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.*

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MS CCR STANDARD IDENTIFIER	MS CCR STANDARD

WRITE EXPRESSIONS IN EQUIVALENT FORMS TO SOLVE PROBLEMS

A-SSE.3	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. * a. Factor a quadratic expression to reveal the zeros of the function it defines. b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines. c. Use the properties of exponents to transform expressions for exponential functions. *For example, the expression* 1.15^t *can be rewritten as* $[1.15^{1/12}]^{12t} \approx 1.012^{12t}$ *to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.*

ARITHMETIC WITH POLYNOMIALS AND RATIONAL EXPRESSIONS (A-APR)

PERFORM ARITHMETIC OPERATIONS ON POLYNOMIALS

A-APR.1	Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.

UNDERSTAND THE RELATIONSHIP BETWEEN ZEROS AND FACTORS OF POLYNOMIALS

A-APR.3	Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial (limit to 1st- and 2nd-degree polynomials).

CREATING EQUATIONS (A-CED) *

CREATE EQUATIONS THAT DESCRIBE NUMBERS OR RELATIONSHIPS

A-CED.1	Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and exponential functions.* *
A-CED.2	Create equations in two variables to represent relationships between quantities; graph equations on

ALGEBRA

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
	coordinate axes with labels and scales. * *[Note this standard appears in future courses with a slight variation in the standard language.]*
A-CED.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.* *
A-CED.4	Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. *For example, rearrange Ohm's law $V = IR$ to highlight resistance R.* *

REASONING WITH EQUATIONS AND INEQUALITIES (A-REI)

UNDERSTAND SOLVING EQUATIONS AS A PROCESS OF REASONING AND EXPLAIN THE REASONING

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
A-REI.1	Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

SOLVE EQUATIONS AND INEQUALITIES IN ONE VARIABLE

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
A-REI.3	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
A-REI.4	Solve quadratic equations in one variable. a. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x – p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form. b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions.

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MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
SOLVE SYSTEMS OF EQUATIONS	
A-REI.5	Given a system of two equations in two variables, show and explain why the sum of equivalent forms of the equations produces the same solution as the original system.
A-REI.6	Solve systems of linear equations algebraically, exactly using algebraic processes and approximately (e.g. graphically) while focusing on pairs of linear equations in two variables.
REPRESENT AND SOLVE EQUATIONS AND INEQUALITIES GRAPHICALLY	
A-REI.10	Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).
A-REI.11	Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where f(x) and/or g(x) are linear, quadratic, absolute value, and exponential functions. *
A-REI.12	Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

FUNCTIONS

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
FUNCTIONS (F)	
DEFINE, EVALUATE, AND COMPARE FUNCTIONS	
8.F.1	Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. [2]
8.F.2	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.*
8.F.3	Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. *For example, the function* $A = s^2$ *giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.*
USE FUNCTIONS TO MODEL RELATIONSHIPS BETWEEN QUANTITIES	
8.F.4	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
8.F.5	Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

FUNCTIONS

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
INTERPRETING FUNCTIONS (F-IF)	
UNDERSTAND THE CONCEPT OF A FUNCTION AND USE FUNCTION NOTATION	
F-IF.1	Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If *f* is a function and *x* is an element of its domain, then $f(x)$ denotes the output of *f* corresponding to the input *x*. The graph of *f* is the graph of the equation $y = f(x)$.
F-IF.2	Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.
F-IF.3	Use the fact that sequences are functions whose domain is a subset of the integers to identify sequences and generate their explicit formulas.
INTERPRET FUNCTIONS THAT ARISE IN APPLICATIONS IN TERMS OF CONTEXT	
F-IF.4	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; and end behavior.* *
F-IF.5	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.* *
F-IF.6	Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph. *

FUNCTIONS

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD

ANALYZE FUNCTIONS USING DIFFERENT REPRESENTATIONS

F-IF.7	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. * a. Graph functions (linear and quadratic) and show intercepts, maxima, and minima. b. Graph square root and piecewise-defined functions, including absolute value functions.
F-IF.8	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.
F-IF.9	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*

BUILDING FUNCTIONS (F-BF)

BUILD A FUNCTION THAT MODELS A RELATIONSHIP BETWEEN TWO QUANTITIES

F-BF.1	Write a function that describes a relationship between two quantities. * a. Determine an explicit expression or steps for calculation from a context.

BUILD NEW FUNCTIONS FROM EXISTING FUNCTIONS

F-BF.3	Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $kf(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology.

FUNCTIONS

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
LINEAR, QUADRATIC, AND EXPONENTIAL MODELS (F-LE) *	
CONSTRUCT AND COMPARE LINEAR, QUADRATIC, AND EXPONENTIAL MODELS AND SOLVE PROBLEMS	
F-LE.1	Distinguish between situations that can be modeled with linear functions and with exponential functions. * a. Prove that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals. b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.
F-LE.2	Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table). *
INTERPRET EXPRESSIONS FOR FUNCTIONS IN TERMS OF THE SITUATIONS THEY MODEL	
F-LE.5	Interpret the parameters in a linear or exponential function in terms of a context. *

GEOMETRY

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
GEOMETRY (G)	
UNDERSTAND AND APPLY THE PYTHAGOREAN THEOREM	
8.G.6	Explain a proof of the Pythagorean Theorem and its converse.
8.G.7	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
8.G.8	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.

STATISTICS AND PROBABILITY

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
STATISTICS AND PROBABILITY (SP)	
INVESTIGATE PATTERNS OF ASSOCIATION IN BIVARIATE DATA	
8.SP.1	Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.
8.SP.2	Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.

STATISTICS AND PROBABILITY

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
8.SP.3	Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. *For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.*
8.SP.4	Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. *For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?*

INTERPRETING CATEGORICAL AND QUANTITATIVE DATA (S-ID)

SUMMARIZE, REPRESENT, AND INTERPRET DATA ON A SINGLE COUNT OR MEASUREMENT VARIABLE

S-ID.1	Represent and analyze data with plots on the real number line (dot plots, histograms, and box plots). *
S-ID.2	Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. *
S-ID.3	Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers). *

STATISTICS AND PROBABILITY

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
SUMMARIZE, REPRESENT, AND INTERPRET DATA ON A TWO CATEGORICAL AND QUANTITATIVE VARIABLES	
S-ID.5	Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data. *
S-ID.6	Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. * a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. *Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.* b. Informally assess the fit of a function by plotting and analyzing residuals. c. Fit a linear function for a scatter plot that suggests a linear association.
INTERPRET LINEAR MODELS	
S-ID.7	Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data. *
S-ID.8	Compute (using technology) and interpret the correlation coefficient of a linear fit. *
S-ID.9	Distinguish between correlation and causation. *

NOTES

[2] Function notation is not required at Grade 8.

* Modeling Standards (**High School Standards only**)

SREB READY FOR HIGH SCHOOL MATH

The Southern Region Education Board (SREB) Ready for High School Math Course, is a ***one-credit course*** designed only for 8th and/or 9th graders.

This course offers an earlier intervention, reaching underprepared students as they enter high school, which for many students is the most critical time in their education in determining future success. This course emphasizes the understanding of math concepts rather than just memorizing procedures. In SREB Ready for High School Math, students learn why to use a certain formula or method to solve a problem. By engaging students in real-world applications, SREB Ready for High School Math develops critical-thinking skills that students will use throughout their high school studies.

The SREB Ready for High School Math course consists of eight units, focuses on sixty-eight key readiness standards, and culminates with a capstone project. The content within this course is centered on the mathematics from throughout middle school and even earlier, agreed to as essential college- and career-readiness standards for most students, and is aligned with the domains of **the Number System**, **Ratios and Proportional Relationships**, **Expressions & Equations**, **Functions**, **Geometry**, and **Statistics & Probability**. Instruction in these domains should be designed to expose students to experiences, which reflect the value of mathematics, to enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

For the most current SREB Ready for High School Math course description, standards, and materials, visit: *https://www.sreb.org/ready-high-school-math*.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
R.SMP.1	Make sense of problems and persevere in solving them.
R.SMP.2	Reason abstractly and quantitatively.
R.SMP.3	Construct viable arguments and critique the reasoning of others.
R.SMP.4	Model with mathematics.
R.SMP.5	Use appropriate tools strategically.
R.SMP.6	Attend to precision**.**
R.SMP.7	Look for and make use of structure.
R.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

THE NUMBER SYSTEM (NS)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
THE NUMBER SYSTEM	
UNIT ½	This introductory unit encourages a deeper understanding of order, comparison and computation of fractions through the exploration of different fraction models. Students will reflect upon which model works best to represent different situations and create connections between those models. This unit also introduces students to the general approach to instruction and modes of thinking and questioning they will encounter in the remainder of the course.
UNIT 1	This unit solidifies students’ understanding of the relationships among fractions, decimals and percents. The unit introduces students to scientific notation and irrational numbers. Students explore the context of scientific notation, and the forms of numbers used in solving math problems.

RATIOS AND PROPORTIONS (RP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
RATIO AND PROPORTIONAL RELATIONSHIPS	
UNIT 2	This introductory unit encourages a deeper understanding of order, comparison and computation of fractions through the exploration of different fraction models. Students will reflect upon which model works best to represent different situations and create connections between those models. This unit also introduces students to the general approach to instruction and modes of thinking and questioning they will encounter in the remainder of the course.

STATISTICS AND PROBABILITY (SP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
PROBABILITY AND ONE-VARIABLE STATISTICS	
UNIT 3	This unit solidifies students’ understanding of simple probability and one-variable statistics, including but not limited to describing distributions, sampling and statistical measures. Students explore ways mathematics can provide models to interpret data, make predictions and better understand the world. The limitations of statistics are discussed.

EXPRESSIONS AND EQUATIONS (EE)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
EXPRESSIONS, EQUATIONS, AND INEQUALITIES	
UNIT 4	This unit solidifies students’ understanding of the structure of expressions and solving equations. Illustrations, drawings and models are used to represent and solve equations and inequalities, helping to develop understanding of acceptable solutions. Students explore the relationships between properties of equations and algebraic expressions.

GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
GEOMETRY	
UNIT 5	This unit teaches students how to draw, translate and describe geometrical figures, understand congruence, use the Pythagorean Theorem and discuss relationships among different shapes in the context of real-world mathematical problems. Students explore how angles, parallel lines, congruent figures, triangles and quadrilaterals occur in real-life situations.

FUNCTIONS (F)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
FUNCTIONS AND LINEAR RELATIONSHIPS	
UNIT 6	Students identify the characteristics that distinguish functions from relations and identify functions as linear or nonlinear. Students investigate linear relationships in depth through tables, equations and graphs. Students develop linear models for real-world situations. Students relate slope as a rate of change and the y-intercept contextually to real-world problems.

EXPRESSIONS AND EQUATIONS (EE)	
MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
SYSTEMS OF EQUATIONS	
UNIT 7	Students explore solutions to systems of equations, including graphical representation and numerical solutions. Students learn to write and use systems of equations and/or inequalities to solve real-world problems and estimate the solution for a system of equations by graphing.

SUPPLEMENTAL MIDDLE SCHOOL MATH COURSES

Supplemental Mathematics (Grades 5-6) and (Grades 7-8) courses, formerly Compensatory Mathematics, are designed to provide targeted interventions of core mathematics concepts.[1]

Students in need of instructional support, intervention, or remediation may be enrolled in a Supplemental Mathematics course under the following stipulations:

The Supplemental Mathematics course:

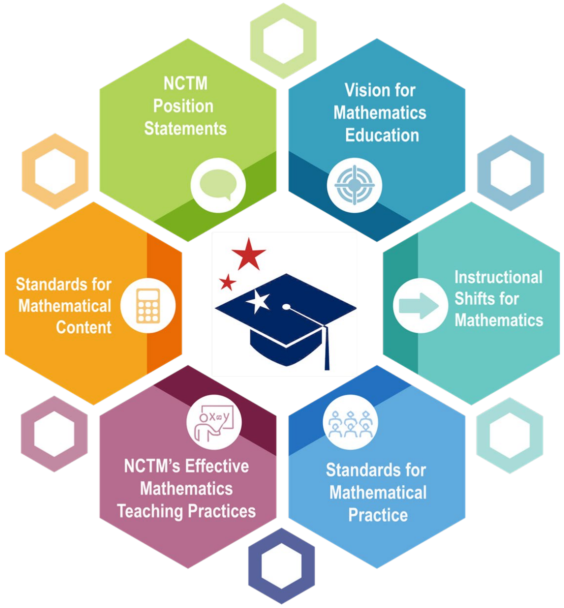
1. must be taken in concert with a credit-bearing course at the same grade level;
2. includes content supportive of the accompanying credit-bearing course;
3. should incorporate the Standards for Mathematical Practice (SMPs); and
4. may be taken as an elective, but will **not** satisfy the number of mathematics Carnegie units required for graduation.

Instruction within the supplemental mathematics courses should be designed to expose students to experiences, which reflect the value of mathematics, to enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

[1] Documentation of Tier II and III interventions is required. ***MS State Board Policy Manual:*** *Rule 41.1 intervention*.

Secondary *&*

High School



▶ Grades 9-12

HIGH SCHOOL OVERVIEW

The high school standards specify the mathematics that all students should study in order to be college and career ready. Additional mathematics that students might learn in order to take advanced courses are included in the Advanced Mathematics Plus and Algebra III courses. The high school standards are listed in **conceptual categories**:

- Number and Quantity
- Algebra
- Functions
- Modeling
- Geometry
- Statistics and Probability

Conceptual categories portray a coherent view of high school mathematics; a student's work with functions, for example, crosses a number of traditional course boundaries, potentially up through and including calculus.

Modeling is best interpreted not as a collection of isolated topics but in relation to other standards. Making mathematical models is a Standard for Mathematical Practice, and specific modeling standards appear throughout the high school standards indicated by an asterisk (*). The asterisk (*) symbol sometimes appears on the heading for a group of standards; in that case, it should be understood to apply to all standards in that group.

HIGH SCHOOL—CONCEPTUAL CATEGORIES

NUMBER AND QUANTITY

Numbers and Number Systems. During the years from kindergarten to eighth grade, students must repeatedly extend their conception of number. At first, "number" means "counting number": 1, 2, 3... Soon after that, 0 is used to represent "none" and the whole numbers are formed by the counting numbers together with zero. The next extension is fractions. At first, fractions are barely numbers and tied strongly to pictorial representations. Yet by the time students understand division of fractions, they have a strong concept of fractions as numbers and have connected them, via their decimal representations, with the base-ten system used to represent the whole numbers. During middle school, fractions are augmented by negative fractions to form the rational numbers. In Grade 8, students extend this system once more, augmenting the rational numbers with the irrational numbers to form the real numbers. In high school, students will be exposed to yet another extension of number, when the real numbers are augmented by the imaginary numbers to form the complex numbers.

With each extension of number, the meanings of addition, subtraction, multiplication, and division are extended. In each new number system—integers, rational numbers, real numbers, and complex numbers—the four operations stay the same in two important ways: They have the commutative, associative, and distributive properties and their new meanings are consistent with their previous meanings.

Extending the properties of whole-number exponents leads to new and productive notation. For example, properties of whole-number exponents suggest that $(5^{1/3})^3$ should be $5^{(1/3)3} = 5^1 = 5$ and that $5^{1/3}$ should be the cube root of 5.

Calculators, spreadsheets, and computer algebra systems can provide ways for students to become better acquainted with these new number systems and their notation. They can be used to generate data for numerical experiments, to help understand the workings of matrix, vector, and complex number algebra, and to experiment with non-integer exponents.

Quantities. In real world problems, the answers are usually not numbers but quantities: numbers with units, which involves measurement. In their work in measurement up through Grade 8, students primarily measure commonly used attributes such as length, area, and volume. In high school, students encounter a wider variety of units in modeling, e.g., acceleration, currency conversions, derived quantities such as person-hours and heating degree days, social science rates such as per-capita income, and rates in everyday life such as points scored per game or batting averages. They also encounter novel situations in which they themselves must conceive the attributes of interest. For example, to find a good measure of overall highway safety, they might propose measures such as fatalities per year, fatalities per year per driver, or fatalities per vehicle-mile traveled. Such a conceptual process is sometimes called quantification. Quantification is important for science, as when surface area suddenly "stands out" as an important variable in evaporation. Quantification is also important for companies, which must conceptualize relevant attributes and create or choose suitable measures for them.

ALGEBRA

Expressions. An expression is a record of a computation with numbers, symbols that represent numbers, arithmetic operations, exponentiation, and, at more advanced levels, the operation of evaluating a function. Conventions about the use of parentheses and the order of operations assure that each expression is unambiguous. Creating an expression that describes a computation involving a general quantity requires the ability to express the computation in general terms, abstracting from specific instances.

Reading an expression with comprehension involves analysis of its underlying structure. This may suggest a different but equivalent way of writing the expression that exhibits some different aspect of its meaning. For example, $p + 0.05p$ can be interpreted as the addition of a 5% tax to a price p. Rewriting $p + 0.05p$ as $1.05p$ shows that adding a tax is the same as multiplying the price by a constant factor.

Algebraic manipulations are governed by the properties of operations and exponents, and the conventions of algebraic notation. At times, an expression is the result of applying operations to simpler expressions. For example, $p + 0.05p$ is the sum of the simpler expressions p and $0.05p$. Viewing an expression as the result of operation on simpler expressions can sometimes clarify its underlying structure.

A spreadsheet or a computer algebra system (CAS) can be used to experiment with algebraic expressions, perform complicated algebraic manipulations, and understand how algebraic manipulations behave.

Equations and inequalities. An equation is a statement of equality between two expressions, often viewed as a question asking for which values of the variables the expressions on either side are in fact equal. These values are the solutions to the equation. An identity, in contrast, is true for all values of the variables; identities are often developed by rewriting an expression in an equivalent form.

The solutions of an equation in one variable form a set of numbers; the solutions of an equation in two variables form a set of ordered pairs of numbers, which can be plotted in the coordinate plane. Two or more equations and/or inequalities form a system. A solution for such a system must satisfy every equation and inequality in the system.

An equation can often be solved by successively deducing from it one or more simpler equations. For example, one can add the same constant to both sides without changing the solutions, but squaring both sides might lead to extraneous solutions. Strategic competence in solving includes looking ahead for productive manipulations and anticipating the nature and number of solutions.

Some equations have no solutions in a given number system, but have a solution in a larger system. For example, the solution of $x + 1 = 0$ is an integer, not a whole number; the solution of $2x + 1 = 0$ is a rational number, not an integer; the solutions of $x^2 - 2 = 0$ are real numbers, not rational numbers; and the solutions of $x^2 + 2 = 0$ are complex numbers, not real numbers.

The same solution techniques used to solve equations can be used to rearrange formulas. For example, the formula for the area of a trapezoid, $A = ((b_1+b_2)/2)h$, can be solved for h using the same deductive process.

Inequalities can be solved by reasoning about the properties of inequality. Many, but not all, of the properties of equality continue to hold for inequalities and can be useful in solving them.

Connections to Functions and Modeling. Expressions can define functions, and equivalent expressions define the same function. Asking when two functions have the same value for the same input leads to an equation; graphing the two functions allows for finding approximate solutions of the equation. Converting a verbal description to an equation, inequality, or system of these is an essential skill in modeling.

FUNCTIONS

Functions describe situations where one quantity determines another. For example, the return on $10,000 invested at an annualized percentage rate of 4.25% is a function of the length of time the money is invested. Because we continually make theories about dependencies between quantities in nature and society, functions are important tools in the construction of mathematical models.

In school mathematics, functions usually have numerical inputs and outputs and are often defined by an algebraic expression. For example, the time in hours it takes for a car to drive 100 miles is a function of the car's speed in miles per hour, v; the rule $T(v) = 100/v$ expresses this relationship algebraically and defines a function whose name is T.

The set of inputs to a function is called its domain. We often infer the domain to be all inputs for which the expression defining a function has a value, or for which the function makes sense in a given context.

A function can be described in various ways, such as by a graph (e.g., the trace of a seismograph); by a verbal rule, as in, "I'll give you a state, you give me the capital city;" by an algebraic expression like $f(x) = a + bx$; or by a recursive rule. The graph of a function is often a useful way of visualizing the relationship of the function models, and manipulating a mathematical expression for a function can throw light on the function's properties.

Functions presented as expressions can model many important phenomena. Two important families of functions characterized by laws of growth are linear functions, which grow at a constant rate, and exponential functions, which grow at a constant percent rate. Linear functions with a constant term of zero describe proportional relationships.

A graphing utility or a computer algebra system can be used to experiment with properties of these functions and their graphs and to build computational models of functions, including recursively defined functions.

Connections to Expressions, Equations, Modeling, and Coordinates. Determining an output value for a particular input involves evaluating an expression; finding inputs that yield a given output involves solving an equation. Questions about when two functions have the same value for the same input lead to equations, whose solutions can be visualized from the intersection of their graphs. Because functions describe relationships between quantities, they are frequently used in modeling. Sometimes functions are defined by a recursive process, which can be displayed effectively using a spreadsheet or other technology.

MODELING

Modeling links classroom mathematics and statistics to everyday life, work, and decision-making. Modeling is the process of choosing and using appropriate mathematics and statistics to analyze empirical situations, to understand them better, and to improve decisions. Quantities and their relationships in physical, economic, public policy, social, and everyday situations can be modeled using mathematical and statistical methods. When making mathematical models, technology is valuable for varying assumptions, exploring consequences, and comparing predictions with data.

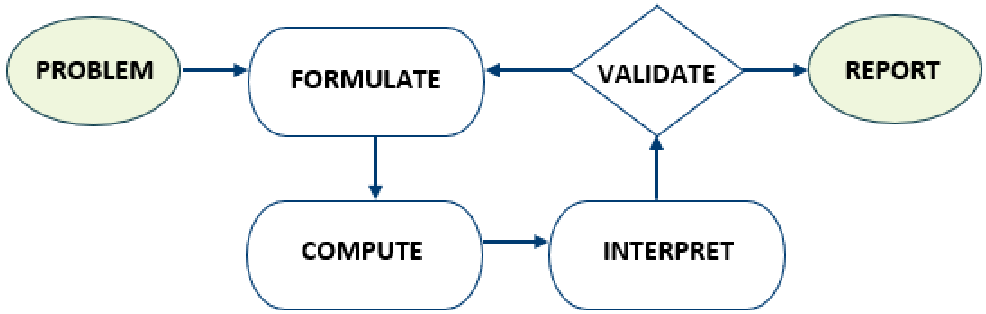
A model can be very simple, such as writing total cost as a product of unit price and number bought, or using a geometric shape to describe a physical object like a coin. Even such simple models involve making choices. It is up to us whether to model a coin as a three-dimensional cylinder, or whether a two-dimensional disk works well enough for our purposes. Other situations—modeling a delivery route, a production schedule, or a comparison of loan amortizations—need more elaborate models that use other tools from the mathematical sciences. Real-world situations are not organized and labeled for analysis; formulating tractable models, representing such models, and analyzing them is appropriately a creative process. Like every such process, this depends on acquired expertise as well as creativity.

Some examples of such situations might include:

- Estimating how much water and food is needed for emergency relief in a devastated city of 3 million people, and how it might be distributed.
- Planning a table tennis tournament for 7 players at a club with 4 tables, where each player plays against each other player.
- Designing the layout of the stalls in a school fair so as to raise as much money as possible.
- Analyzing stopping distance for a car.
- Modeling savings account balance, bacterial colony growth, or investment growth.
- Engaging in critical path analysis, e.g., applied to turnaround of an aircraft at an airport.
- Analyzing risk in situations such as extreme sports, pandemics, and terrorism.
- Relating population statistics to individual predictions.

In situations like these, the models devised depend on a number of factors: How precise an answer do we want or need? What aspects of the situation do we most need to understand, control, or optimize? What resources of time and tools do we have? The range of models that we can create and analyze is also constrained by the limitations of our mathematical, statistical, and technical skills, and our ability to recognize significant variables and relationships among them. Diagrams of various kinds, spreadsheets and other technology, and algebra are powerful tools for understanding and solving problems drawn from different types of real-world situations.

One of the insights provided by mathematical modeling is that essentially the same mathematical or statistical structure can sometimes model seemingly different situations. Models can also shed light on the mathematical structures themselves, for example, as when a model of bacterial growth makes more vivid the explosive growth of the exponential function.



The basic modeling cycle is summarized in the diagram. It involves (1) identifying variables in the situation and selecting those that represent essential features, (2) formulating a model by creating and selecting geometric, graphical, tabular, algebraic, or statistical representations that describe relationships between the variables, (3) analyzing and performing operations on these relationships to draw conclusions, (4) interpreting the results of the mathematics in terms of the original situation, (5) validating the conclusions by comparing them with the situation, and then either improving the model or, if it is acceptable, (6) reporting on the conclusions and the reasoning behind them. Choices, assumptions, and approximations are present throughout this cycle.

In descriptive modeling, a model simply describes the phenomena or summarizes them in a compact form. Graphs of observations are a familiar descriptive model—for example, graphs of global temperature and atmospheric CO_2 over time.

Analytic modeling seeks to explain data on the basis of deeper theoretical ideas, albeit with parameters that are empirically based; for example, exponential growth of bacterial colonies (until cut-off mechanisms such as pollution or starvation intervene) follows from a constant reproduction rate. Functions are an important tool for analyzing such problems.

Graphing utilities, spreadsheets, computer algebra systems, and dynamic geometry software are powerful tools that can be used to model purely mathematical phenomena (e.g., the behavior of polynomials) as well as physical phenomena.

Modeling Standards. *Modeling is best interpreted not as a collection of isolated topics but rather in relation to other standards. Making mathematical models is a Standard for Mathematical Practice, and specific modeling standards appear throughout the high school standards indicated by an asterisk (*).*

GEOMETRY

An understanding of the attributes and relationships of geometric objects can be applied in diverse contexts—interpreting a schematic drawing, estimating the amount of wood needed to frame a sloping roof, rendering computer graphics, or designing a sewing pattern for the most efficient use of material.

Although there are many types of geometry, school mathematics is devoted primarily to plane Euclidean geometry, studied both synthetically (without coordinates) and analytically (with coordinates). Euclidean geometry is characterized most importantly by the Parallel Postulate that through a point not on a given line there is exactly one parallel line. (Spherical geometry, in contrast, has no parallel lines.)

During high school, students begin to formalize their geometry experiences from elementary and middle school, using more precise definitions and developing careful proofs. Later in college some students develop Euclidean and other geometries carefully from a small set of axioms.

The concepts of congruence, similarity, and symmetry can be understood from the perspective of geometric transformation. Fundamental are the rigid motions: translations, rotations, reflections, and combinations of these, all of which are here assumed to preserve distance and angles (and therefore shapes generally). Reflections and rotations each explain a particular type of symmetry, and the symmetries of an object offer insight into its attributes—as when the reflective symmetry of an isosceles triangle assures that its base angles are congruent.

In the approach taken here, two geometric figures are defined to be congruent if there is a sequence of rigid motions that carries one onto the other. This is the principle of superposition. For triangles, congruence means the equality of all corresponding pairs of sides and all corresponding pairs of angles. During the middle grades, through experiences drawing triangles from given conditions, students notice ways to specify enough measures in a triangle to ensure that all triangles drawn with those measures are congruent. Once these triangle congruence criteria (ASA, SAS, and SSS) are established using rigid motions, they can be used to prove theorems about triangles, quadrilaterals, and other geometric figures.

Similarity transformations (rigid motions followed by dilations) define similarity in the same way that rigid motions define congruence, thereby formalizing the similarity ideas of “same shape” and “scale factor” developed in the middle grades. These transformations lead to the criterion for triangle similarity that two pairs of corresponding angles are congruent.

The definitions of sine, cosine, and tangent for acute angles are founded on right triangles and similarity, and, with the Pythagorean Theorem, are fundamental in many real-world and theoretical situations. The Pythagorean Theorem is generalized to non-right triangles by the Law of Cosines. Together, the Laws of Sines and Cosines embody the triangle congruence criteria for the cases where three pieces of information suffice to completely solve a triangle. Furthermore, these laws yield two possible solutions in the ambiguous case, illustrating that Side-Side-Angle is not a congruence criterion.

Analytic geometry connects algebra and geometry, resulting in powerful methods of analysis and problem solving. Just as the number line associates numbers with locations in one dimension, a pair of perpendicular axes associates pairs of numbers with locations in two dimensions. This correspondence between numerical coordinates and geometric points allows methods from algebra to be applied to geometry and vice versa. The solution set of an equation becomes a geometric curve, making visualization a tool for doing and understanding algebra. Geometric shapes can be described by equations, making algebraic manipulation into a tool for geometric understanding, modeling, and proof. Geometric transformations of the graphs of equations correspond to algebraic changes in their equations.

Dynamic geometry environments provide students with experimental and modeling tools that allow them to investigate geometric phenomena in much the same way as computer algebra systems allow them to experiment with algebraic phenomena.

Connections to Equations. The correspondence between numerical coordinates and geometric points allows methods from algebra to be applied to geometry and vice versa. The solution set of an equation becomes a geometric curve, making visualization a tool for doing and understanding algebra. Geometric shapes can be described by equations, making algebraic manipulation into a tool for geometric understanding, modeling, and proof.

STATISTICS AND PROBABILITY

Decisions or predictions are often based on data—numbers in context. These decisions or predictions would be easy if the data always sent a clear message, but the message is often obscured by variability. Statistics provides tools for describing variability in data and for making informed decisions that take it into account.

Data are gathered, displayed, summarized, examined, and interpreted to discover patterns and deviations from patterns. Quantitative data can be described in terms of key characteristics: measures of shape, center, and spread. The shape of a data distribution might be described as symmetric, skewed, flat, or bell shaped, and it might be summarized by a statistic measuring center (such as mean or median) and a statistic measuring spread (such as standard deviation or interquartile range). Different distributions can be compared numerically using these statistics or compared visually using plots. Knowledge of center and spread are not enough to describe a distribution. Which statistics to compare, which plots to use, and what the results of a comparison might mean, depend on the question to be investigated and the real-life actions to be taken.

Randomization has two important uses in drawing statistical conclusions. First, collecting data from a random sample of a population makes it possible to draw valid conclusions about the whole population, taking variability into account. Second, randomly assigning individuals to different treatments allows a fair comparison of the effectiveness of those treatments. A statistically significant outcome is one that is unlikely to be due to chance alone, and this can be evaluated only under the condition of randomness. The conditions under which data are collected are important in drawing conclusions from the data; in critically reviewing uses of statistics in public media and other reports, it is important to consider the study design, how the data were gathered, and the analyses employed as well as the data summaries and the conclusions drawn.

Random processes can be described mathematically by using a probability model: a list or description of the possible outcomes (the sample space), each of which is assigned a probability. In situations such as flipping a coin, rolling a number cube, or drawing a card, it might be reasonable to assume various outcomes are equally likely. In a probability model, sample points represent outcomes and combine to make up events; probabilities of events can be computed by applying the Addition and Multiplication Rules. Interpreting these probabilities relies on an understanding of independence and conditional probability, which can be approached through the analysis of two-way tables. Technology plays an important role in statistics and probability by making it possible to generate plots, regression functions, and correlation coefficients, and to simulate many possible outcomes in a short amount of time.

Connections to Functions and Modeling. Functions may be used to describe data; if the data suggest a linear relationship, the relationship can be modeled with a regression line, and its strength and direction can be expressed through a correlation coefficient.

BEST PRACTICES FOR SECONDARY MS CCR SEQUENCING

To help students meet College- and Career-Readiness ACT/SAT benchmarks in their junior year, the following course sequencing is recommended for mathematics. Any additional upper-level course sequencing is acceptable.

7 GRADE	8 GRADE	9 GRADE	10 GRADE	11 GRADE	12 GRADE
CCR Math Grade 7 (270101)	**CCR Math Grade 8** (270720)	**CCR Algebra I** (270404)	**CCR Geometry** (270408) **CCR Algebra II** (270405)	**CCR Algebra II** (270405) **CCR Geometry** (270408)	**CCR Algebra III** (270441) **or CCR Advanced Mathematics Plus** (270730) **or Essentials of College Math** (270715) **or SREB Math Ready** (270740) **or Calculus** (279912) **or AP Statistics** (270535) **or Dual Credit College Algebra** (906401) **or AP Pre-Calculus** (270620) **or AP Calculus** (279908)
CCR Compacted Math Grade 7 (270710)	**CCR Compacted Math Grade 8 with Algebra I** (270721)	**CCR Geometry** (270408) **CCR Algebra II** (270405)	**CCR Algebra II** (270405) **CCR Geometry** (270408)	**CCR Algebra III** (270441) **or Calculus** (279912) **or AP Statistics** (270535) **or AP Pre-Calculus** (270620) **or AP Calculus AB** (279908) **/ BC** (279909) **or Dual Credit College Algebra** (906401) **or Dual Credit College Trigonometry** (906411)	**CCR Advanced Mathematics Plus** (270730) **or Calculus** (279912) **or AP Statistics** (270535) **or AP Pre-Calculus** (270620) **or AP Calculus AB** (279908) **/ BC** (279909) **or Dual Credit College Algebra** (906401) **or Dual Credit College Trigonometry** (906411)

SUGGESTED COURSE SEQUENCE SECONDARY OPTIONS FOR MATHEMATICS

The course codes follow the course names in parentheses. For additional courses for math classes, please refer to *MSIS Approved Secondary Course Codes Report*. These are the most commonly used courses for secondary level students.

GRADE LEVEL ▼	OPTION 1 ▼	OPTION 2 ▼	OPTION 3 ▼
GRADE 7	• CCR Math Grade 7 (270101)	• CCR Compacted Math Grade 7 (270710)	• CCR Compacted Math Grade 7 (270710)
GRADE 8	• CCR Math Grade 8 (270720)	• CCR Compacted Math Grade 8 with Algebra I (270721)	• CCR Compacted Math Grade 8 with Algebra I (270721)
GRADE 9	• CCR Algebra I (270404)	• CCR Geometry (270408)	• CCR Algebra II (270405)
GRADE 10	• CCR Geometry (270408)	• CCR Algebra II (270405)	• CCR Geometry (270408)
GRADE 11	• CCR Algebra II (270405)	• CCR Algebra III (270441) **OR** • Calculus (279912) **OR** • AP Pre-Calculus (270620) **OR** • AP Calculus AB (279908)/ AP Calculus BC (279909) **OR** • Dual Credit/Dual Enrollment	• CCR Algebra III (270441) **OR** • Calculus (279912) **OR** • AP Pre-Calculus (270620) **OR** • AP Calculus AB (279908)/ AP Calculus BC (279909) **OR** • Dual Credit/Dual Enrollment
GRADE 12	• CCR Algebra III (270441) **OR** • CCR Advanced Mathematics Plus (270730) **OR** • Calculus (279912) **OR** • AP Pre-Calculus (270620) **OR** • AP Calculus AB (279908)/ AP Calculus BC (279909) **OR** • Essentials for College Math (270715)/SREB Math Ready (270740) **OR** • Dual Credit/Dual Enrollment Math Course	• CCR Algebra III (270441) **OR** • CCR Advanced Mathematics Plus • (270730) **OR** • Calculus (279912) **OR** • AP Pre-Calculus (270620) **OR** • AP Calculus AB (279908)/ AP Calculus BC (279909) **OR** • Essentials for College Math (270715)/SREB Math Ready (270740) **OR** • Dual Credit/Dual Enrollment Math Course	• CCR Algebra III (270441) OR • CCR Advanced Mathematics Plus • (270730) OR • Calculus (279912) OR • AP Pre-Calculus (270620) OR • AP Calculus AB (279908)/ AP Calculus BC (279909) OR • Essentials for College Math • (270715)/SREB Math Ready (270740) **OR** • Dual Credit/Dual Enrollment Math Course

FOUNDATIONS OF ALGEBRA

Foundations of Algebra is a ***one-credit course*** offered only to 9th-grade students.

The primary purpose of the *Foundations of Algebra* course is to provide a basis for curriculum development for rising 9th-grade students in need of substantial support prior to taking Algebra I. The standards for this course were developed based on core content that should have been mastered by the end of grade 8 and key skills that will be introduced in Algebra I. These core content standards are indicated in bold font and color-coded to match their original conceptual domain or category. Additional standards have been developed to ensure conceptual understanding. Students who have already successfully completed Algebra I may not take this course. Teachers of this course are encouraged to incorporate real-world contexts, appropriate manipulatives, and technology to assist students in developing the conceptual understanding needed to master course content.

The content within the *Foundations of* Algebra course focuses on the conceptual categories of **Algebra** and **Functions** (**equations**, **inequalities, polynomials)**, **Geometry**, and **Statistics and Probability.** Instruction in these conceptual categories should be designed to expose students to experiences, which reflect the value of mathematics, to enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
FA.SMP.1	Make sense of problems and persevere in solving them.
FA.SMP.2	Reason abstractly and quantitatively.
FA.SMP.3	Construct viable arguments and critique the reasoning of others.
FA.SMP.4	Model with mathematics.
FA.SMP.5	Use appropriate tools strategically.
FA.SMP.6	Attend to precision**.**
FA.SMP.7	Look for and make use of structure.
FA.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

ALGEBRA

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
EQUATIONS AND INEQUALITIES	
FA.A.1	Interpret key features of an expression (i.e., terms, factors, and coefficients). (**A-SSE.1a**)
FA.A.2	Create expressions that can be modeled by a real-world context.
FA.A.3	Use the structure of an expression to identify ways to rewrite it. (**A-SSE.2**)
FA.A.4	Simplify and evaluate numerical and algebraic expressions. (**7.EE.1**)
FA.A.5	Compare and contrast an expression and an equation and give examples of each.
FA.A.6	Given an equation, solve for a specified variable of degree one (i.e. *isolate a variable*). (**6.EE.7**, **7.EE.4**)
FA.A.7	Fluently solve and check multi-step equations and inequalities with an emphasis on the distributive property, variables on both sides, and rational coefficients. Explain each step when solving a multi-step equation and inequality. Justify each step using the properties of real numbers.
FA.A.8	Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. (**7.EE.4a**)
FA.A.9	Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Solve inequalities of these forms fluently. (**7.EE.4b**)
FA.A.10	Graph the solution point of an equation and the solution set of an inequality in one variable on a horizontal number line. For inequalities, be able to interpret and write the solution set in a variety of ways (e.g., set notation).
FA.A.11	Justify when linear equations in one variable will yield one solution, infinitely many solutions, or no solution. (**8.EE.7a**)

FUNCTIONS

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
FUNCTIONS	
FA.F.12	Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. Use function notation, where appropriate. (**F-IF.1**, **F-IF.2**)
FA.F.13	Compare and contrast a function and a relation. Use appropriate strategies to assess whether a given situation represents a function or a relation (e.g,. the vertical line test).
FA.F.14	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. (**F-IF.7**)
FA.F.15	Determine the rate of change of a linear function from a description of a relationship or from two (*x*, *y*) values, including reading these from a table or from a graph. (**8.F.4**) Use the rate of change to determine if two lines are parallel, perpendicular, or neither.
FA.F.16	Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values. (**8.F.4**)
FA.F.17	Create and graph the equation of a linear function given the rate of change and y-intercept. Compare and contrast up to three linear functions written in a various forms (i.e., point-slope, slope-intercept, standard form).
FA.F.18	Given two points, a graph, a table of values, a mapping, or a real-world context determine the linear function that models this information. Fluently convert between the point-slope, slope-intercept, and standard form of a line.
FA.F.19	Create and identify the parent function for linear and quadratic functions in the Coordinate Plane.
FA.F.20	Compare the properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the*

FUNCTIONS

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
	greater rate of change. (Limited to linear and quadratic functions only.) (**8.F.2**)
FA.F.21	Describe the following characteristics of linear and quadratic parent functions by inspection: domain/range, increasing/decreasing intervals, intercepts, symmetry, and asymptotic behavior. Identify each characteristic in set notation or words, where appropriate. (**A3.A.8**)
FA.F.22	Graph a system of two functions, $f(x)$ and $g(x)$, on the same Coordinate Plane by hand for simple cases, and with technology for complicated cases. Explain the relationship between the point(s) of intersection and the solution to the system. Determine the solution(s) using technology, a tables of values, substitution, or successive approximations. (Limited to linear and quadratic functions only.) (**8.EE.7b**, **A-REI.6**, **A-REI.11**)
FA.F.23	With accuracy, graph the solutions to a linear inequality in two variables as a half-plane, and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes on the same Coordinate Plane. (**A-REI.12**) Construct graphs of linear inequalities and systems of linear inequalities without technology. Use appropriate strategies to verify points that may or may not belong to the solution set.
FA.F.24	Identify real-world contexts that can be modeled by a system of inequalities in two variables. (Limited to three inequalities.)
FA.F.25	Identify when systems of equations and inequalities have constraints. (**A-CED.3**)
FA.F.26	Perform simple translations on linear functions given in a variety of forms (e.g., two points, a graph, a table of values, a mapping, slope-intercept form, or standard form). Explain the impact on the parent function when the slope is greater than one or less than one and the effect of increasing/decreasing the y-intercept.
FA.F.27	Given the graph of function in the form $f(x)+k$, $kf(x)$, $f(kx)$, or $f(x+k)$, where k belongs to the set of integers, identify the domain/range, increasing/decreasing intervals, intercepts, symmetry, and asymptotic behavior, where appropriate. (**F-BF.3**) Identify each characteristic in set notation or as an inequality, where

FUNCTIONS

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
	appropriate. (Limited to linear and quadratic functions only.)
FA.F.28	Identify and graph real-world contexts that can be modeled by a quadratic equation.
FA.F.29	Solve quadratic equations in standard form by factoring, graphing, tables, and the Quadratic Formula. Know when the Quadratic Formula might yield complex solutions and the location of the solutions in relationship to the x-axis. Know suitable alternatives for the terminology *"solution of a quadratic"* and when each is appropriate to use.
FA.F.30	Understand the relationship between the constants of a quadratic equation and the attributes of the graph. Recognize the relationship between the value of the discriminant and the type and number of solutions (i.e., *predict the characteristics of a graph given the equation*).

ALGEBRA

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
POLYNOMIALS	
FA.A.31	Describe and identify a polynomial of degree one, two, three and four by examining a polynomial expression or a graph.
FA.A.32	Add and subtract polynomials using appropriate strategies (e.g. by using Algebra Tiles).
FA.A.33	Factor polynomials using the greatest common factor and factor quadratics that have only rational zeros.
FA.A.34	Justify why some polynomials are prime over the rational number system.

ALGEBRA

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
FA.A.35	Use the zeros of a polynomial to construct a rough graph of the function. (A-APR.3)

GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
GEOMETRY	
FA.G.36	Explain and apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions. (8.G.7)
FA.G.37	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system. (8.G.8)
FA.G.38	Fluently use formulas and/or appropriate measuring tools to find length and angle measures, perimeter, area, volume, and surface area of polygons, circles, spheres, cones, cylinders, pyramids, and composite or irregular figures. Use them to solve real-world and mathematical problems. (8.G.9)
FA.G.39	Solve real-world and mathematical problems involving two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. (7.G.6)

STATISTICS AND PROBABILITY (SP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
STATISTICS	
FA.SP.40	Without technology, fluently calculate the measures of central tendency (mean, median, mode), measures of spread (range, interquartile range), and understand the impact of extreme values (outliers) on each of these values. (**6.SP.5, 8.SP.1, S-ID.3**) Justify which measure is appropriate to use when describing a data set or a real-world context.
FA.SP.41	Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association. (**8.SP.1**)
FA.SP.42	Know when it is and is not appropriate to use a linear model to make predictions about a data set beyond a given set of values. Explain extrapolation and interpolation and the impact both have on predicted values.
FA.SP.43	For scatter plots that suggest a linear association, informally fit a straight line and predict the equation for the line of best fit. (**8.SP.2**)
FA.SP.44	Justify the relationship between the correlation coefficient and the rate of change for the line of best fit.
FA.SP.45	Understand the difference between correlation and causation and identify real-world contexts that depict each of them. (**S-ID.9**)

CCR ALGEBRA I

In Algebra I, a ***one-credit course***, the fundamental purpose of this course is to formalize and extend the mathematics that students learned in the middle grades. Because it is built on the middle grades' standards, this is a more ambitious version of Algebra I than has generally been offered. Instruction should focus on five critical areas: (1) analyze and explain the process of solving equations and inequalities; (2) learn function notation and develop the concepts of domain and range; (3) use regression techniques; (4) create quadratic and exponential expressions; and (5) select from among these functions to model phenomena. Each critical area is described below.

(1) By the end of eighth grade, students have learned to solve linear equations in one variable and have applied graphical and algebraic methods to analyze and solve systems of linear equations in two variables. Now, students analyze and explain the process of solving an equation. Students develop fluency writing, interpreting, and translating between various forms of linear equations and inequalities, and using them to solve problems. They master the solution of linear equations and apply related solution techniques and the laws of exponents to the creation and solution of simple exponential equations.

(2) In earlier grades, students define, evaluate, and compare functions, and use them to model relationships between quantities. In this unit, students will learn function notation and develop the concepts of domain and range. They explore many examples of functions, including sequences; they interpret functions given graphically, numerically, symbolically, and verbally, translate between representations, and understand the limitations of various representations. Students build on and informally extend their understanding of integer exponents to consider exponential functions. They compare and contrast linear and exponential functions, distinguishing between additive and multiplicative change. Students explore systems of equations and inequalities, and they find and interpret their solutions. They interpret arithmetic sequences as linear functions and geometric sequences as exponential functions.

(3) This area builds upon prior students' prior experiences with data, providing students with more formal means of assessing how a model fits data. Students use regression techniques to describe approximately linear relationships between quantities. They use graphical representations and knowledge of the context to make judgments about the appropriateness of linear models. With linear models, they look at residuals to analyze the goodness of fit.

(4) In this area, students build on their knowledge from unit 2, where they extended the laws of exponents to rational exponents. Students apply this new understanding of number and strengthen their ability to see structure in and create quadratic and exponential expressions. They create and solve equations, inequalities, and systems of equations involving quadratic expressions.

(5) In this area, students consider quadratic functions, comparing the key characteristics of quadratic functions to those of linear and exponential functions. They select from among these functions to model phenomena. Students learn to anticipate the graph of a quadratic function by interpreting various forms of quadratic expressions. In particular, they identify the real solutions of a quadratic equation as the zeros of a related quadratic function. Students expand their experience with functions to include more specialized functions—absolute value, step, and those that are piecewise defined.

The content within this course is centered on the mathematics high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling,** and **Statistics & Probability**. Instruction in these conceptual categories should be designed to expose students to experiences that reflect the value of mathematics, enhance students' confidence in their ability to do mathematics and help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
A.SMP.1	Make sense of problems and persevere in solving them.
A.SMP.2	Reason abstractly and quantitatively.
A.SMP.3	Construct viable arguments and critique the reasoning of others.
A.SMP.4	Model with mathematics.
A.SMP.5	Use appropriate tools strategically.
A.SMP.6	Attend to precision.
A.SMP.7	Look for and make use of structure.
A.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

NUMBER AND QUANTITY

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
THE REAL NUMBER SYSTEM (N-RN)	
USE PROPERTIES OF RATIONAL AND IRRATIONAL NUMBERS	
N-RN.3	Explain why: • the sum or product of two rational numbers is rational; • the sum of a rational number and an irrational number is irrational; and • the product of a nonzero rational number and an irrational number is irrational.
QUANTITIES (N-Q) *	
REASON QUANTITATIVELY AND USE UNITS TO SOLVE PROBLEMS	
N-Q.1	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. *
N-Q.2	Define appropriate quantities for the purpose of descriptive modeling. * [Refer to the *Quantities* section of the High School *Number and Quantity* Conceptual Category section of this document.]
N-Q.3	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. *

ALGEBRA

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
SEEING STRUCTURE IN EXPRESSIONS (A-SSE)	
INTERPRET THE STRUCTURE OF EXPRESSIONS	
A-SSE.1	Interpret expressions that represent a quantity in terms of its context. * c. Interpret parts of an expression, such as terms, factors, and coefficients. d. Interpret complicated expressions by viewing one or more of their parts as a single entity. *For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P.*
A-SSE.2	Use the structure of an expression to identify ways to rewrite it. *For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.*
WRITE EXPRESSIONS IN EQUIVALENT FORMS TO SOLVE PROBLEMS	
A-SSE.3	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. * d. Factor a quadratic expression to reveal the zeros of the function it defines. e. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines. f. Use the properties of exponents to transform expressions for exponential functions. *For example, the expression 1.15^t can be rewritten as $[1.15^{1/12}]^{12t} \approx 1.012^{12t}$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.*
ARITHMETIC WITH POLYNOMIALS AND RATIONAL EXPRESSIONS (A-APR)	
PERFORM ARITHMETIC OPERATIONS ON POLYNOMIALS	
A-APR.1	Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.

ALGEBRA

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
UNDERSTAND THE RELATIONSHIP BETWEEN ZEROS AND FACTORS OF POLYNOMIALS	
A-APR.3	Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial (limit to 1st- and 2nd-degree polynomials).
CREATING EQUATIONS (A-CED) *	
CREATE EQUATIONS THAT DESCRIBE NUMBERS OR RELATIONSHIPS	
A-CED.1	Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and exponential functions.* *
A-CED.2	Create equations in two variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. * *[Note this standard appears in future courses with a slight variation in the standard language.]*
A-CED.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.* *
A-CED.4	Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. *For example, rearrange Ohm's law V = IR to highlight resistance R.* *
REASONING WITH EQUATIONS AND INEQUALITIES (A-REI)	
UNDERSTAND SOLVING EQUATIONS AS A PROCESS OF REASONING AND EXPLAIN THE REASONING	
A-REI.1	Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

ALGEBRA

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
SOLVE EQUATIONS AND INEQUALITIES IN ONE VARIABLE	
A-REI.3	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
A-REI.4	Solve quadratic equations in one variable. a. Use the method of completing the square to transform any quadratic equation in *x* into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form. b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions.
SOLVE SYSTEMS OF EQUATIONS	
A-REI.5	Given a system of two equations in two variables, show and explain why the sum of equivalent forms of the equations produces the same solution as the original system.
A-REI.6	Solve systems of linear equations exactly using algebraic processes and approximately (e.g., graphically) while focusing on pairs of linear equations in two variables.
REPRESENT AND SOLVE EQUATIONS AND INEQUALITIES GRAPHICALLY	
A-REI.10	Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).
A-REI.11	Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, quadratic, absolute value, and exponential functions. *

ALGEBRA

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
A-REI.12	Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

FUNCTIONS

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
INTERPRETING FUNCTIONS (F-IF)	
UNDERSTAND THE CONCEPT OF A FUNCTION AND USE FUNCTION NOTATION	
F-IF.1	Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x. The graph of f is the graph of the equation $y = f(x)$.
F-IF.2	Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.
F-IF.3	Use the fact that sequences are functions whose domain is a subset of the integers to identify sequences and generate their explicit formulas.
INTERPRET FUNCTIONS THAT ARISE IN APPLICATIONS IN TERMS OF CONTEXT	
F-IF.4	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the

FUNCTIONS

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
	relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; and end behavior.* *
F-IF.5	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.* *
F-IF.6	Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph. *
ANALYZE FUNCTIONS USING DIFFERENT REPRESENTATIONS	
F-IF.7	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. * a. Graph functions (linear and quadratic) and show intercepts, maxima, and minima. b. Graph square root and piecewise-defined functions, including absolute value functions.
F-IF.8	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.
F-IF.9	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*
BUILDING FUNCTIONS (F-BF)	
BUILD A FUNCTION THAT MODELS A RELATIONSHIP BETWEEN TWO QUANTITIES	
F-BF.1	Write a function that describes a relationship between two quantities. *

FUNCTIONS	
MS CCR STANDARD IDENTIFIER	**MS CCR STANDARD**
	a. Determine an explicit expression or steps for calculation from a context.
BUILD NEW FUNCTIONS FROM EXISTING FUNCTIONS	
F-BF.3	Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $kf(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology.
LINEAR, QUADRATIC, AND EXPONENTIAL MODELS (F-LE) *	
CONSTRUCT AND COMPARE LINEAR, QUADRATIC, AND EXPONENTIAL MODELS AND SOLVE PROBLEMS	
F-LE.1	Distinguish between situations that can be modeled with linear functions and with exponential functions. * a. Prove that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals. b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.
F-LE.2	Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table). *
INTERPRET EXPRESSIONS FOR FUNCTIONS IN TERMS OF THE SITUATIONS THEY MODEL	
F-LE.5	Interpret the parameters in a linear or exponential function in terms of a context. *

STATISTICS AND PROBABILITY *

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
INTERPRETING CATEGORICAL AND QUANTITATIVE DATA (S-ID)	
SUMMARIZE, REPRESENT, AND INTERPRET DATA ON A SINGLE COUNT OR MEASUREMENT VARIABLE	
S-ID.1	Represent and analyze data with plots on the real number line (dot plots, histograms, and box plots). *
S-ID.2	Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. *
S-ID.3	Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers). *
SUMMARIZE, REPRESENT, AND INTERPRET DATA ON A TWO CATEGORICAL AND QUANTITATIVE VARIABLES	
S-ID.5	Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data. *
S-ID.6	Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. * a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. *Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.* b. Informally assess the fit of a function by plotting and analyzing residuals. c. Fit a linear function for a scatter plot that suggests a linear association.
INTERPRET LINEAR MODELS	
S-ID.7	Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data. *

STATISTICS AND PROBABILITY *

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
S-ID.8	Compute (using technology) and interpret the correlation coefficient of a linear fit. *
S-ID.9	Distinguish between correlation and causation. *

NOTE

* Modeling Standards

CCR GEOMETRY

The fundamental purpose of the course in Geometry, ***a one-credit course***, is to formalize and extend students' geometric experiences from the middle grades. Students explore more complex geometric situations and deepen their explanations of geometric relationships, moving towards formal mathematical arguments. Important differences exist between this Geometry course and the historical approach taken in Geometry classes. Close attention should be paid to the introductory content for the Geometry conceptual category found in the high school MS CCRS. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. The six critical areas of this course include (1) building a thorough understanding of translations, reflections, and rotations; (2) developing the understanding of similarity and several theorems; (3) extension of formulas for 2- dimensional and 3-dimensional objects; (4) extension of 8th grade geometric concepts of lines; (5) prove basic theorems about circles; and (6) work with experimental and theoretical probability. Each critical area is described below:

(1) In previous grades, students were asked to draw triangles based on given measurements. They also have prior experience with rigid motions: translations, reflections, and rotations and have used these to develop notions about what it means for two objects to be congruent. In this unit, students establish triangle congruence criteria, based on analyses of rigid motions and formal constructions. They use triangle congruence as a familiar foundation for the development of formal proof. Students prove theorems—using a variety of formats—and solve problems about triangles, quadrilaterals, and other polygons. They apply reasoning to complete geometric constructions and explain why they work.

(2) Students apply their earlier experience with dilations and proportional reasoning to build a formal understanding of similarity. They identify criteria for similarity of triangles, use similarity to solve problems, and apply similarity in right triangles to understand right triangle trigonometry, with particular attention to special right triangles and the Pythagorean Theorem. Students develop the Laws of Sines and Cosines in order to find missing measures of general (not necessarily right) triangles, building on students' work with quadratic equations done in the first course. They are able to distinguish whether three given measures (angles or sides) define 0, 1, 2, or infinitely many triangles.

(3) Students' experience with two-dimensional and three-dimensional objects is extended to include informal explanations of circumference, area and volume formulas. Additionally, students apply their knowledge of two- dimensional shapes to consider the shapes of cross-sections and the result of rotating a two-dimensional object about a line.

(4) Building on their work with the Pythagorean theorem in 8th grade to find distances, students use a rectangular coordinate system to verify geometric relationships, including properties of special triangles and quadrilaterals and slopes of parallel and perpendicular lines, which relates

back to work done in the first course. Students continue their study of quadratics by connecting the geometric and algebraic definitions of the parabola.

(5) Students prove basic theorems about circles, such as a tangent line is perpendicular to a radius, inscribed angle theorem, and theorems about chords, secants, and tangents dealing with segment lengths and angle measures. They study relationships among segments on chords, secants, and tangents as an application of similarity. In the Cartesian coordinate system, students use the distance formula to write the equation of a circle when given the radius and the coordinates of its center. Given an equation of a circle, they draw the graph in the coordinate plane, and apply techniques for solving quadratic equations, which relates back to work done in the first course, to determine intersections between lines and circles or parabolas and between two circles.

(6) Building on probability concepts that began in the middle grades, students use the languages of set theory to expand their ability to compute and interpret theoretical and experimental probabilities for compound events, attending to mutually exclusive events, independent events, and conditional probability. Students should make use of geometric probability models wherever possible. They use probability to make informed decisions.

The content within this course is centered on the mathematics high school conceptual categories of **Geometry** and **Modeling**. Instruction in these conceptual categories should be designed to expose students to experiences that reflect the value of mathematics, enhance students' confidence in their ability to do mathematics and help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
G.SMP.1	Make sense of problems and persevere in solving them.
G.SMP.2	Reason abstractly and quantitatively.
G.SMP.3	Construct viable arguments and critique the reasoning of others.
G.SMP.4	Model with mathematics.
G.SMP.5	Use appropriate tools strategically.
G.SMP.6	Attend to precision.
G.SMP.7	Look for and make use of structure.
G.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

GEOMETRY

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
CONGRUENCE (G-CO)	
EXPERIMENT WITH TRANSFORMATIONS IN THE PLANE	
G-CO.1	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
G-CO.2	Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).
G-CO.3	Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.
G-CO.4	Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.
G-CO.5	Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.
UNDERSTAND CONGRUENCE IN TERMS OF RIGID MOTIONS	
G-CO.6	Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.
G-CO.7	Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.
G-CO.8	Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence

GEOMETRY

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
	in terms of rigid motions.
PROVE GEOMETRIC THEREOMS	
G-CO.9	Prove theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.*
G-CO.10	Prove theorems about triangles. *Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.*
G-CO.11	Prove theorems about parallelograms. *Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.*
MAKE GEOMETRIC CONSTRUCTIONS	
G-CO.12	Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.*
G-CO.13	Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.

GEOMETRY

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
SIMILARITY, RIGHT TRIANGLES, AND TRIGONOMETRY (G-SRT)	
UNDERSTAND SIMILARITY IN TERMS OF SIMILARITY TRANSFORMATIONS	
G-SRT.1	Verify experimentally the properties of dilations given by a center and a scale factor: a. A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged. b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor.
G-SRT.2	Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.
G-SRT.3	Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.
PROVE THEOREMS INVOLVING SIMILARITY	
G-SRT.4	Prove theorems about triangles. *Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.*
G-SRT.5	Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
DEFINE TRIGONOMETRIC RATIOS AND SOLVE PROBLEMS INVOLVING RIGHT TRIANGLES	
G-SRT.6	Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.
G-SRT.7	Explain and use the relationship between the sine and cosine of complementary angles.
G-SRT.8	Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems and rewrite expressions involving radicals to simplify and interpret solutions. *

GEOMETRY

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
CIRCLES (G-C)	
UNDERSTAND AND APPLY THEOREMS ABOUT CIRCLES	
G-C.1	Prove that all circles are similar.
G-C.2	Identify and describe relationships among inscribed angles, radii, and chords. *Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.*
G-C.3	Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.
FIND ARC LENGTHS AND AREAS OF SECTORS OF CIRCLES	
G-C.5	Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.
EXPRESSING GEOMETRIC PROPERTIES WITH EQUATIONS (G-GPE)	
TRANSLATE BETWEEN THE GEOMETRIC DESCRIPTION AND THE EQUATION FOR A CONIC SECTION	
G-GPE.1	Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.
USE COORDINATES TO PROVE SIMPLE GEOMETRIC THEOREMS ALGEBRAICALLY	
G-GPE.4	Use coordinates to prove simple geometric theorems algebraically. *For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point (1, $\sqrt{3}$) lies on the circle centered at the origin and containing the point (0, 2).*

GEOMETRY

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
G-GPE.5	Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).
G-GPE.6	Find the point on a directed line segment between two given points that partitions the segment in a given ratio.
G-GPE.7	Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula. *
GEOMETRIC MEASUREMENT AND DIMENSION (G-GMD)	
EXPLAIN VOLUME FORMULAS AND USE THEM TO SOLVE PROBLEMS	
G-GMD.1	Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. *Use dissection arguments, Cavalieri's principle, and informal limit arguments.*
G-GMD.3	Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems. *
VISUALIZE RELATIONSHIPS BETWEEN TWO-DIMENSIONAL AND THREE-DIMENTSIONAL OBJECTS	
G-GMD.4	Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.
MODELING WITH GEOMETRY (G-MG)	
APPLY GEOMETRIC CONCEPTS IN MODELING SITUATIONS	
G-MG.1	Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder). *
G-MG.2	Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot). *

GEOMETRY

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
G-MG.3	Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios). *

NOTE

* Modeling Standards

CCR ALGEBRA II

In Algebra II, ***a one-credit course***, students build on their work with linear, quadratic, and exponential functions, to extend their repertoire of functions to include polynomial, rational, and radical functions. Students work closely with the expressions that define the functions, and continue to expand and hone their abilities to model situations and to solve equations, including solving quadratic equations over the set of complex numbers and solving exponential equations using the properties of logarithms. The Mathematical Practice Standards apply throughout this course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. The four critical areas of this course include (1) working extensively with polynomial operations; (2) building connections between geometry and trigonometric ratios; (3) understanding of a variety of function families; and (4) explore statistical data. Each critical area is described below:

(1) Students develop the structural similarities between the system of polynomials and the system of integers. Students draw on analogies between polynomial arithmetic and base-ten computation, focusing on properties of operations, particularly the distributive property. Students connect multiplication of polynomials with multiplication of multi-digit integers, and division of polynomials with long division of integers. Students identify zeros of polynomials, including complex zeros of quadratic polynomials, and make connections between zeros of polynomials and solutions of polynomial equations. The unit culminates with the fundamental theorem of algebra. A central theme of this unit is that the arithmetic of rational expressions is governed by the same rules as the arithmetic of rational numbers.

(2) Building on their previous work with functions, and on their work with trigonometric ratios and circles in Geometry, students now use the coordinate plane to extend trigonometry to model periodic phenomena.

(3) Students synthesize and generalize what they have learned about a variety of function families. They extend their work with exponential functions to include solving exponential equations with logarithms. They explore the effects of transformations on graphs of diverse functions, including functions arising in an application, in order to abstract the general principle that transformations on a graph always have the same effect regardless of the type of the underlying function. They identify appropriate types of functions to model a situation, they adjust parameters to improve the model, and they compare models by analyzing appropriateness of fit and making judgments about the domain over which a model is a good fit. The description of modeling as “the process of choosing and using mathematics and statistics to analyze empirical situations, to understand them better, and to make decisions” is at the heart of this unit. The narrative discussion and diagram of the modeling cycle should be considered when knowledge of functions, statistics, and geometry is applied in a modeling context.

(4) Students see how the visual displays and summary statistics they learned in earlier grades relate to different types of data and to probability distributions. They identify different ways of collecting data—including sample surveys, experiments, and simulations—and the role that randomness and careful design play in the conclusions that can be drawn.

The content within this course is centered on the mathematics high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling, Geometry,** and **Statistics & Probability**. Instruction in these domains and conceptual categories should be designed to expose students to experiences that reflect the value of mathematics, enhance students' confidence in their ability to do mathematics and help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
A.SMP.1	Make sense of problems and persevere in solving them.
A.SMP.2	Reason abstractly and quantitatively.
A.SMP.3	Construct viable arguments and critique the reasoning of others.
A.SMP.4	Model with mathematics.
A.SMP.5	Use appropriate tools strategically.
A.SMP.6	Attend to precision.
A.SMP.7	Look for and make use of structure.
A.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

NUMBER AND QUANTITY

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
THE REAL NUMBER SYSTEM (N-RN)	
EXTEND THE PROPERTIES OF EXPONENTS TO RATIONAL EXPONENTS	
N-RN.1	Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. *For example, we define $5^{1/3}$ to be the cube root of 5 because we want $[5^{1/3}]^3 = 5^{(1/3)3}$ to hold, so $[5^{1/3}]^3$ must equal 5.*
N-RN.2	Rewrite expressions involving radicals and rational exponents using the properties of exponents.
QUANTITIES (N-Q) *	
REASON QUANTITATIVELY AND USE UNITS TO SOLVE PROBLEMS	
N-Q.2	Define appropriate quantities for the purpose of descriptive modeling. *
THE COMPLEX NUMBER SYSTEM (N-CN)	
PERFORM ARITHMETIC OPERATIONS WITH COMPLEX NUMBERS	
N-CN.1	Know there is a complex number i such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real.
N-CN.2	Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.
USE COMPLEX NUMBERS IN POLYNOMIAL IDENTITIES AND EQUATIONS	
N-CN.7	Solve quadratic equations with real coefficients that have complex solutions.

ALGEBRA

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
SEEING STRUCTURE IN EXPRESSIONS (A-SSE)	
INTERPRET THE STRUCTURE OF EXPRESSIONS	
A-SSE.2	Use the structure of an expression to identify ways to rewrite it. *For example, see* $x^4 - y^4$ *as* $(x^2)^2 - (y^2)^2$, *thus recognizing it as a difference of squares that can be factored as* $(x^2 - y^2)(x^2 + y^2)$.
WRITE EXPRESSIONS IN EQUIVALENT FORMS TO SOLVE PROBLEMS	
A-SSE.3	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. * c. Use the properties of exponents to transform expressions for exponential functions. *For example the expression* 1.15^t *can be rewritten as* $[1.15^{1/12}]^{12t} \approx 1.012^{12t}$ *to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.*
A-SSE.4	Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. *For example, calculate mortgage payments.* *
ARITHMETIC WITH POLYNOMIALS AND RATIONAL EXPRESSIONS (A-APR)	
UNDERSTAND THE RELATIONSHIP BETWEEN ZEROS AND FACTORS OF POLYNOMIALS	
A-APR.2	Know and apply the Remainder Theorem: For a polynomial $p(x)$ and a number a, the remainder on division by $x - a$ is $p(a)$, so $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.
A-APR.3	Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial (limit to 1st- and 2nd-degree polynomials).

ALGEBRA

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
USE POLYNOMIAL IDENTITIES TO SOLVE PROBLEMS	
A-APR.4	Prove polynomial identities and use them to describe numerical relationships. *For example, the polynomial identity* $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ *can be used to generate Pythagorean triples.*
REWRITE RATIONAL EXPRESSIONS	
A-APR.6	Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.
CREATING EQUATIONS (A-CED) *	
CREATE EQUATIONS THAT DESCRIBE NUMBERS OR RELATIONSHIPS	
A-CED.1	Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and exponential functions.* *
A-CED.2	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. *[Note this standard appears in previous courses with a slight variation in the standard language.]*
A-CED.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.

ALGEBRA

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
REASONING WITH EQUATIONS AND INEQUALITIES (A-REI)	
UNDERSTAND SOLVING EQUATIONS AS A PROCESS OF REASONING AND EXPLAIN THE REASONING	
A-REI.1	Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.
A-REI.2	Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.
SOLVE EQUATIONS AND INEQUALITIES IN ONE VARIABLE	
A-REI.4	Solve quadratic equations in one variable. b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions.
SOLVE SYSTEMS OF EQUATIONS	
A-REI.6	Solve systems of linear equations exactly using algebraic processes and approximately (e.g., graphically) while focusing on pairs of linear equations in two variables.
A-REI.7	Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. *For example, find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.*

ALGEBRA

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
REPRESENT AND SOLVE EQUATIONS AND INEQUALITIES GRAPHICALLY	
A-REI.11	Explain why the x-coordinates of the points where the graphs of the equations y = *f*(x) and y = *g*(x) intersect are the solutions of the equation *f*(x) = *g*(x); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where *f*(x) and/or *g*(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions. *

FUNCTIONS

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
INTERPRETING FUNCTIONS (F-IF)	
UNDERSTAND THE CONCEPT OF A FUNCTION AND USE FUNCTION NOTATION	
F-IF.3	Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. *For example, the Fibonacci sequence is defined recursively by f(0) = f(1) = 1, f(n+1) = f(n) + f(n-1) for n ≥ 1.*
INTERPRET FUNCTIONS THAT ARISE IN APPLICATIONS IN TERMS OF CONTEXT	
F-IF.4	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.* *

FUNCTIONS

MS CCR STANDARD IDENTIFIER ▼	MS CCR STANDARD ▼
F-IF.6	Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph. *

ANALYZE FUNCTIONS USING DIFFERENT REPRESENTATIONS

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
F-IF.7	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. * c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior. e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.
F-IF.8	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. b. Use the properties of exponents to interpret expressions for exponential functions. For example, identify percent rate of change in functions such as y = (1.02)t, y = (0.97)t, y = (1.01)12t, y = (1.2)t/10, and classify them as representing exponential growth and decay.
F-IF.9	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*

BUILDING FUNCTIONS (F-BF)

BUILD A FUNCTION THAT MODELS A RELATIONSHIP BETWEEN TWO QUANTITIES

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
F-BF.1	Write a function that describes a relationship between two quantities. * a. Determine an explicit expression, a recursive process, or steps for calculation from a context. b. Combine standard function types using arithmetic operations. *For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.*

FUNCTIONS

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
F-BF.2	Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms. *
BUILD NEW FUNCTIONS FROM EXISTING FUNCTIONS	
F-BF.3	Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k\,f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. *Include recognizing even and odd functions from their graphs and algebraic expressions for them.*
F-BF.4	Find inverse functions. a. Solve an equation of the form $f(x) = c$ for a simple function f that has an inverse and write an expression for the inverse. *For example,* $f(x) = 2x^3$ *or* $f(x) = (x+1)/(x-1)$ *for* $x \neq 1$.
LINEAR, QUADRATIC, AND EXPONENTIAL MODELS (F-LE) *	
CONSTRUCT AND COMPARE LINEAR, QUADRATIC, AND EXPONENTIAL MODELS AND SOLVE PROBLEMS	
F-LE.2	Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table). *
F-LE.3	Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function. *
F-LE.4	For exponential models, express as a logarithm the solution to $ab^{ct} = d$ where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology. *
INTERPRET EXPRESSIONS FOR FUNCTIONS IN TERMS OF THE SITUATIONS THEY MODEL	
F-LE.5	Interpret the parameters in a linear or exponential function in terms of a context. *

FUNCTIONS

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
TRIGONOMETRIC FUNCTIONS (F-TF)	
EXTEND THE DOMAIN OF TRIGONOMETRIC FUNCTIONS USING THE UNIT CIRCLE	
F-TF.1	Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.
F-TF.2	Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.

GEOMETRY

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
EXPRESSING GEOMETRIC PROPERTIES WITH EQUATIONS (G-GPE)	
TRANSLATE BETWEEN THE GEOMETRIC DESCRIPTION AND THE EQUATION FOR A CONIC SECTION	
G-GPE.2	Derive the equation of a parabola given a focus and directrix.

STATISTICS AND PROBABILITY*

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
INTERPRETING CATEGORICAL AND QUANTITATIVE DATA (S-ID)	
SUMMARIZE, REPRESENT, AND INTERPRET DATA ON A SINGLE COUNT OR MEASUREMENT VARIABLE	
S-ID.4	Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.*
SUMMARIZE, REPRESENT, AND INTERPRET DATA ON A TWO CATEGORICAL AND QUANTITATIVE VARIABLES	
S-ID.6	Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.* a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. *Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.*
MAKING INFERENCES AND JUSTIFYING CONCLUSIONS (S-IC)	
UNDERSTAND AND EVALUATE RANDOM PROCESSES UNDERLYING STATISTICAL EXPERIMENTS	
S-IC.1	Understand statistics as a process for making inferences about population parameters based on a random sample from that population. *
S-IC.2	Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. *For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?* *

STATISTICS AND PROBABILITY*

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
MAKE INFERENCES AND JUSTIFY CONCLUSIONS FROM SAMPLE SURVEYS, EXPERIMENTS, AND OBSERVATIONAL STUDIES	
S-IC.3	Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each. *
S-IC.4	Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling. *
S-IC.5	Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant. *
S-IC.6	Evaluate reports based on data. *
CONDITIONAL PROBABILITY AND THE RULES OF PROBABILITY (S-CP)	
UNDERSTAND AND EVALUATE RANDOM PROCESSES UNDERLYING STATISTICAL EXPERIMENTS	
S-CP.1	Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events (“or,” “and,” “not”). *
S-CP.2	Understand that two events *A* and *B* are independent if the probability of *A* and *B* occurring together is the product of their probabilities, and use this characterization to determine if they are independent. *
S-CP.3	Understand the conditional probability of *A* given *B* as *P*(*A* and *B*)/*P*(*B*), and interpret independence of *A* and *B* as saying that the conditional probability of *A* given *B* is the same as the probability of *A*, and the conditional probability of *B* given *A* is the same as the probability of *B*.*

STATISTICS AND PROBABILITY*

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
S-CP.4	Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. *For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.* *
S-CP.5	Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. *For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.* *
USE THE RULES OF PROBABILITY TO COMPUTE PROBABILITIES OF COMPOUND EVENTS IN A UNIFORM PROBABILITY MODEL	
S-CP.6	Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in terms of the model. *
S-CP.7	Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.*

NOTE

* Modeling Standards

ADVANCED TECHNICAL MATH

The Advanced Technical Mathematics (ATM) course, ***a one-credit course***, is only available for career and technical education (CTE) students who have completed the MS CCRS Algebra I course, passed the MAAP Algebra I end-of-course state assessment, and are a completer in one CTE pathway.

The ATM course is a higher-level mathematics course that provides mathematical understanding and skills used in CTE and entry-level positions in technical jobs.

The content within this high school level course includes comprehensive coverage of the real number system, measurement, data, expressions, equations, functions, introductory trigonometry, geometry and spatial reasoning, and is centered on the mathematics domains of **Measurement & Data** (Grades K-5), **the Number System** (Grades 6-8), **Expressions & Equations** (Grades 6-8), **Ratios and Proportional Relationships** (Grades 6-7), **Functions** (Grades 8), **Geometry** (Grades K-8). The high school conceptual categories included are **Number and Quantity**, **Algebra**, **Functions**, **Geometry,** and **Statistics & Probability**. Instruction in these domains and conceptual categories should be designed to expose students to experiences that reflect the value of mathematics, enhance students' confidence in their ability to do mathematics, and help students communicate and reason mathematically.

For additional information regarding CTE courses and curriculum, visit *https://www.rcu.msstate.edu/curriculum.*

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
ATM.SMP.1	Make sense of problems and persevere in solving them.
ATM.SMP.2	Reason abstractly and quantitatively.
ATM.SMP.3	Construct viable arguments and critique the reasoning of others.
ATM.SMP.4	Model with mathematics.
ATM.SMP.5	Use appropriate tools strategically.
ATM.SMP.6	Attend to precision.
ATM.SMP.7	Look for and make use of structure.
ATM.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

THE NUMBER SYSTEM | RATIOS AND PROPORTIONAL RELATIONSHIPS

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
THE REAL NUMBER SYSTEM	
ATM.NS.1	Solve real-world and mathematical problems involving the four operations with rational numbers.
ATM.RP.2	Compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units.
ATM.RP.3	Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.
ATM.RP.4	Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
ATM.RP.5	Represent proportional relationships by equations.
ATM.RP.6	Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (*0, 0*) and (*1, r*) where r is the unit rate.
ATM.RP.7	Use proportional relationships to solve multistep ratio and percent problems.

MEASUREMENT AND DATA

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
MEASUREMENT AND DATA	
ATM.MD.8	Recognize volume as an attribute of solid figures and understand concepts of volume measurement wherein a cube with a side length of 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume and can be used to measure volume.
ATM.MD.9	Recognize volume as an attribute of solid figures and understand concepts of volume measurement wherein a solid figure which can be packed without gaps or overlaps using *n* unit cubes is said to have a volume of *n* cubic units.
ATM.MD.10	Measure volumes by counting unit cubes, using cubic *cm*, cubic *in*, cubic *ft,* and improvised units.
ATM.MD.11	Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
ATM.MD.12	Apply the formulas $V = l \times w \times h$ *and* $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real-world and mathematical problems.
ATM.MD.13	Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real-world problems.
ATM.MD.14	Use units as a way to understand problems and to guide the solution of multi-step problems, choose and interpret units consistently in formulas, choose and interpret the scale and the origin in graphs and data displays.

EXPRESSIONS AND EQUATIONS	FUNCTIONS
MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
EXPRESSIONS, EQUATIONS AND FUNCTIONS	
ATM.EE.15	Write and evaluate numerical expressions involving whole-number exponents.
ATM.EE.16	Write expressions that record operations with numbers and with letters standing for numbers.
ATM.EE.17	Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity.
ATM.EE.18	Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order.
ATM.EE.19	Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
ATM.EE.20	Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.
ATM.EE.21	Solve word problems leading to equations of the form $px + q = r$ *and* $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.
ATM.EE.22	Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, *and* r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.
ATM.EE.23	Know and apply the properties of integer exponents to generate equivalent numerical expressions.

EXPRESSIONS AND EQUATIONS	FUNCTIONS
MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
ATM.EE.24	Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.
ATM.EE.25	Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, *or* $a = b$ results (where a and b are different numbers).
ATM.EE.26	Solve linear equations and inequalities with rational number coefficients, including those whose solutions require expanding expressions using the distributive property and collecting like terms.
ATM.EE.27	Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.
ATM.EE.28	Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.
ATM.F.29	Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.
ATM.F.30	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
ATM.F.31	Write a function that describes a relationship between two quantities; and be able to calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.
ATM.F.32	Construct linear functions, given a graph, a description of a relationship, or two input-output pairs (include

EXPRESSIONS AND EQUATIONS	FUNCTIONS
MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
	reading these from a table).

GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
GEOMETRY AND SPATIAL REASONING	
ATM.G.33	Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
ATM.G.34	Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
ATM.G.35	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.
ATM.G.36	Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
ATM.G.37	Solve real-world and mathematical problems involving area, volume, and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.
ATM.G.38	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.

GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
GEOMETRY AND SPATIAL REASONING	
ATM.G.39	Explain a proof of the Pythagorean Theorem and its converse.
ATM.G.40	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
ATM.G.41	Explain and use the relationship between the sine and cosine of complementary angles.
ATM.G.42	Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.
ATM.G.43	Identify and describe relationships among inscribed angles, radii, and chords.
ATM.G.44	Construct the inscribed and circumscribed circles of a triangle; and prove properties of angles for a quadrilateral inscribed in a circle.
ATM.G.45	Derive the equation of a circle of a given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.
ATM.G.46	Use coordinates to prove simple geometric theorems algebraically.
ATM.G.47	Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems.

CCR ALGEBRA III

Algebra III, ***a one-credit course***, includes content standards from the former Pre-Calculus course and the Mississippi College- and Career-Readiness Standards for Mathematics; and covers those skills and objectives necessary for success in courses higher than Algebra II. Topics of study include sequences and series, functions, and higher-order polynomials. Polynomial functions provide the context for higher-order investigations. Topics are addressed from a numeric, graphical, and analytical perspective. Technology is to be used to enhance presentation and understanding of concepts. The instructional approach should provide opportunities for students to work together collaboratively and cooperatively as they solve routine and non-routine problems. Communication strategies should include reading, writing, speaking, and critical listening as students present and evaluate mathematical arguments, proofs, and explanations about their reasoning. Algebra III is typically taken by students who have successfully completed Algebra II and Geometry.

The content within this course is centered on the mathematics high school conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling, Geometry,** and **Statistics & Probability**. Instruction in these domains and conceptual categories should be designed to expose students to experiences that reflect the value of mathematics, enhance students' confidence in their ability to do mathematics and help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
A.SMP.1	Make sense of problems and persevere in solving them.
A.SMP.2	Reason abstractly and quantitatively.
A.SMP.3	Construct viable arguments and critique the reasoning of others.
A.SMP.4	Model with mathematics.
A.SMP.5	Use appropriate tools strategically.
A.SMP.6	Attend to precision.
A.SMP.7	Look for and make use of structure.
A.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

NUMBER AND QUANTITY

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
EXPLORE AND ILLUSTRATE THE CHARACTERISTICS AND OPERATIONS CONNECTING SEQUENCES AND SERIES	
A3.N.1	Express sequences and series using recursive and explicit formulas.
A3.N.2	Evaluate and apply formulas for arithmetic and geometric sequences and series.
A3.N.3	Calculate limits based on convergent and divergent series.
A3.N.4	Evaluate and apply infinite geometric series.
A3.N.5	Extend the meaning of exponents to include rational numbers.
A3.N.6	Simplify expressions with fractional exponents to include converting from radicals.
A3.N.7	Factor algebraic expressions containing fractional exponents.

ALGEBRA

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
ANALYZE AND MANIPULATE FUNCTIONS	
A3.A.8	Determine characteristics of graphs of parent functions (domain/range, increasing/decreasing intervals, intercepts, symmetry, end behavior, and asymptotic behavior).
A3.A.9	Determine the end behavior of polynomial functions.
USE POLYNOMIALS IDENTITIES TO SOLVE PROBLEMS	
A3.A.10	Prove polynomial identities and use them to describe numerical relationships. For example, the polynomial identity $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.
A3.A.11	Verify the Binomial Theorem by mathematical induction or by a combinatorial argument.
A3.A.12	Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n, where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.
A3.A.13	Write rational expressions in simplest form. (*For* example $\frac{x^3 - x^2 - x + 1}{x^3 + x^2 - x - 1} = \frac{x-1}{x+1}$).
A3.A.14	Decompose a rational function into partial fractions.
A3.A.15	Determine asymptotes and holes of rational functions, explain how each was found, and relate these behaviors to continuity.
PERFORM OPERATIONS ON EXPRESSIONS, EQUATIONS, INEQUALITIES, AND POLYNOMIALS	
A3.A.16	Add, subtract, multiply and divide rational expressions.
A3.A.17	Solve polynomial and rational inequalities. Relate results to the behavior of the graphs.
A3.A.18	Find the composite of two given functions and find the inverse of a given function. Extend this concept to

ALGEBRA

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
	discuss the identity function f(x) = x.
A3.A.19	Simplify complex algebraic fractions (with/without variable expressions and integer exponents) to include expressing $\frac{f(x+h)-f(x)}{h}$ as single simplified fraction when $f(x) = \frac{1}{1-x}$ for example.
A3.A.20	Find the possible rational roots using the Rational Root Theorem.
A3.A.21	Find the zeros of polynomial functions by synthetic division and the Factor Theorem.
A3.A.22	Graph and solve quadratic inequalities.

FUNCTIONS (F)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
ANALYZE FUNCTIONS USING DIFFERENT REPRESENTATIONS	
A3.F.23	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.
A3.F.24	Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.

FUNCTIONS (F)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
BUILD A FUNCTION THAT MODELS A RELATIONSHIP BETWEEN TWO QUANTITIES	
A3.F.25	Compose functions. *For example, if T(y) is the temperature in the atmosphere as a function of height, and h(t) is the height of a weather balloon as a function of time, then T(h(t)) is the temperature at the location of the weather balloon as a function of time.*
BUILD NEW FUNCTIONS FROM EXISTING FUNCTIONS	
A3.F.26	Verify by composition that one function is the inverse of another.
A3.F.27	Read values of an inverse function from a graph or a table, given that the function has an inverse.
A3.F.28	Produce an invertible function from a non-invertible function by restricting the domain.
A3.F.29	Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.
EXTEND THE DOMAIN OF TRIGONOMETRIC FUNCTIONS USING THE UNIT CIRCLE	
A3.F.30	Use special triangles to determine geometrically the values of sine, cosine, tangent for $\pi/3$, $\pi/4$ and $\pi/6$, and use the unit circle to express the values of sine, cosine, and tangent for $\pi-x$, $\pi+x$, and $2\pi-x$ in terms of their values for x, where x is any real number.
A3.F.31	Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.
MODEL PERIODIC PHENOMENA WITH TRIGONOMETRIC FUNCTIONS	
A3.F.32	Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.*
A3.F.33	Understand that restricting a trigonometric function to a domain on which it is always increasing or always

FUNCTIONS (F)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
	decreasing allows its inverse to be constructed.
A3.F.34	Use inverse functions to solve trigonometric equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context.
PROVE AND APPLY TRIGONOMETRIC IDENTITIES	
A3.F.35	Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.
A3.F.36	Prove the Pythagorean identity $\sin^2(\Theta) + \cos^2(\Theta) = 1$ and use it to find $\sin(\Theta)$, $\cos(\Theta)$, or $\tan(\Theta)$ given $\sin(\Theta)$, $\cos(\Theta)$, or $\tan(\Theta)$ and the quadrant of the angle.

GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
RECOGNIZE, SKETCH, AND TRANSFORM GRAPHS TO FUNCTIONS	
A3.G.37	Graph piecewise-defined functions and determine continuity or discontinuities.
A3.G.38	Describe the attributes of graphs and the general equations of parent functions (linear, quadratic, cubic, absolute value, rational, exponential, logarithmic, square root, cube root, and greatest integer).
A3.G.39	Explain the effects of changing the parameters in transformations of functions.
A3.G.40	Predict the shapes of graphs of exponential, logarithmic, rational, and piece-wise functions, and verify the prediction with and without technology.

GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
A3.G.41	Relate symmetry of the behavior of even and odd functions.
APPLY TRIGONOMETRY TO GENERAL TRIANGLES	
A3.G.42	Derive the formula $A = 1/2\ ab \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.
A3.G.43	Prove the Laws of Sines and Cosines and use them to solve problems.
A3.G.44	Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).

STATISTICS AND PROBABILITY (SP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
EXPLORE AND APPLY FUNDAMENTAL PRINCIPLES OF PROBABILITY	
A3.SP.45	Analyze expressions in summation and factorial notation to solve problems.
A3.SP.46	Prove statements using mathematical induction.

NOTE

* Modeling Standards

CCR ADVANCED MATHEMATICS PLUS

Advanced Mathematics Plus is designed to be a fourth-year, **one-credit course**, that specifies the mathematics that students should study in order to be college and career ready. The Advanced Mathematics Plus Course includes rigorous mathematical standards that will prepare students for collegiate courses dealing with higher-level trigonometric, algebraic, and calculus concepts.

The content within this course is centered on the mathematics conceptual categories of **Number and Quantity**, **Algebra**, **Functions**, **Modeling, Geometry**, and **Statistics & Probability**. Instruction in these domains should be designed to expose students to experiences, which reflect the value of mathematics, to enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
AMP.SMP.1	Make sense of problems and persevere in solving them.
AMP.SMP.2	Reason abstractly and quantitatively.
AMP.SMP.3	Construct viable arguments and critique the reasoning of others.
AMP.SMP.4	Model with mathematics.
AMP.SMP.5	Use appropriate tools strategically.
AMP.SMP.6	Attend to precision.
AMP.SMP.7	Look for and make use of structure.
AMP.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

NUMBER AND QUANTITY (NQ)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
THE COMPLEX NUMBER SYSTEM (N-CN)	
PERFORM ARITHMETIC OPERATIONS WITH COMPLEX NUMBERS	
N-CN.3	Find the conjugate of a complex number; use conjugates to find moduli and quotients of complex numbers.
REPRESENT COMPLEX NUMBERS AND THEIR OPERATIONS ON THE COMPLEX PLANE	
N-CN.4	Represent complex numbers on the complex plane in rectangular and polar form (including real and imaginary numbers), and explain why the rectangular and polar forms of a given complex number represent the same number.
N-CN.5	Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation. *For example,* $(-1 + \sqrt{3}\,i)^3 = 8$ *because* $(-1 + \sqrt{3}\,i)$ *has modulus 2 and argument 120°.*
N-CN.6	Calculate the distance between numbers in the complex plane as the modulus of the difference, and the midpoint of a segment as the average of the numbers at its endpoints.
USE COMPLEX NUMBERS IN POLYNOMIAL IDENTITIES AND EQUATIONS	
N-CN.8	Extend polynomial identities to the complex numbers. *For example, rewrite* $x^2 + 4$ *as* $(x + 2i)(x - 2i)$.
N-CN.9	Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.

NUMBER AND QUANTITY (NQ)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
VECTOR AND MATRIX QUANTITIES (N-VM)	
REPRESENT AND MODEL WITH VECTOR QUANTITIES	
N-VM.1	Recognize vector quantities as having both magnitude and direction. Represent vector quantities by directed line segments, and use appropriate symbols for vectors and their magnitudes (e.g., ***v***, *|**v**|*, *||**v**||*, *v*).
N-VM.2	Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point.
N-VM.3	Solve problems involving velocity and other quantities that can be represented by vectors.
PERFORM OPERATIONS ON VECTORS	
N-VM.4	Add and subtract vectors. a. Add vectors end-to-end, component-wise, and by the parallelogram rule. Understand that the magnitude of a sum of two vectors is typically not the sum of the magnitudes. b. Given two vectors in magnitude and direction form, determine the magnitude and direction of their sum. c. Understand vector subtraction ***v* – *w*** as ***v*** + (–***w***), where –***w*** is the additive inverse of ***w***, with the same magnitude as ***w*** and pointing in the opposite direction. Represent vector subtraction graphically by connecting the tips in the appropriate order, and perform vector subtraction component-wise.
N-VM.5	Multiply a vector by a scalar. a. Represent scalar multiplication graphically by scaling vectors and possibly reversing their direction; perform scalar multiplication component-wise, e.g., as $c(v_x, v_y) = (cv_x, cv_y)$. b. Compute the magnitude of a scalar multiple $c\mathbf{v}$ using $\|\|c\mathbf{v}\|\| = \|c\|v$. Compute the direction of $c\mathbf{v}$ knowing that when $\|c\|v \neq 0$, the direction of $c\mathbf{v}$ is either along $\mathbf{v}$ (for $c > 0$) or against $\mathbf{v}$ (for $c < 0$).

NUMBER AND QUANTITY (NQ)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
PERFORM OPERATIONS ON MATRICES AND USE MATRICES IN APPLICATIONS	
N-VM.6	Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.
N-VM.7	Multiply matrices by scalars to produce new matrices, e.g., as when all of the payoffs in a game are doubled.
N-VM.8	Add, subtract, and multiply matrices of appropriate dimensions.
N-VM.9	Understand that, unlike multiplication of numbers, matrix multiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties.
N-VM.10	Understand that the zero and identity matrices play a role in matrix addition and multiplication similar to the role of 0 and 1 in the real numbers. The determinant of a square matrix is nonzero if and only if the matrix has a multiplicative inverse.
N-VM.11	Multiply a vector (regarded as a matrix with one column) by a matrix of suitable dimensions to produce another vector. Work with matrices as transformations of vectors.
N-VM.12	Work with 2×2 matrices as transformations of the plane, and interpret the absolute value of the determinant in terms of area.

ALGEBRA (A)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
ARITHMETIC WITH POLYNOMIALS AND RATIONAL EXPRESSIONS (A-APR)	
USE POLYNOMIAL IDENTITIES TO SOLVE PROBLEMS	
A-APR.5	Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n, where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.[1]
REWRITE RATIONAL EXPRESSIONS	
A-APR.7	Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.
REASONING WITH EQUATIONS AND INEQUALITIES (A-REI)	
SOLVE SYSTEMS OF EQUATIONS	
A-REI.8	Represent a system of linear equations as a single matrix equation in a vector variable.
A-REI.9	Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension 3 × 3 or greater).

FUNCTIONS (F)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
INTERPRETING FUNCTIONS (F-IF)	
ANALYZE FUNCTIONS USING DIFFERENT REPRESENTATIONS	
F-IF.7	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* d. Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.
BUILDING FUNCTIONS (F-BF)	
BUILD A FUNCTION THAT MODELS A RELATIONSHIP BETWEEN TWO QUANTITIES	
F-BF.1	Write a function that describes a relationship between two quantities. * c. Compose functions. *For example, if T(y) is the temperature in the atmosphere as a function of height, and h(t) is the height of a weather balloon as a function of time, then T(h(t)) is the temperature at the location of the weather balloon as a function of time.*
BUILD NEW FUNCTIONS FROM EXISTING FUNCTIONS	
F-BF.4	Find inverse functions. b. Verify by composition that one function is the inverse of another. c. Read values of an inverse function from a graph or a table, given that the function has an inverse. d. Produce an invertible function from a non-invertible function by restricting the domain.
F-BF.5	Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.

FUNCTIONS (F)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
TRIGONOMETRIC FUNCTIONS (F-TF)	
EXTEND THE DOMAIN OF TRIGONOMETRIC FUNCTIONS USING THE UNIT CIRCLE	
F-TF.3	Use special triangles to determine geometrically the values of sine, cosine, tangent for $\pi/3$, $\pi/4$ and $\pi/6$, and use the unit circle to express the values of sine, cosine, and tangent for $\pi-x$, $\pi+x$, and $2\pi-x$ in terms of their values for x, where x is any real number.
F-TF.4	Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.
MODEL PERIODIC PHENOMENA WITH TRIGONOMETRIC FUNCTIONS	
F-TF.5	Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline. *
F-TF.6	Understand that restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed.
F-TF.7	Use inverse functions to solve trigonometric equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context. *
PROVE AND APPLY TRIGONOMETRIC IDENTITIES	
F-TF.9	Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.

GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
SIMILARITY, RIGHT TRIANGLES, AND TRIGONOMETRY (G-SRT)	
APPLY TRIGONOMETRY TO GENERAL TRIANGLES	
G-SRT.9	Derive the formula *A = ½ ab sin(C)* for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.
G-SRT.10	Prove the Laws of Sines and Cosines and use them to solve problems.
G-SRT.11	Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).
CIRCLES (G-C)	
UNDERSTAND AND APPLY THEOREMS ABOUT CIRCLES	
G-C.4	Construct a tangent line from a point outside a given circle to the circle.
EXPRESSING GEOMETRIC PROPERTIES WITH EQUATIONS (G-GPE)	
TRANSLATE BETWEEN THE GEOMETRIC DESCRIPTION AND THE EQUATION FOR A CONIC SECTION	
G-GPE.3	Derive the equations of ellipses and hyperbolas given the foci, using the fact that the sum or difference of distances from the foci is constant.

GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
GEOMETRIC MEASUREMENT AND DIMENSION (G-GMD)	
EXPLAIN VOLUME FORMULAS AND USE THEM TO SOLVE PROBLEMS	
G-GMD.2	Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures.

STATISTICS AND PROBABILITY (SP) *

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
CONDITIONAL PROBABILITY AND THE RULES OF PROBABILITY (S-CP)	
USE THE RULES OF PROBABILITY TO COMPUTE PROBABILITIES OF COMPOUND EVENTS IN A UNIFORM PROBABILITY MODEL	
S-CP.8	Apply the general Multiplication Rule in a uniform probability model, P(A and B) = P(A)P(B|A) = P(B)P(A|B), and interpret the answer in terms of the model.*
S-CP.9	Use permutations and combinations to compute probabilities of compound events and solve problems.*

STATISTICS AND PROBABILITY (SP) *

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
USING PROBABILITY TO MAKE DECISIONS (S-MD)	
CALCULATE EXPECTED VALUES AND USE THEM TO SOLVE PROBLEMS	
S-MD.1	Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.*
S-MD.2	Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.*
S-MD.3	Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value. *For example, find the theoretical probability distribution for the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each question has four choices, and find the expected grade under various grading schemes.**
S-MD.4	Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. *For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?**
USE PROBABILITY TO EVALUATE OUTCOMES OF DECISIONS	
S-MD.5	Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values. * a. Find the expected payoff for a game of chance. *For example, find the expected winnings from a state lottery ticket or a game at a fast-food restaurant.* b. Evaluate and compare strategies on the basis of expected values. *For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.**

STATISTICS AND PROBABILITY (SP) *

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
S-MD.6	Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).*
S-MD.7	Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).*

NOTES

[1] The Binomial Theorem can be proved by mathematical induction or by a combinatorial argument.

* Modeling Standards

CALCULUS

Calculus is a ***one-credit course*** designed for students who have successfully completed Algebra II or Algebra III, and focuses on the mathematics of change, specifically differential and integral calculus. The course emphasizes the use of graphing calculators and other technologies as essential tools for learning. Instruction should be structured to encourage collaborative problem-solving, allowing students to tackle both routine and complex challenges. Additionally, students are to engage in various forms of communication—reading, writing, speaking, and critical listening—to present, evaluate, and justify mathematical arguments, proofs, and reasoning.

The content within this course is centered on the mathematics high school conceptual categories of **Number and Quantity**, **Algebra**, **Geometry**, and **Statistics & Probability**. Instruction in these domains should be designed to expose students to experiences, which reflect the value of mathematics, to enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
C.SMP.1	Make sense of problems and persevere in solving them.
C.SMP.2	Reason abstractly and quantitatively.
C.SMP.3	Construct viable arguments and critique the reasoning of others.
C.SMP.4	Model with mathematics.
C.SMP.5	Use appropriate tools strategically.
C.SMP.6	Attend to precision.
C.SMP.7	Look for and make use of structure.
C.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

NUMBER AND QUANTITY (NQ)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
COMPUTE AND DETERMINE THE REASONABLENESS OF RESULTS IN MATHEMATICAL AND REAL-WORLD SITUATIONS	
C.N.1	Estimate limits from graphs or tables.
C.N.2	Estimate numerical derivatives from graphs or tables of data.
C.N.3	Prove statements using mathematical induction.

ALGEBRA (A)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
DEMONSTRATE BASIC KNOWLEDGE OF FUNCTIONS, INCLUDING THEIR BEHAVIOR AND CHARACTERISTICS	
C.A.4	Predict and explain the characteristics and behavior of functions and their graphs (domain, range, increasing/decreasing intervals, intercepts, symmetry, and end behavior).
C.A.5	Investigate, describe, and determine asymptotic behavior using tables, graphs, and analytical methods
C.A.6	Determine and justify the continuity and discontinuity of functions

ALGEBRA (A)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
EVALUATE LIMITS AND COMMUNICATE AN UNDERSTANDING OF THE LIMITING PROCESS	
C.A.7	Solve mathematical situations and application problems involving or using derivatives, including exponential, logarithmic, and trigonometric functions.
C.A.8	Calculate limits using algebraic methods.
C.A.9	Verify the behavior and direction of non-determinable limits.
USE THE DEFINITION AND FORMAL RULES OF DIFFERENTIATION TO COMPUTE DERIVATIVES	
C.A.10	State and apply the formal definition of a derivative.
C.A.11	Apply differentiation rules to sums, products, quotients, and powers of functions.
C.A.12	Use the chain rule and implicit differentiation.
C.A.13	Describe the relationship between differentiability and continuity.
APPLY DERIVATIVES TO FIND SOLUTIONS IN A VARIETY OF SITUATIONS	
C.A.14	Define a derivative and explain the purpose/utility of the derivative.
C.A.15	Apply the derivative as a rate of change in varied contexts, including velocity, speed, and acceleration.
C.A.16	Apply the derivative to find tangent lines and normal lines to given curves at given points.
C.A.17	Predict and explain the relationships between functions and their derivatives.
C.A.18	Model rates of change to solve related rate problems.

ALGEBRA (A)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
C.A.19	Solve optimization problems.
EMPLOY VARIOUS INTEGRATION PROPERTIES AND TECHNIQUES TO ELEVATE INTEGRALS	
C.A.20	State and apply the First and Second Fundamental Theorem of Calculus.
C.A.21	Apply the power rule and u-substitution to evaluate indefinite integrals.

GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
USE GEOMETRIC CONCEPTS TO GAIN INSIGHTS INTO, ANSWER QUESTIONS ABOUT, AND GRAPH VARIOUS IMPLICATIONS OF DIFFERENTIATION	
C.G.22	Demonstrate and explain the differences between average and instantaneous rates of change.
C.G.23	Apply differentiation techniques to curve sketching
C.G.24	Apply Rolle’s Theorem and the Mean Value Theorem and their geometric consequences.
C.G.25	Identify and apply local linear approximations.
C.G.26	Analyze curves with attention to non-decreasing functions (monotonicity) and concavity.

STATISTICS AND PROBABILITY (SP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
ADAPT INTEGRATION METHODS TO MODEL SITUATIONS TO PROBLEMS	
C.SP.27	Apply integration to solve problems of area.
C.SP.28	Utilize integrals to model and find solutions to real-world problems such as calculating displacement and total distance traveled.
APPLY APPROPRIATE TECHNIQUES, TOOLS, AND FORMULAS TO DETERMINE VALUES FOR THE DEFINITE INTEGRAL	
C.SP.29	Interpret the concept of definite integral as a limit of Riemann sums over equal subdivisions.

SREB MATH READY

The Southern Region Education Board (SREB) Math Ready course, ***a one-credit course***, is only for students classified as seniors, with an ACT sub-score of **below 15** in mathematics (Exception- may include students classified as juniors planning to graduate prior to the spring of their senior year).

This course is designed for students who need a fourth-year mathematics preparatory course to address skill gaps and build readiness for postsecondary academic or career paths, particularly in non-STEM fields or majors. Tailored for those who have not yet mastered the skills for Advanced Placement courses, the program emphasizes rigor, innovative instructional strategies, and conceptual learning to move beyond procedural memorization and engage students in real-world applications.

The content within the SREB Math Ready course consists of eight units: algebraic expressions, equations, measurement and proportional reasoning, linear functions, linear systems of equations, quadratic functions, exponential functions, and an optional module on summarizing and interpreting statistical data, focused on essential concepts and skills from the Algebra I, Geometry, and Algebra II MS CCRS and the eight Standards for Mathematical Practice, to ensure students are prepared for college-level mathematics and career requirements. These units are aligned with the high school conceptual categories of **Algebra**, **Functions**, **Number and Quantity**, **Geometry**, and **Statistics & Probability**. Instruction in these domains should be designed to expose students to experiences, which reflect the value of mathematics, to enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

For the most current SREB Math Ready course description, standards, and materials, visit: *https://www.sreb.org/math-ready*.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
R.SMP.1	Make sense of problems and persevere in solving them.
R.SMP.2	Reason abstractly and quantitatively.
R.SMP.3	Construct viable arguments and critique the reasoning of others.
R.SMP.4	Model with mathematics.
R.SMP.5	Use appropriate tools strategically.
R.SMP.6	Attend to precision**.**
R.SMP.7	Look for and make use of structure.
R.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

ALGEBRA (A)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
ALGEBRAIC EXPRESSIONS	
UNIT 1	The algebraic expressions unit was designed to solidify student understanding of expressions while providing the students with an opportunity to have success early in the course. The recurring theme integrated in this unit focuses on engaging students using and expanding the concepts found within purposefully chosen activities. Through guided lessons, students will manipulate, create and analyze algebraic expressions and look at the idea of whether different sets of numbers are closed under certain operations.
EQUATIONS	
UNIT 2	The equations unit calls for students to construct and evaluate problems that involve one or two steps while seeking understanding of how and why equations and inequalities are used in their daily lives. Students also use the structure of word problems and equations to rewrite and solve equations in different forms revealing different relationships.

NUMBER AND QUANTITY (N) / GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
MEASUREMENT AND PROPORTIONAL REASONING	
UNIT 3	This unit deals with unit conversions, using proportions for scaling, and area and volume. The unit requires higher-order thinking and number sense in order to get to the true intent of the standards covered. It is useful in helping students make connections with math and science or other subjects.

FUNCTIONS (F)

MS CCR STANDARD IDENTIFIER ▼	MS CCR STANDARD ▼
LINEAR FUNCTIONS	
UNIT 4	The systems unit deals with solving systems of linear equations. This involves helping students classify solutions (one, none, or infinitely many), as well as set up and solve problems using systems of equations. Students also choose the best way to solve a system of equations and explain their solutions.

ALGEBRA (A)

MS CCR STANDARD IDENTIFIER ▼	MS CCR STANDARD ▼
LINEAR SYSTEMS OF EQUATIONS	
UNIT 5	This unit solidifies students' understanding of the structure of expressions and solving equations. Illustrations, drawings and models are used to represent and solve equations and inequalities, helping to develop understanding of acceptable solutions. Students explore the relationships between properties of equations and algebraic expressions.

FUNCTIONS (F)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
QUADRATIC FUNCTIONS	
UNIT 6	This unit is an expansive look at quadratic functions: their graphs, tables and algebraic functions. It stresses multiple approaches to graphing, solving and understanding quadratics, as students explore, make conjectures and draw conclusions in group-work settings. In this unit, students explore and learn from multiple applications of quadratics. The unit assumes students have seen quadratics before but may not have a concrete, transferrable understanding of quadratic functions. The unit does not cover algebraic manipulations (multiplying and factoring), as these are addressed in previous units.
EXPONENTIAL FUNCTIONS	
UNIT 7	This unit develops students' fluency in exponential functions through varying real-life financial applications/inquiries.

STATISTICS AND PROBABILITY (SP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
SUMMARIZING AND INTERPRETING STATISTICAL DATA	
UNIT 8 (OPTIONAL)	In this unit, students further develop skills to read, analyze, and communicate (using words, tables, and graphs) relationships and patterns found in data sets of one or more variables. Students learn how to choose the appropriate statistical tools and measurements to assist in analysis, communicate results, and read and inter interpret graphs, measurements, and formulas which are crucial skills in a world overflowing with data. Students explore these concepts while modeling real contexts based on data they collect.

ESSENTIALS FOR COLLEGE MATH

The Southern Region Education Board (SREB) Essentials for College Math Course, ***a one-credit course***, is only for students classified as seniors, with an ACT sub-score of **15-18** in mathematics (Exception- may include students classified as juniors planning to graduate prior to the spring of their senior year).

For additional information pertaining specifically to this course, see the ***Essentials for College Math and Essentials for College Literacy Requirements MS State Board Policy Manual:*** *Rule 28.6,* and the ***Mississippi Institutions for Higher Learning Policy*** *608*.

This course is designed for students who need a fourth-year mathematics preparatory course to address skill gaps and build readiness for postsecondary academic or career paths, particularly in non-STEM fields or majors. Tailored for those who have not yet mastered the skills for Advanced Placement courses, the program emphasizes rigor, innovative instructional strategies, and conceptual learning to move beyond procedural memorization and engage students in real-world applications.

The content within the Essentials for College Math course consists of eight units: algebraic expressions, equations, measurement and proportional reasoning, linear functions, linear systems of equations, quadratic functions, exponential functions, and an optional module on summarizing and interpreting statistical data, focused on essential concepts and skills from the Algebra I, Geometry, and Algebra II MS CCRS and the eight Standards for Mathematical Practice, to ensure students are prepared for college-level mathematics and career requirements. These units are aligned with the high school conceptual categories of **Algebra**, **Functions**, **Number and Quantity**, **Geometry**, and **Statistics & Probability**. Instruction in these domains should be designed to expose students to experiences, which reflect the value of mathematics, to enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

For the most current SREB Essentials for College Math course description, standards, and materials, visit: *https://www.sreb.org/math-ready*.

STANDARDS for MATHEMATICAL PRACTICE (SMP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
APPROACH MATHEMATICS CONFIDENTLY AND ADAPTIVELY, APPLYING UNDERSTANDING AND SKILLS EFFECTIVELY ACROSS DIVERSE CONTEXTS.	
R.SMP.1	Make sense of problems and persevere in solving them.
R.SMP.2	Reason abstractly and quantitatively.
R.SMP.3	Construct viable arguments and critique the reasoning of others.
R.SMP.4	Model with mathematics.
R.SMP.5	Use appropriate tools strategically.
R.SMP.6	Attend to precision.
R.SMP.7	Look for and make use of structure.
R.SMP.8	Look for and express regularity in repeated reasoning.

NOTE

The Standards for Mathematical Practice (SMPs) should be fully integrated with the content standards and taught with the same level of importance across all grade levels and high school courses. The SMPs, rooted in essential principles such as problem-solving, reasoning, communication, and mathematical proficiency, are not optional but **required** standards that must be incorporated into instruction. By aligning the SMPs with the content standards, students develop a deeper understanding of mathematical concepts, apply procedures flexibly, and engage in meaningful problem-solving. To emphasize their importance, the SMPs have been assigned a standard identifier for each grade level and course, ensuring their consistent application in curriculum planning, daily instruction, and assessments.

ALGEBRA (A)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
ALGEBRAIC EXPRESSIONS	
UNIT 1	The algebraic expressions unit was designed to solidify student understanding of expressions while providing the students with an opportunity to have success early in the course. The recurring theme integrated in this unit focuses on engaging students using and expanding the concepts found within purposefully chosen activities. Through guided lessons, students will manipulate, create and analyze algebraic expressions and look at the idea of whether different sets of numbers are closed under certain operations.
EQUATIONS	
UNIT 2	The equations unit calls for students to construct and evaluate problems that involve one or two steps while seeking understanding of how and why equations and inequalities are used in their daily lives. Students also use the structure of word problems and equations to rewrite and solve equations in different forms revealing different relationships.

NUMBER AND QUANTITY (N) | GEOMETRY (G)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
MEASUREMENT AND PROPORTIONAL REASONING	
UNIT 3	This unit deals with unit conversions, using proportions for scaling, and area and volume. The unit requires higher-order thinking and number sense in order to get to the true intent of the standards covered. It is useful in helping students make connections with math and science or other subjects.

FUNCTIONS (F)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
LINEAR FUNCTIONS	
UNIT 4	The systems unit deals with solving systems of linear equations. This involves helping students classify solutions (one, none, or infinitely many), as well as set up and solve problems using systems of equations. Students also choose the best way to solve a system of equations and explain their solutions.

ALGEBRA (A)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
LINEAR SYSTEMS OF EQUATIONS	
UNIT 5	This unit solidifies students’ understanding of the structure of expressions and solving equations. Illustrations, drawings and models are used to represent and solve equations and inequalities, helping to develop understanding of acceptable solutions. Students explore the relationships between properties of equations and algebraic expressions.

FUNCTIONS (F)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
QUADRATIC FUNCTIONS	
UNIT 6	This unit is an expansive look at quadratic functions: their graphs, tables and algebraic functions. It stresses multiple approaches to graphing, solving and understanding quadratics, as students explore, make conjectures and draw conclusions in group-work settings. In this unit, students explore and learn from multiple applications of quadratics. The unit assumes students have seen quadratics before but may not have a concrete, transferrable understanding of quadratic functions. The unit does not cover algebraic manipulations (multiplying and factoring), as these are addressed in previous units.
EXPONENTIAL FUNCTIONS	
UNIT 7	This unit develops students' fluency in exponential functions through varying real-life financial applications/inquiries.

STATISTICS AND PROBABILITY (SP)

MS CCR STANDARD IDENTIFIER	MS CCR STANDARD
SUMMARIZING AND INTERPRETING STATISTICAL DATA	
UNIT 8 (OPTIONAL)	In this unit, students further develop skills to read, analyze, and communicate (using words, tables, and graphs) relationships and patterns found in data sets of one or more variables. Students learn how to choose the appropriate statistical tools and measurements to assist in analysis, communicate results, and read and inter interpret graphs, measurements, and formulas which are crucial skills in a world overflowing with data. Students explore these concepts while modeling real contexts based on data they collect.

ADVANCED PLACEMENT (AP) PRECALCULUS

AP Precalculus, ***a one-credit course***, is designed to be the equivalent of a first-semester college precalculus course, and provides students with an understanding of the concepts of college algebra, trigonometry, and additional topics that prepare students for further college-level mathematics courses. This course explores a variety of function types and their applications—polynomial, rational, exponential, logarithmic, trigonometric, polar, parametric, vector-valued, implicitly defined, and linear transformation functions using matrices. The mathematical practices of procedural and symbolic fluency, multiple representations, and communication and reasoning are developed throughout the course.

The AP Precalculus course aims to prepare students for advanced coursework in mathematics or other fields engaged in modeling change (e.g., pure sciences, engineering, or economics) and for creating useful, reasonable solutions to problems encountered in an ever-changing world.

Teachers and students should regularly use technology to reinforce the following AP Precalculus concepts:

- Perform calculations (e.g., exponents, roots, trigonometric values, logarithms)
- Graph functions and analyze graphs
- Generate a table of values for a function
- Find real zeros of functions
- Find points of intersection of graphs of functions
- Find minima/maxima of functions
- Find numerical solutions to equations in one variable
- Find regression equations to model data (linear, quadratic, cubic, quartic, exponential, logarithmic, and sinusoidal) and plot the corresponding residuals
- Perform matrix operations (e.g., multiplication, finding inverses)

For the most current Advanced Placement (AP) Precalculus for High School Math course description, standards, and materials, visit: *https://apstudents.collegeboard.org/courses/ap-precalculus* .

ADVANCED PLACEMENT (AP) CALCULUS AB

AP Calculus AB, a ***one-credit course***, is designed to be the equivalent of a first-semester college calculus course devoted to topics in differential and integral calculus. This course requires students to use definitions and theorems to build arguments and justify conclusions. The AP Calculus AB course also features a multirepresentational approach to calculus, with concepts, results, and problems expressed graphically, numerically, analytically, and verbally. A sustained emphasis on clear communication of methods, reasoning, justifications, and conclusions is essential. Teachers and students should regularly use technology to reinforce relationships among functions, to confirm written work, to implement experimentation, and to assist in interpreting results.

The AP Calculus AB course aims to prepare students for advanced coursework in mathematics or other fields engaged in modeling change (e.g., pure sciences, engineering, or economics) and for creating useful, reasonable solutions to problems encountered in an ever-changing world. Each big idea is described below.

(1) **Change (CHA)-**Using derivatives to describe rates of change of one variable with respect to another or using definite integrals to describe the net change in one variable over an interval of another allows students to understand change in a variety of contexts. It is critical that students grasp the relationship between integration and differentiation as expressed in the Fundamental Theorem of Calculus—a central idea in AP Calculus.

(2) **Limits (LIM)-** Beginning with a discrete model and then considering the consequences of a limiting case allows us to model real-world behavior and to discover and understand important ideas, definitions, formulas, and theorems in calculus: for example, continuity, differentiation, and integration.

(3) **Analysis of Functions (FUN)-** Calculus allows us to analyze the behaviors of functions by relating limits to differentiation, integration, and infinite series and relating each of these concepts to the others.

For the most current Advanced Placement (AP) Calculus AB for High School Math course description, standards, and materials, visit: *https://apstudents.collegeboard.org/courses/ap-calculus-ab*.

ADVANCED PLACEMENT (AP) CALCULUS BC

AP Calculus BC, a ***one-credit course***, is designed to be the equivalent of a first- and second-semester college calculus course and applies the content and skills learned in AP Calculus AB to parametrically defined curves, polar curves, and vector-valued functions; develops additional integration techniques and applications; and introduces the topics of sequences and series. This course requires students to use definitions and theorems to build arguments and justify conclusions. The AP Calculus BC course also features a multirepresentational approach to calculus, with concepts, results, and problems expressed graphically, numerically, analytically, and verbally. A sustained emphasis on clear communication of methods, reasoning, justifications, and conclusions is essential. Teachers and students should regularly use technology to reinforce relationships among functions, to confirm written work, to implement experimentation, and to assist in interpreting results.

The AP Calculus BC course aims to prepare students for advanced coursework in mathematics or other fields engaged in modeling change (e.g., pure sciences, engineering, or economics) and for creating useful, reasonable solutions to problems encountered in an ever-changing world. Each big idea is described below.

(1) **Change (CHA)-**Using derivatives to describe rates of change of one variable with respect to another or using definite integrals to describe the net change in one variable over an interval of another allows students to understand change in a variety of contexts. It is critical that students grasp the relationship between integration and differentiation as expressed in the Fundamental Theorem of Calculus—a central idea in AP Calculus.

(2) **Limits (LIM)-** Beginning with a discrete model and then considering the consequences of a limiting case allows students to model real-world behavior and discover and understand important ideas, definitions, formulas, and theorems in calculus: for example, continuity, differentiation, integration, **and series**.

(3) **Analysis of Functions (FUN)-** Calculus allows the analysis of the behaviors of functions by relating limits to differentiation, integration, and infinite series and relating each of these concepts to the others.

For the most current Advanced Placement (AP) Calculus BC for High School Math course description, standards, and materials, visit: *https://apstudents.collegeboard.org/courses/ap-calculus-bc*.

ADVANCED PLACEMENT (AP) STATISTICS

The AP Statistics course, ***a one-credit course***, is equivalent to a one-semester, introductory, non-calculus-based college course in statistics, and introduces students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. There are four themes evident in the content, skills, and assessment in the AP Statistics course: exploring data, sampling and experimentation, probability and simulation, and statistical inference. Students use technology, investigations, problem solving, and writing as they build conceptual understanding.

The AP Statistics course aims to prepare students for advanced coursework in statistics or other fields using statistical reasoning and for active, informed engagement with a world of data to be interpreted appropriately and applied wisely to make informed decisions. Each big idea is described below.

(1) **Variation and Distribution (VAR)-**The distribution of measures for individuals within a sample or population describes variation. The value of a statistic varies from sample to sample. Statistical methods based on probabilistic reasoning provide the basis for shared understandings about variation and about the likelihood that variation between and among measures, samples, and populations is random or meaningful.

(2) **Patterns and Uncertainty (UNC)-** Statistical tools allow students to represent and describe patterns in data and to classify departures from patterns. Simulation and probabilistic reasoning allow students to anticipate patterns in data and to determine the likelihood of errors in inference.

(3) **Data-based Predictions, Decisions, and Conclusions (DAT)-** Data-based regression models describe relationships between variables and are a tool for making predictions for values of a response variable. Collecting data using random sampling or randomized experimental design means that findings may be generalized to the part of the population from which the selection was made. Statistical inference allows students to make data-based decisions.

For the most current Advanced Placement (AP) Statistics for High School Math course description, standards, and materials, visit: *https://apstudents.collegeboard.org/courses/ap-statistics*.

DUAL CREDIT (DC) MATH COURSES

The purpose of the Dual Enrollment and Credit Program is to offer structured opportunities for qualified high school students to simultaneously enroll in college courses at Mississippi (public) Institutions of Higher Learning (IHLs) or Mississippi Community or Junior Colleges (CJCs) that provide pathways leading to academic or career technical postsecondary credit. (see *Mississippi Code Title 37, § 37-15-38*.)

Students enrolled in a community college or state institution of higher learning while enrolled in high school, "a dual credit student", receives both high school and postsecondary credit for coursework regardless of the course location (high school campus, postsecondary campus, or online). One three-hour postsecondary course is equal to ***one*** high school Carnegie unit. Four-hour postsecondary lab science course(s), either in a four-hour combined format or three-hour lecture plus one-hour matching lab format, is equal to ***one*** high school Carnegie unit.

The following math courses are identified in the list of articulated courses in Appendix V of the *Procedures Manual of the State of Mississippi Dual Enrollment and Accelerated Programs (2024-2025)*. Additional courses may be available, based on local offerings.

College Algebra (906401/MAT 1313)
Trigonometry (906411/MAT 1323)
Finite Math (906451/ MAT 1333)
Business Calculus I (906920/MAT 1513)
Statistics (906450/MAT 2323)

For specifics on Dual Credit and Dual Enrollment options, contact the local partnering postsecondary institution for detailed student learning outcomes and course syllabus information, and visit *https://mdek12.org/secondaryeducation/accelerated-programs/*, *http://www.mississippi.edu/cjc/dual_enrollment.asp* and/or reference the *Procedures Manual for the State of Mississippi Dual Enrollment and Accelerated Programs.*

SUPPLEMENTAL HIGH SCHOOL MATH COURSES

Supplemental Mathematics I, II, III, & IV (Grades 9-12) courses, formerly Compensatory Mathematics I, II, III, & IV, are designed to provide targeted interventions of core mathematics concepts.[1]

Students in need of instructional support, intervention, or remediation may be enrolled in a Supplemental Mathematics course under the following stipulations:

The Supplemental Mathematics course:

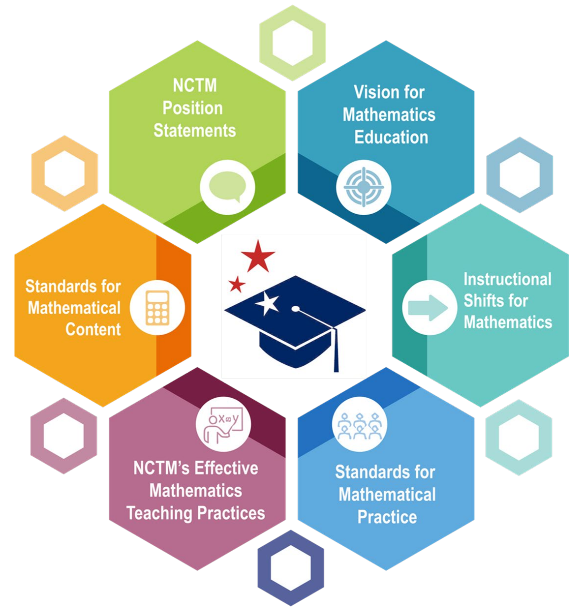
1. must be taken in concert with a credit-bearing course at the same grade level;
2. includes content supportive of the accompanying credit-bearing course;
3. should incorporate the Standards for Mathematical Practice (SMPs); and
4. may be taken as an elective, but will **not** satisfy the number of mathematics Carnegie units required for graduation.

Instruction within the supplemental mathematics courses should be designed to expose students to experiences, which reflect the value of mathematics, to enhance students' confidence in their ability to do mathematics, and to help students communicate and reason mathematically.

[1] Documentation of Tier II and III interventions is required. ***MS State Board Policy Manual:*** *Rule 41.1 intervention*.

Additional Support

APPENDIX A



▶ Glossary

GLOSSARY

K-12 ACADEMIC VOCABULARY

Note: The words defined here pertain to courses derived from the *Mississippi College- and Career-Readiness Standards* for Mathematics.

ACADEMIC VOCABULARY TERM	DEFINITION
A	
Absolute value	The distance a number is from zero. Distance is expressed as a positive value.
Addend	A number that is added to another.
Addition and subtraction within 5, 10, 20, or 1000	Addition or subtraction of two whole numbers with whole number answers, and with sum or minuend in the range 0-5, 0-10, 0-20, or 0-100, respectively. *For example: 8 + 2 = 10 is an addition within 10, 14 – 5 =9 is a subtraction within 20, and 55 – 18 = 37 is a subtraction within 100*.
Additive inverses	Two numbers whose sum is 0 are additive inverses of one another. *For example: 3/4 and –3/4 are additive inverses of one another because 3/4 + (– 3/4) = (– 3/4) + 3/4 = 0*.
Algebra	The part of mathematics in which patterns and properties of numbers are generalized using variables in expressions, equations, and formulas.
Associative property of addition	See Table 3 in this Glossary.
Associative property of multiplication	See Table 3 in this Glossary.
B	
Bivariate data	Pairs of linked numerical observations. *For example: a list of heights and weights for each player on a football team*.

ACADEMIC VOCABULARY TERM	DEFINITION
Box plot	(Also called a box-and-whisker plot) A method of visually displaying a distribution of data values by using the median, quartiles, and extremes of the data set. A box shows the middle 50% of the data.[1]
C	
Coefficient	The multiplicative factor of a term.
Commutative property	See Table 3 in this Glossary.
Complex fraction	A fraction A/B where A and/or B are fractions (B is nonzero).
Computation algorithm	A set of predefined steps applicable to a class of problems that gives the correct result in every case when the steps are carried out correctly. See also: computation strategy.
Computation Strategy	Purposeful manipulations that may be chosen for specific problems, may not have a fixed order, and may be aimed at converting one problem into another. See also: computation algorithm.
Congruent	Two plane or solid figures are congruent if one can be obtained from the other by rigid motion (a sequence of rotations, reflections, and translations).
Constant	Any well-defined real number in an expression or equation that has a fixed value. *For example, in the equation $x + 5 = 9$, 5 and 9 are both constants*.
Counting on	A strategy for finding the number of objects in a group without having to count every member of the group. For example, if a stack of books is known to have 8 books and 3 more books are added to the top, it is not necessary to count the stack all over again. One can find the total by counting on—pointing to the top book and saying “eight,” following this with “nine, ten, eleven. There are eleven books now.”
D	
Difference	The result of removing a quantity from a set. The difference describes how much one quantity differs from another quantity. *For example, in the equation $10 – 2 = 8$, 8 is the difference*.

ACADEMIC VOCABULARY TERM	DEFINITION
Dilation	A transformation that moves each point along the ray through the point emanating from a fixed center, and multiplies distances from the center by a common scale factor.
Dividend	The quantity to be divided.
Divisor	The quantity by which another quantity, the dividend, is to be divided.
Dot plot	See: line plot.
E	
Expanded form	A multi-digit number is expressed in expanded form when it is written as a sum of single-digit multiples of powers of ten. *For example, 643 = 600 + 40 + 3*.
Expected value	For a random variable, the weighted average of its possible values, with weights given by their respective probabilities.
F	
First quartile	For a data set with a median of M, the first quartile is the median of the data values less than M. *For example: For the data set {1, 3, 6, 7, 10, 12, 14, 15, 22, 120}, the first quartile is 6.*[2] See also: median, third quartile, interquartile range.
Fraction	A number expressible in the form a/b where a is a whole number and b is a positive whole number. (The word fraction in these standards always refers to a non-negative number.) See also: rational number.
I	
Identity property of 0	See Table 3 in this Glossary.

ACADEMIC VOCABULARY TERM	DEFINITION
Independently combined probability models	Two probability models are said to be combined independently if the probability of each ordered pair in the combined model equals the product of the original probabilities of the two individual outcomes in the ordered pair.
Integer	A number expressible in the form a or –a for some whole number a.
Interquartile Range	A measure of variation in a set of numerical data, the interquartile range is the distance between the first and third quartiles of the data set. *For example: For the data set {1, 3, 6, 7, 10, 12, 14, 15, 22, 120}, the interquartile range is 15 – 6 = 9*. See also: first quartile, third quartile.
L	
Line Plot	A method of visually displaying a distribution of data values where each data value is shown as a dot or mark above a number line. Also known as a dot plot.[3]
M	
Mean	A measure of center in a set of numerical data computed by adding the values in a list and then dividing by the number of values in the list. [4] *For example: For the data set {1, 3, 6, 7, 10, 12, 14, 15, 22, 120}, the mean is 21.*
Measures of Center	A measure of central tendency is a value that attempts to describe a set of data by identifying the central position of the data set (as representative of a "typical" value in the set). The measures of central tendency are called the mean, median, and mode.
Measures of Variability	A measure that describes how spread out or scattered a set of data is. It is also known as measures of dispersion or measures of spread. Some measures of variation are called the range, interquartile range, and standard deviation.
Median	A measure of center in a set of numerical data. The median of a list of values is the value appearing at the center of a sorted version of the list—or the mean of the two central values, if the list contains an even number of values. *For example: For the data set {2, 3, 6, 7, 10, 12, 14, 15, 22, 90}, the median is 11.*

ACADEMIC VOCABULARY TERM	DEFINITION
Midline	In the graph of a trigonometric function, the horizontal line halfway between its maximum and minimum values
Minuend	A quantity from which another is to be subtracted. *For example, in the equation 10 – 2 = 8, 10 is the minuend.*
Mode	The number which appears most often in a set of data.
Multiplication and division within 100	Multiplication or division of two whole numbers with whole number answers, and with product or dividend in the range 0-100. *For example: 72 ÷ 8 = 9.*
Multiplicative inverses	Two numbers whose product is 1 are multiplicative inverses of one another. *For example: 3/4 and 4/3 are multiplicative inverses of one another because 3/4 × 4/3 = 4/3 × 3/4 = 1*.
N	
Number line diagram	A diagram of the number line used to represent numbers and support reasoning about them. In a number line diagram for measurement quantities, the interval from 0 to 1 on the diagram represents the unit of measure for the quantity.
P	
Percent rate of change	A rate of change expressed as a percent. *For example, if a population grows from 50 to 55 in a year, it grows by 5/50 = 10% per year.*
Polygon	A plane, closed two-dimensional figure formed by segments that do not cross. Some examples include: *triangles*, *rectangles*, and *pentagons*.
Probability	A number between 0 and 1 used to quantify likelihood for processes that have uncertain outcomes (*such as tossing a coin, selecting a person at random from a group of people, tossing a ball at a target, or testing for a medical condition*).
Probability distribution	The set of possible values of a random variable with a probability assigned to each.

ACADEMIC VOCABULARY TERM	DEFINITION
Probability model	A probability model is used to assign probabilities to outcomes of a chance process by examining the nature of the process. The set of all outcomes is called the sample space, and their probabilities sum to 1. See also: uniform probability model.
Product	The result when two or more numbers are multiplied together.
Properties of equality	See Table 4 in this Glossary.
Properties of inequality	See Table 5 in this Glossary.
Properties of operations	See Table 3 in this Glossary.
Q	
Quadrilateral	A polygon formed by four line segments.
Qualitative data	Qualitative data is information that describes something, usually characteristics or categories relating to, measuring, or measured by the quality of something rather than its quantity.
Quantitative data	Quantitative data is data expressing a certain quantity, amount, or range. Usually, there are measurements of units relating to, measuring, or measured by the quantity of something rather than its quality.
Quantity	How much there is of something.
Quotient	The result of division. Division is the determination of how many groups can be formed or how many are in each group.
R	
Random variable	An assignment of a numerical value to each outcome in a sample space.
Rational expression	A quotient of two polynomials with a non-zero denominator.

ACADEMIC VOCABULARY TERM	DEFINITION
Rational number	A number expressible in the form a/b or $-a/b$ for some fraction a/b. The rational numbers include the integers.
Rectangle	A quadrilateral and/or parallelogram where every angle is a right angle.
Rectilinear figure	A polygon, all angles of which are right angles.
Regular Polygon	A polygon is “regular” only when all angles are equal and all sides are equal. Otherwise, it is an irregular polygon.
Reflection	A rigid transformation in which the resulting figure (image) is the mirror image of the original figure (pre-image). A transformation where each point in a shape appears at an equal distance on the opposite side of a given the line of reflection.
Repeating decimal	The decimal form of a rational number. See also: terminating decimal.
Rhombus	A quadrilateral and/or equilateral parallelogram; a plane two- dimensional figure with opposite sides parallel and opposite angles parallel. Plural rhombi or rhombuses.
Rigid motion	A transformation of points in space consisting of a sequence of one or more translations, reflections, and/or rotations. Rigid motions are here assumed to preserve distances and angle measures.
Rotation	A rigid transformation where a figure is turned about a given, fixed point.
S	
Sample space	In a probability model for a random process, a list of the individual outcomes that are to be considered.
Scatter plot	A graph in the coordinate plane representing a set of bivariate data. *For example, the heights and weights of a group of people could be displayed on a scatter plot*.[5]
Similarity transformation	A rigid motion followed by a dilation.

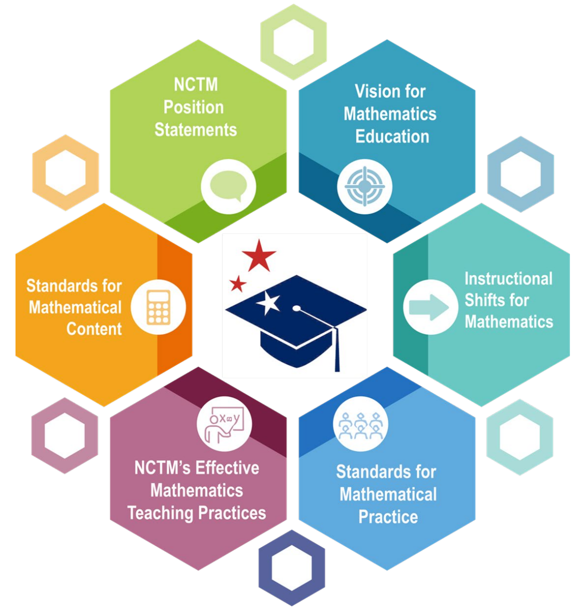
ACADEMIC VOCABULARY TERM	DEFINITION
Square	An equilateral, equiangular parallelogram; a plane two-dimensional, four-sided regular polygon with all sides equal and all internal angles equal to right angles.
Subtrahend	A quantity to be subtracted from another. *For example, in the equation 10 – 2 = 8, 2 is the subtrahend*.
Sum	The result of addition. Addition means to add to a set or combine sets.
T	
Tape diagram	A drawing that looks like a segment of tape, used to illustrate number relationships. Also known as a strip diagram, bar model, fraction strip, or length model.
Term	Either a single number or variable, or numbers and variables multiplied together. Terms are separated by + or – signs. For example, in the equation 4x – 7 = 5, 4x, 7, and 5 are all terms.
Terminating decimal	A decimal is called terminating if its repeating digit is 0.
Third quartile	For a data set with a median of M, the third quartile is the median of the data values greater than M. *For example: For the data set {2, 3, 6, 7, 10, 12, 14,15, 22, 120}, the third quartile is 15*. See also: median, first quartile, interquartile range.
Translation	A rigid transformation that moves every point in a figure a constant distance in a specified direction.
Transitivity principle for indirect measurement	If the length of object A is greater than the length of object B, and the length of object B is greater than the length of object C, then the length of object A is greater than the length of object C. This principle applies to the measurement of other quantities as well.
Trapezoid	A quadrilateral with at least one set of parallel sides.
U	
Uniform probability model	A probability model which assigns equal probability to all outcomes. See also: probability model.

ACADEMIC VOCABULARY TERM	DEFINITION
V	
Variable	A letter or other symbol used in an expression to represent an unspecified number may have many values, one value, or no possible value depending on its use. In a polynomial, the variables correspond to the base symbols themselves, stripped of coefficients and any powers or products.
Vector	A quantity with magnitude and direction in the plane or in space, defined by an ordered pair or triple of real numbers.
Visual fraction model	A tape diagram, number line diagram, or area model.
W	
Whole numbers	The numbers 0, 1, 2, 3…

[1]Adapted from Wisconsin Department of Public Instruction, *http://dpi.wi.gov/standards/mathglos.html*, accessed March 2, 2010.
[2]Many different methods for computing quartiles are in use. The method defined here is sometimes called the Moore and McCabe method. See Langford, E., "Quartiles in Elementary Statistics," *Journal of Statistics Education* Volume 14, Number 3 (2006).
[3]Adapted from Wisconsin Department of Public Instruction, *op. cit*.
[4]To be more precise, this defines the *arithmetic mean*.
[5]Adapted from Wisconsin Department of Public Instruction, *op. cit*.

Additional Support

APPENDIX B



▶ Tables

TABLE 1 Common addition and subtraction situations.[4]

	Result Unknown	Change Unknown	Start Unknown
Add to	Two bunnies sat on the grass. Three more bunnies hopped there. How many bunnies are on the grass now? 2 + 3 = ?	Two bunnies were sitting on the grass. Some more bunnies hopped there. Then there were five bunnies. How many bunnies hopped over to the first two? 2 + ? = 5	Some bunnies were sitting on the grass. Three more bunnies hopped there. Then there were five bunnies. How many bunnies were on the grass before? ? + 3 = 5
Take from	Five apples were on the table. I ate two apples. How many apples are on the table now? 5 – 2 = ?	Five apples were on the table. I ate some apples. Then there were three apples. How many apples did I eat? 5 – ? = 3	Some apples were on the table. I ate two apples. Then there were three apples. How many apples were on the table before? ? – 2 = 3
	Total Unknown	Addend Unknown	Both Addends Unknown[1]
Put Together/Take Apart [2]	Three red apples and two green apples are on the table. How many apples are on the table? 3 + 2 = ?	Five apples are on the table. Three are red and the rest are green. How many apples are green? 3 + ? = 5, 5 – 3 = ?	Grandma has five flowers. How many can she put in her red vase and how many in her blue vase? 5 = 0 + 5, 5 = 5 + 0 5 = 1 + 4, 5 = 4 + 1 5 = 2 + 3, 5 = 3 + 2
	Difference Unknown	Bigger Unknown	Smaller Unknown
Compare[3]	(“How many more?” version): Lucy has two apples. Julie has five apples. How many more apples does Julie have than Lucy? (“How many fewer?” version): Lucy has two apples. Julie has five apples. How many fewer apples does Lucy have than Julie? 2 + ? = 5, 5 – 2 = ?	(Version with “more”): Julie has three more apples than Lucy. Lucy has two apples. How many apples does Julie have? (Version with “fewer”): Lucy has 3 fewer apples than Julie. Lucy has two apples. How many apples does Julie have? 2 + 3 = ?, 3 + 2 = ?	(Version with “more”): Julie has three more apples than Lucy. Julie has five apples. How many apples does Lucy have? (Version with “fewer”): Lucy has 3 fewer apples than Julie. Julie has five apples. How many apples does Lucy have? 5 – 3 = ?, ? + 3 = 5

[1]These take apart situations can be used to show all the decompositions of a given number. The associated equations, which have the total on the left of the equal sign, help children understand that the = sign does not always mean makes or results in but always does mean is the same number as.
[2]Either addend can be unknown, so there are three variations of these problem situations. Both Addends Unknown is a productive extension of this basic situation, especially for small numbers less than or equal to 10.
[3]For the Bigger Unknown or Smaller Unknown situations, one version directs the correct operation (the version using more for the bigger unknown and using less for the smaller unknown). The other versions are more difficult.
[4]Adapted from Box 2-4 of Mathematics Learning in Early Childhood, National Research Council (2009, pp. 32, 33).

TABLE 2 Common multiplication and division situations.[7]

	Unknown Product **3 x 6 = ?**	Group Size Unknown *("How many groups?" Division)* **3 x ? = 18, and 18 ÷ 3 =?**	Number of Groups Unknown *("How many groups?" Division)* **? x 6 = 18, and 18 ÷ 6 =?**
Equal Groups	There are 3 bags with 6 plums in each bag. How many plums are there in all? *Measurement example*. You need 3 lengths of string, each 6 inches long. How much string will you need altogether?	If 18 plums are shared equally into 3 bags, then how many plums will be in each bag? *Measurement example*. You have 18 inches of string, which you will cut into 3 equal pieces. How long will each piece of string be?	If 18 plums are to be packed 6 to a bag, then how many bags are needed? *Measurement example*. You have 18 inches of string, which you will cut into pieces that are 6 inches long. How many pieces of string will you have?
Arrays[5], Area[6]	There are 3 rows of apples with 6 apples in each row. How many apples are there? *Area example*. What is the area of a 3 cm by 6 cm rectangle?	If 18 apples are arranged into 3 equal rows, how many apples will be in each row? *Area example*. A rectangle has area 18 square centimeters. If one side is 3 cm long, how long is a side next to it?	If 18 apples are arranged into equal rows of 6 apples, how many rows will there be? *Area example*. A rectangle has area 18 square centimeters. If one side is 6 cm long, how long is a side next to it?
Compare	A blue hat costs \$6. A red hat costs 3 times as much as the blue hat. How much does the red hat cost? *Measurement example*. A rubber band is 6 cm long. How long will the rubber band be when it is stretched to be 3 times as long?	A red hat costs \$18 and that is 3 times as much as a blue hat costs. How much does a blue hat cost? *Measurement example*. A rubber band is stretched to be 18 cm long and that is 3 times as long as it was at first. How long was the rubber band at first?	A red hat costs \$18 and a blue hat costs \$6. How many times as much does the red hat cost as the blue hat? *Measurement example*. A rubber band was 6 cm long at first. Now it is stretched to be 18 cm long. How many times as long is the rubber band now as it was at first?
General	$a \times b = ?$	$a \times ? = p$, and $p \div a = ?$	$? \times b = p$, and $p \div b = ?$

[5]The language in the array examples shows the easiest form of array problems. A harder form is to use the terms rows and columns: The apples in the grocery window are in 3 rows and 6 columns. How many apples are in there? Both forms are valuable.
[6]Area involves arrays of squares that have been pushed together so that there are no gaps or overlaps, so array problems include these especially important measurement situations.
[7]The first examples in each cell are examples of discrete things. These are easier for students and should be given before the measurement examples.

TABLES 3-5

Table 3. The properties of operations. Here a, b and c stand for arbitrary numbers in a given number system. The properties of operations apply to the rational number system, the real number system, and the complex number system.

Associative property of addition	$(a + b) + c = a + (b + c)$
Commutative property of addition	$a + b = b + a$
Additive identity property of 0	$a + 0 = 0 + a = a$
Existence of additive inverses	For every a there exists $–a$ so that $a + (–a) = (–a) + a = 0$.
Associative property of multiplication	$(a \times b) \times c = a \times (b \times c)$
Commutative property of multiplication	$a \times b = b \times a$
Multiplicative identity property of 1	$a \times 1 = 1 \times a = a$
Existence of multiplicative inverses	For every $a \neq 0$ there exists $1/a$ so that $a \times 1/a = 1/a \times a = 1$.
Distributive property of multiplication over addition	$a \times (b + c) = a \times b + a \times c$

Table 4. The properties of equality. Here a, b and c stand for arbitrary numbers in the rational, real, or complex number systems.

Reflexive property of equality	$a = a$
Symmetric property of equality	If $a = b$, then $b = a$.
Transitive property of equality	If $a = b$ and $b = c$, then $a = c$.
Addition property of equality	If $a = b$, then $a + c = b + c$.
Subtraction property of equality	If $a = b$, then $a – c = b – c$.
Multiplication property of equality	If $a = b$, then $a \times c = b \times c$.
Division property of equality	If $a = b$ and $c \neq 0$, then $a \div c = b \div c$.
Substitution property of equality	If $a = b$, then b may be substituted for a in any expression containing a.

Table 5. The properties of inequality. Here a, b and c stand for arbitrary numbers in the rational or real number systems.

Exactly one of the following is true: a < b, a = b, a > b.
If a > b *and* b > c *then* a > c.
If a > b, *then* b < a.
If a > b, *then* –a < –b.
If a > b, *then* a ± c > b ± c.
If a > b *and* c > 0, *then* a × c > b × c.
If a > b *and* c < 0, *then* a × c < b × c.
If a > b *and* c > 0, *then* a ÷ c > b ÷ c.
If a > b *and* c < 0, *then* a ÷ c < b ÷ c.

TABLE 6 MS CCRS Widely Applicable as Prerequisites for a Range of College Majors, Postsecondary Programs and Careers.[8]

Number and Quantity	Algebra	Functions	Geometry	Statistics and Probability	Applying Key Takeaways from Grades 6-8[9]
N-RN, Real Numbers: Both clusters in this domain contain widely applicable prerequisites. **N-Q*, Quantities**: Every standard in this domain is a widely applicable prerequisite. Note, this domain is especially important in the high school content standards overall as a widely applicable prerequisite.	Every domain in this category contains widely applicable prerequisites.[10] Note, the **A-SSE** domain is especially important in the high school content standards overall as a widely applicable prerequisite.	**F-IF, Interpreting Functions**: Every cluster in this domain contains widely applicable prerequisites.[10] Additionally, standards **F-BF.1** and **F-LE.1** are relatively important within this category as widely applicable prerequisites.	**The following standards and clusters** are relatively important within this category as widely applicable prerequisites: **G-CO.1** **G-CO.9** **G-CO.10** **G-SRT.B** **G-SRT.C** Note, the above standards in turn have learning prerequisites within the Geometry category, including: **G-CO.A** **G-CO.B** **G-SRT.A**	The following standards are relatively important within this category as widely applicable prerequisites: **S-ID.2** **S-ID.7** **S-IC.1** Note, the above standards in turn have learning prerequisites within 6-8.SP.	**Solving problems at a level of sophistication appropriate to high school by**: • Applying ratios and proportional relationships. • Applying percentages and unit conversions, e.g., in the context of complicated measurement problems involving quantities with derived or compound units (such as mg/mL, kg/m^3, acre-feet, etc.). • Applying basic function concepts, e.g., by interpreting the features of a graph in the context of an applied problem. • Applying concepts and skills of geometric measurement e.g., when analyzing a diagram or schematic. • Applying concepts and skills of basic statistics and probability (see 6-8.SP). • Performing rational number arithmetic fluently.

A note about the codes: Letter codes (A, B, C) are used to denote cluster headings. For example, G-SRT.**B** refers to the ***second*** cluster heading in the domain G-SRT*, "Prove theorems using similarity"* (MS CCRS p. 191).

[8] Informed by postsecondary survey data in Conley et al. (2011), *http://www.epiconline.org/publications/documents/ReachingtheGoal-FullReport.pdf*.

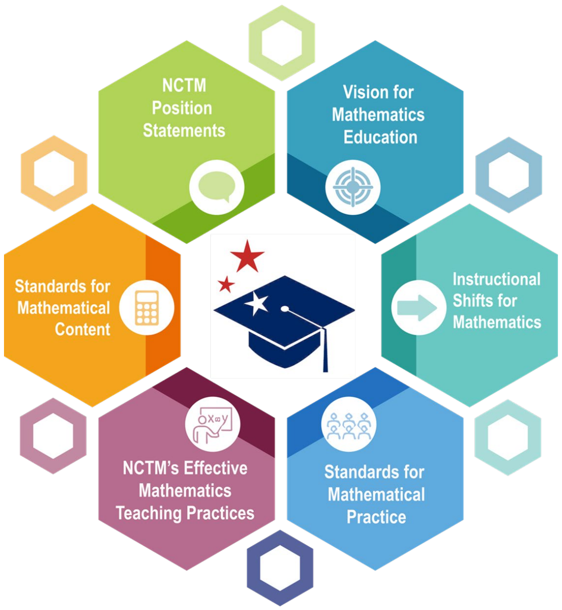
[9] See MS CCRS, p. 85 "…some of the highest priority content for college and career readiness comes from Grades 6-8. This body of material includes powerfully useful proficiencies such as applying ratio reasoning in real-world and mathematical problems, computing fluently with positive and negative fractions and decimals, and solving real-world and mathematical problems involving angle measure, area, surface area, and volume."

* Modeling Standards (present in HS CCRS)

[10] Only the standards without a (+) sign are being cited here.

Additional Support

APPENDIX C



▶ Supporting Resources

MS CCRS NAVIGATOR: COMPREHENSIVE SUPPORT FOR INSTRUCTIONAL PREPARATION

PURPOSE

The primary purpose of the 2025 Mississippi College- and Career-Readiness Standards Navigator: Comprehensive Support for Instructional Preparation Document (MS CCRS Navigator), *formally known as the MS CCRS Scaffolding Document*, is to equip teachers with a deeper understanding of the Standards, enabling them to effectively prepare for classroom instruction. Grounded in the 2025 Mississippi College- and Career-Readiness Standards for Mathematics, this document provides a detailed analysis of what is required for student mastery in an effort to help teachers prepare to deliver high-quality, intentional instruction that aligns with the rigor of the Standards.

ORGANIZATION

The 2025 MS CCRS Navigator is divided by grade level. Within each grade level, the MS CCRS Navigator is color-coded by mathematical domains (Grades K-8) or high school conceptual categories (Grades 9-12). Each standard is divided into three categories to guide instructional preparation:

1. **Prerequisite Knowledge**: This column outlines the skills students should have previously mastered to engage with and work toward mastery of the grade-specific standard. It clarifies what students need to **KNOW** to build a strong foundation for learning.
2. **Conceptual Understanding**: This column explains the deeper understanding of concepts—not just actions or skills—required for mastery. It details what students need to **UNDERSTAND** to fully grasp the grade-specific standard.
3. **Evidence of Knowledge**: This column describes how student mastery is demonstrated, including the work students produce to exhibit understanding. It specifies what students need to **DO** to show they have achieved mastery.

To further support instructional preparation, the document includes suggested Standards for Mathematical Practice (SMPs) and key academic vocabulary for each standard. The MS Navigator is located at *www.mdek12.org/secondaryeducation/mathematics.*

2016 AND 2025 STANDARDS COMPARISON GUIDE

MS CCR STANDARD IDENTIFIER ▼	2016 MS CCR STANDARD ▼	2025 MS CCR STANDARD ▼
KINDERGARTEN		
K.CC.1	Count to 100 by ones and by tens.	**New/Split Standard** K.CC.1a- Count to 100 by ones. K.CC.1b- Count to 100 by tens.
K.OA.5	***Fluently*** add and subtract within 5.	**New/Split Standard** K.OA.5a- ***Fluently*** add within 5. K.OA.5b- ***Fluently*** subtract within 5.
GRADE 1		
1.MD.3b	Identify the days of the week, the number of days in a week, and the number of weeks in each month.	**New/Split Standard** 1.MD.3b Identify the days of the week and the number of days in a week. 1.MD.3c Identify the months of the year, number of months in a year, and the number of weeks in a month.
GRADE 4		
4.G.2	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Categorize triangles by sides and angles (equilateral, isosceles, right, and scalene).
GRADE 5		
5.MD.5b	Apply the formulas V = l ×w×h and V = b ×h for rectangular prisms to find volumes of right rectangular	5.MD.5b-Apply the formulas V = l ×w×h and V = B ×h for rectangular prisms to find volumes of right rectangular

MS CCR STANDARD IDENTIFIER	2016 MS CCR STANDARD	2025 MS CCR STANDARD
	prisms with whole-number edge lengths in the context of solving real-world and mathematical problems.	prisms with whole-number edge lengths in the context of solving real-world and mathematical problems.
GRADE 6		
6.EE.5	Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	Solve an equation or inequality and understand the process by answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
6.G.2	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = lwh and V = bh to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = lwh and V = Bh to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
GRADE 7		
7.G.6	Solve real-world and mathematical problems involving area, volume and surface area of two and three dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.	Solve real-world and mathematical problems involving area, volume, and surface area of two and three-dimensional objects composed of triangles, quadrilaterals, and polygons, including cubes, right prisms, and pyramids.

MS CCR STANDARD IDENTIFIER	2016 MS CCR STANDARD	2025 MS CCR STANDARD
ALGEBRA I		
A-CED.1	Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.*	Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, ~~and simple rational~~ and exponential functions.*
A-REI.6	Solve systems of linear equations algebraically, exactly, and graphically while focusing on pairs of linear equations in two variables.	Solve systems of linear equations exactly using algebraic processes and approximately (e.g. graphically) while focusing on pairs of linear equations in two variables.
F-IF.3	Recognize that sequences are functions whose domain is a subset of the integers.	Use the fact that sequences are functions whose domain is a subset of the integers to identify sequences and generate their explicit formulas.
F-IF.4	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.*	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; and end behavior~~; and periodicity~~.*
F-BF.3	Identify the effect on the graph of replacing f(x) by f(x) + k,kf(x), f(kx), and f(x+k) for specific values of k(both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.	Identify the effect on the graph of replacing f(x) by f(x) + k,kf(x), f(kx), and f(x+k) for specific values of k(both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. ~~Include recognizing even and odd functions from their graphs and algebraic expressions for them.~~

MS CCR STANDARD IDENTIFIER	2016 MS CCR STANDARD	2025 MS CCR STANDARD
GEOMETRY		
G-SRT.8	Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.*	G.SRT.8 Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems and rewrite expressions involving radicals to simplify and interpret solutions.*
ALGEBRA II		
A-CED.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.

** Modeling Standards*

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