



MISSISSIPPI

# EXEMPLAR

Units & Lessons

MATHEMATICS

Kindergarten

Grant funded by:



**MISSISSIPPI DEPARTMENT OF EDUCATION**

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## Introduction

### Mission Statement

The Mississippi Department of Education (MDE) is dedicated to student success, including the improvement of student achievement in English Language Arts (ELA) and mathematics 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 (MS CCRS) 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. The goal of the MDE is to provide educators with the training and resources to understand and implement the MS CCRS effectively.

### Purpose

In efforts to facilitate implementation and promote understanding of the MS CCRS for ELA and mathematics, the W. K. Kellogg Foundation generously awarded the MDE a grant to secure a cadre of effective educators to develop the MS CCRS Exemplar Units for teachers. Specifically, a group of highly-effective Mississippi educators developed exemplar instructional units and lessons aligned to the MS CCRS for ELA and mathematics. The MS CCRS Exemplar Units address difficult-to-teach standards as determined by teachers and are designed to serve as exemplar models for instructional units, lessons, and resources. The MS CCRS Exemplar Units have been vetted through nationally renowned vendors to ensure exemplar quality.



### **Design Overview**

The MS CCRS Exemplar Units for ELA and mathematics address grade-level specific standards for Pre-Kindergarten-8<sup>th</sup> grade, as well as for Algebra, English I, and English II. The overall unit plan is described in the first section of the ELA and math units. This section includes the unit title, a suggested time frame, the grade level MS CCRS addressed and assessed, a unit overview with essential questions and a summary of lesson tasks, and the culminating/performance task description and rubric.

Though the math and ELA overall unit plan designs are very similar, some design aspects differ in order to accommodate the respective requirements of each content area. For mathematics, the first section also provides a segment designated for the Standards for Mathematical Practices (SMPs) addressed in the unit. For ELA, the first section also includes a text set with links to texts (if in the public domain) and a fresh/cold-read task.

The second section of each unit includes lesson plans. Within the lesson plans, provided are lesson-specific MS CCRS, suggested time frames, learning targets, guiding questions, required resources and materials, vocabulary terms and instructional strategies, teacher directions, instructional supports for students, enrichment activities, student handouts, assessments (formative, summative, pre-, and self-), and additional resources to aid in the implementation of the lessons.

### **Implementation**

The intention of the MS CCRS Exemplar Units for ELA and mathematics is to provide educators with resources to understand and implement the MS CCRS effectively. The implementation of the MS CCRS Exemplar Units for ELA and mathematics is voluntary. Additionally, the MDE will provide ongoing support for implementation of the MS CCRS Exemplar Units with initial regional trainings followed by site-specific support through our regional service delivery model. For regional and site-specific training, please contact the MDE Office of Professional Development.

Grade Level	Unit Title	Duration
Kindergarten	Hungry for Math	10 days
Mississippi College- and Career-Readiness Standards for Mathematics		Standards for Mathematical Practice
<p><b>Focus:</b>  <b>K.OA.2:</b> Solve addition and subtraction word problems <i>within 10 involving situations of adding to, taking from, putting together and taking apart with unknowns in all positions</i> by using objects or drawings to represent the problem.</p> <p><b>Additional:</b>  <b>K.OA.1:</b> Represent addition and subtraction, <i>in which all parts and whole of the problem are within 10</i>, with objects, fingers, mental images, drawings, sounds (e.g. claps), acting out situations, verbal explanations, expressions or equations.</p> <p><b>K.OA.3:</b> 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., <math>5 = 2 + 3</math> and <math>5 = 4 + 1</math>).</p> <p><b>K.OA.4:</b> 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.</p> <p><b>K.CC.4:</b> Understand the relationship between numbers and quantities, connect counting to cardinality.</p>		<p><b>SMP.1</b> Make sense of problems and persevere in solving them.</p> <p><b>SMP.2</b> Reason abstractly and quantitatively.</p> <p><b>SMP.3</b> Construct viable arguments and critique the reasoning of others.</p> <p><b>SMP.4</b> Model with mathematics.</p> <p><b>SMP.5</b> Use appropriate tools strategically.</p> <p><b>SMP.6</b> Attend to precision.</p> <p><b>SMP.7</b> Look for and make use of structure.</p> <p><b>SMP.8</b> Look for and express regularity in regulated reasoning.</p>

**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.

**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, setting, and major events in a story.

**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

**RF.K.2a:** Recognize and produce rhyming words

### Unit Overview

Throughout this unit, students will be engaged in a variety of grouping strategies to enhance instruction and the learning process. Each day, students will move in and out of Whole Group, Small Groups, and Learning Centers. Learning Centers are scheduled daily to engage students in their learning. The math centers contain developmentally appropriate materials for students to explore and experiment with numerals, quantities, addition, subtraction, and their relationships. The “Hungry for Math” unit provides students opportunities to solve addition and subtraction word problems within ten using books, songs, manipulatives, models, acting, organizers, five frames, ten frames, and other tools and manipulatives. Hands-on activities allow students to implement strategies to develop fluency in solving addition and subtraction word problems.

#### Essential Questions:

- When might a person have to solve addition and subtraction story problems?
- How does understanding how to solve addition and subtraction story problems foster independence in society?

## Lesson Tasks

**Lesson 1: Getting Bigger**

Students will predict a story from a mathematical perspective and solve addition word problems with manipulatives and models.

**Lesson 2: Fruity Problems**

Students will demonstrate what the caterpillar ate during read-aloud with food cut-outs and represent word problems with use of manipulatives, counters, five frames, and models.

**Lesson 3: Fruit Squares**

Students will represent number sentences with their bodies on a life-size ten frame, represent word problems with use of student-made manipulatives as a model, and distinguish different ways to represent and solve word problems.

**Lesson 4: Gobbling Up Math Strategies**

Students will represent number sentences with their bodies on a life-size ten frame and distinguish different ways to represent and solve word problems.

**Lesson 5: Math is REALLY Yummy**

Students will choose a favorable strategy to solve real-world word problems and use foldables as a memory cue for future word problems.

**Lesson 6: Math REALLY Satisfies**

Students will comprehend and act out a subtraction word problem using the classroom as the setting and use manipulatives to understand subtracting within 10.

**Lesson 7: Subtracting Is Quite Handy**

Students will productively struggle to determine favorable and accurate subtraction strategies to solve word problems and express understanding of subtracting within 10 using acquired strategies.

**Lesson 8: Taste the Rainbow**

Students will arrange Skittles in traced hands to compose their own word problems and express understanding of adding and subtracting while creating word problems that correlate accurately.

**Lesson 9: Hungry, Hungry Kindergarteners**

Students will use acquired skills to solve addition and subtraction word problems within 10 and express understanding of adding and subtracting within 10 using acquired strategies.

## Performance/Culminating Task

### **Hungry for Math Performance Task**

You have been chosen to co-author a children's picture book. Each of you must create one page that pictorially represents either an addition or a subtraction story problem. The title of the book is The Very Hungry Kindergarten Student. Your picture should include you and your favorite food. It must accurately represent a story problem. Be creative and have FUN!

**Standard Assessed:** K.OA.2

## Rubric for Performance/Culminating Task

Name: \_\_\_\_\_

Performance Level	Mastery Level	Accuracy	Effort
4	Exemplifying Mastery	Student chose the correct numbers in the word problem and accurately and precisely represents the word problem.	Student submitted a project showing great thought for details and creativity.
3	Approaching Mastery	Student chose the correct numbers in the word problem and made a discernable attempt toward modeling the problem.	Student completed the project with acceptable effort, but more could have done more to show mathematical thought, creativity, and/or detail.
2	Developing Mastery	Student chose one correct number in the word problem and made a discernable attempt toward modeling the problem.	Student completed the project but it lacked clear thought, creativity, and/or detail.
1	Not Representing Mastery	Student chose no correct numbers in the word problem and did not represent the word problem.	Student submitted an incomplete project.
0	No Understanding	No response.	No task submitted.

## Lesson 1: Getting Bigger

**Focus Standard:** K.OA.2

**Additional Standards:** K.OA.1 (embedded); K.OA.3 and K.OA.4 (prerequisites), K.CC.4a, K.CC.4b, RL.K.1, RL.K.2, RL.K.3

**Standards for Mathematical Practice:** SMP.4, SMP.6

**Resources and Materials:**

- Highlight/washi tape
- *The Very Hungry Caterpillar*, by Eric Carle
- Handout 1.1: Pre-assessment
- Handout 1.2: Circle Map
- Handout 1.3: Five Frame
- Handout 1.4: Hungry Caterpillar Fruit
- Handout 1.5: Daily Mastery Tracker
- Video of [The Very Hungry Caterpillar](#), by Eric Carle

**Learning Center Materials:**

- Art paper
- Construction paper circles
- Fruit
- Glue
- Markers
- Music
- Paint
- Paint brushes
- Story props for *The Very Hungry Caterpillar*
- Student journals
- Vegetables

**Lesson Target:**

- Students will join two different quantities whose sum is within 10, using one-to-one correspondence to show understanding of putting together and adding to.

**Guiding Questions:**

- When would adding help a person?
- When might you need to put groups of things together?

## Vocabulary

**Academic Vocabulary:**

- Add
- Addition
- Equal
- Join
- More
- Plus
- Put Together
- Sum
- Total

**Note:** Expose students to various ways to mathematically express these terms. For example, when discussing the word **add**, include phrases such as **putting together**, **altogether**, and **added to**.

**Instructional Strategies for Academic Vocabulary:**

- Introduce words with student-friendly definitions and pictures
- Model how to use the words in discussion
- Discuss the meaning of word in a mathematical context
- Create pictures/symbols to represent words
- Write/discuss using the words
- Act out the words or attach movements to the words


**Direct Instruction Text Vocabulary:**

- Apple
- Caterpillar
- Cocoon
- Oranges
- Pear

**Instructional Strategies for Direct Instruction Text Vocabulary:**

- Introduce words with student-friendly definition and pictures
- Model how to use the words in discussion
- Write/discuss the meaning of word in multiple contexts
- Provide pictures/props to represent words



<ul style="list-style-type: none"> <li>• Plum</li> <li>• Strawberry</li> </ul> <p><b>Note:</b> Consider which of these words would fall into Tier 2 for your students when introducing vocabulary.</p>	
Symbol	Type of Text and Interpretation of Symbol
	Instructional support and/or extension suggestions for students who are EL, have disabilities, or perform well below the grade level and/or for students who perform well above grade level
✓	Assessment (Pre-assessment, Formative, Self, or Summative)
Instructional Plan	
<p><b>Understanding Lesson Purpose and Student Outcomes:</b> Students will see and hear the story, <i>The Very Hungry Caterpillar</i>, to comprehend the mathematical aspects in the text.</p> <p><b>Anticipatory Set/Introduction to the Lesson: Activate Prior Knowledge (Whole Group)</b></p> <p>Activate the students' prior knowledge by asking the following questions:</p> <ul style="list-style-type: none"> <li>• Have you ever seen a caterpillar?</li> <li>• How many legs do you think a caterpillar has?</li> <li>• Have you ever seen a butterfly?</li> <li>• How are a caterpillar and butterfly related?</li> <li>• What do caterpillars eat?</li> </ul> <p><b>Note:</b> Record the students' answers to the last question on a piece of chart paper.</p> <p>Show the cover of the book, <i>The Very Hungry Caterpillar</i>. Name the author and illustrator and encourage students to define the role of each. Allow the students to predict what the book will be about based upon the title and the pictures in the book.</p> <p>Make a poster using <b>Handout 1.2: Circle Map</b>. Record the students' responses on the poster.</p>	

**For students who are EL, have disabilities, or perform well below grade level:**

- Have students sit close to the teacher and redirect their attention as needed.
- Show a picture on the projector for students who have never seen a caterpillar and/or butterfly.
- Allow student access to the book in to review.
- Provide small group and one-on-one instruction as needed.

**Extensions for students with high interest or working above grade level:**

- Use sensory details to describe a caterpillar and/or butterfly.
- Have students retell the story to each other or to the class.
- Have students make five with the combination of other quantities

**Note 1:** Whole Group should last from 15 to 20 minutes, maximum. If this time frame is too long for students, the Whole Group activities may be divided into two sessions. Small Group should last about 15 minutes. Using the pre-assessment results, the teacher will design the formation of small groups to reflect student capability and to drive the instruction throughout every lesson.

**Note 2:** Conduct a movement/physical activity with the students between the anticipatory set and Activity 1 to make sure students are not sitting still for too long.

**Activity 1: The Very Hungry Caterpillar (Whole Group)**

Show [\*The Very Hungry Caterpillar\*](#). After the video is over, ask the following prompting questions.

- What did the caterpillar eat Monday?
- What did the caterpillar eat Tuesday?
- What did the caterpillar eat Wednesday?
- What did the caterpillar eat Thursday?
- What did the caterpillar eat Friday?
- What did the caterpillar eat Saturday?
- What did the caterpillar eat Sunday?

Record student responses on a chart using complete sentences.

Example of sentences dictated by students:

- The caterpillar ate 1 apple on Monday.
- The caterpillar ate 2 pears on Tuesday.
- The caterpillar ate 3 plums on Wednesday.
- The caterpillar ate 4 strawberries on Thursday.
- The caterpillar ate 5 oranges on Friday.
- The caterpillar ate 1 piece of chocolate cake, 1 ice cream cone, 1 pickle, 1 slice of Swiss cheese, 1 slice of salami, 1 lollipop, 1 piece of cherry pie, 1 sausage, 1 cupcake, and 1 slice of watermelon Saturday.
- The caterpillar ate 1 nice green leaf on Sunday.

Use the book to find the answers. Ask if any of the students' predictions were correct. If so, whose predictions were correct. Discuss the mathematical aspects of the story such as counting, numbers or number relationships with the students.

Prompting Questions:

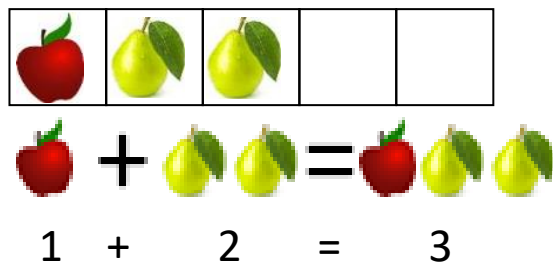
- How many plums did the illustrator draw? (3)
- How do you know there are 3? (count them)

Have students show 3 by using their fingers, clapping 3 times, and/or drawing 3 plums.

### Activity 2 (Teacher-Led Small Group): Creating Word Problems

Tell students they will use pictures of food from the text *The Very Hungry Caterpillar* to create and solve story problems. Model how to complete this activity on the five frame using the example below. Use chart paper or a dry erase board to write an equation. Using highlight tape or washi tape, highlight the number 1 and the number 2 on the sentence.

Display this problem: The caterpillar ate 1 apple Monday. The caterpillar ate 2 pears Tuesday. How many pieces of fruit did the caterpillar eat all together?



Model this with a five frame and real fruit or pictures of fruit.

Distribute **Handout 1.3: Five Frame** and the fruit you cut out from **Handout 1.4: Hungry Caterpillar Fruit**.

**Note:** Have enough fruit cut out so that each student has the same number of fruit as in the story – 1 apple, 2 pears, 3 plums, 4 strawberries, and 5 oranges.

Display this problem: The very hungry caterpillar ate 2 pears on Tuesday. The caterpillar ate 3 plums on Wednesday. How many pieces of fruit did the caterpillar eat in all?

T: What numbers are in the sentence. Circle the numbers 2 and 3.

Are we adding or subtracting?

Write  $2 + 3$ .

Use your pictures of fruit to find 2 pears and 3 plums.

Place 2 pears and 3 plums on your five frame.

How many pieces of fruit did the caterpillar eat? (5)

Write  $2 + 3 = 5$ .

Use different fruit pictures to show adding to 5 on the five frame. Explain that the standard way to show numbers on a five frame is to fill up the row, starting on the left, the same way you read.

Have students place four counters on the five-frame. Ask students what they notice about four. The following are possible responses:

- It is one away from five.
- It is the number after three.
- It is the number before five.

Tell the students to count the blank spaces. Ask students how many blank spaces are on the five frame. The students will say, "1."

Teacher will write  $4 + 1 = \underline{\quad}$  then ask students to finish the number sentence. Students will say, "5."

Tell students to clear their frames. Then have students place 3 counters on the five-frame from left to right. Ask the students how many more counters will they need to add to make five? Students will say, "2."

**Note:** If necessary, this activity can be extended over two days.

## Learning Centers

**Note:** Learning Centers are designed to be developmentally appropriate for all students. The teacher and assistant move about to observe and offer support, as needed. Learning centers will operate in conjunction with small group.

- ✓ **Pretest Center with Adult:** Distribute **Handout 1.1: Pre-assessment**. Read each problem to the students. Allow students to use objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions or equations to solve.
- ✓ **Dramatic Play Center/Music/Listening-** Students will make props for the story of the Very Hungry Caterpillar and act out the story. Students will listen to music and pretend to be a butterfly or some other type of insect.
- ✓ **Math Center-** Cut out 5 circles using construction paper of various colors. Count by 5s to 25 writing one number on each circle and then connecting the circles with glue. Students will also count by 10s to 50 and 20s to 100. Students will add an extra circle to make a head for each set of circles to make a caterpillar (SMP.6).
- ✓ **Computer** - Students will play math and reading games. The teacher will choose the website(s).
- ✓ **Reading Center/Writing Center-** Students will read and picture read fiction and non-fiction books. Students will write and illustrate their own stories about addition, subtraction, foods, insects, animals, etc. Students will reference the word wall, available books, charts and pictures in the classroom for assistance with words.
- ✓ **Science Center-** Provide a variety of fruits and vegetable. Throughout the unit, the students will observe the texture of the fruits and the vegetables. Decide which are alike and which are different and record their observations in their journal. Students will also smell the fruits and vegetables. Students will draw the fruit and or vegetable he or she likes best and write a sentence to explain why he or she likes it.
- ✓ **Art Center** – Provide a variety of art materials. Students will paint a picture of their choice or create their own work of art.

## Formative Assessment

- ✓ Use **Handout 1.5: Daily Mastery Tracker** to record observations of students' understandings and abilities for each day. For Day 1, record a 0 if the student is unable to add within 10 using models or numbers, a + if the student is able to add with models but cannot use equations to solve addition within 10, and a ✓ if the student is able to understand models, write corresponding equations, and solve them.

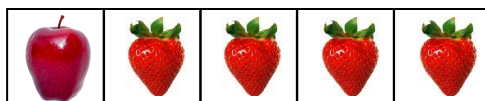
**Reflection and Closing:**

Review the lesson. Reflect with students on the essential question of when you might need to put groups of items together.

Read and display a word problem. Write the number sentence represented in the word problem. Have students use the five frame to represent the number sentence (SMP.4).

*Example:* The very hungry caterpillar ate 1 apple on Monday. The caterpillar ate 4 strawberries Thursday. How many pieces of fruit did the very hungry caterpillar eat Monday and Thursday?

**1 apple + 4 strawberries = 5 pieces of fruit**

**Homework**

Students will interview their parents to find out how they use addition at home or work. Students will share their interview findings the next day.

## Handout 1.1: Pre-Assessment

Name \_\_\_\_\_ Date \_\_\_\_\_

1. Sabrina has this many bananas.



\_\_\_\_\_

- Raoul gives her this many more.



\_\_\_\_\_

How many bananas does Sabrina have now? \_\_\_\_\_

2. Sabrina has this many apples.



\_\_\_\_\_

- She gives Raoul this many apples.



\_\_\_\_\_

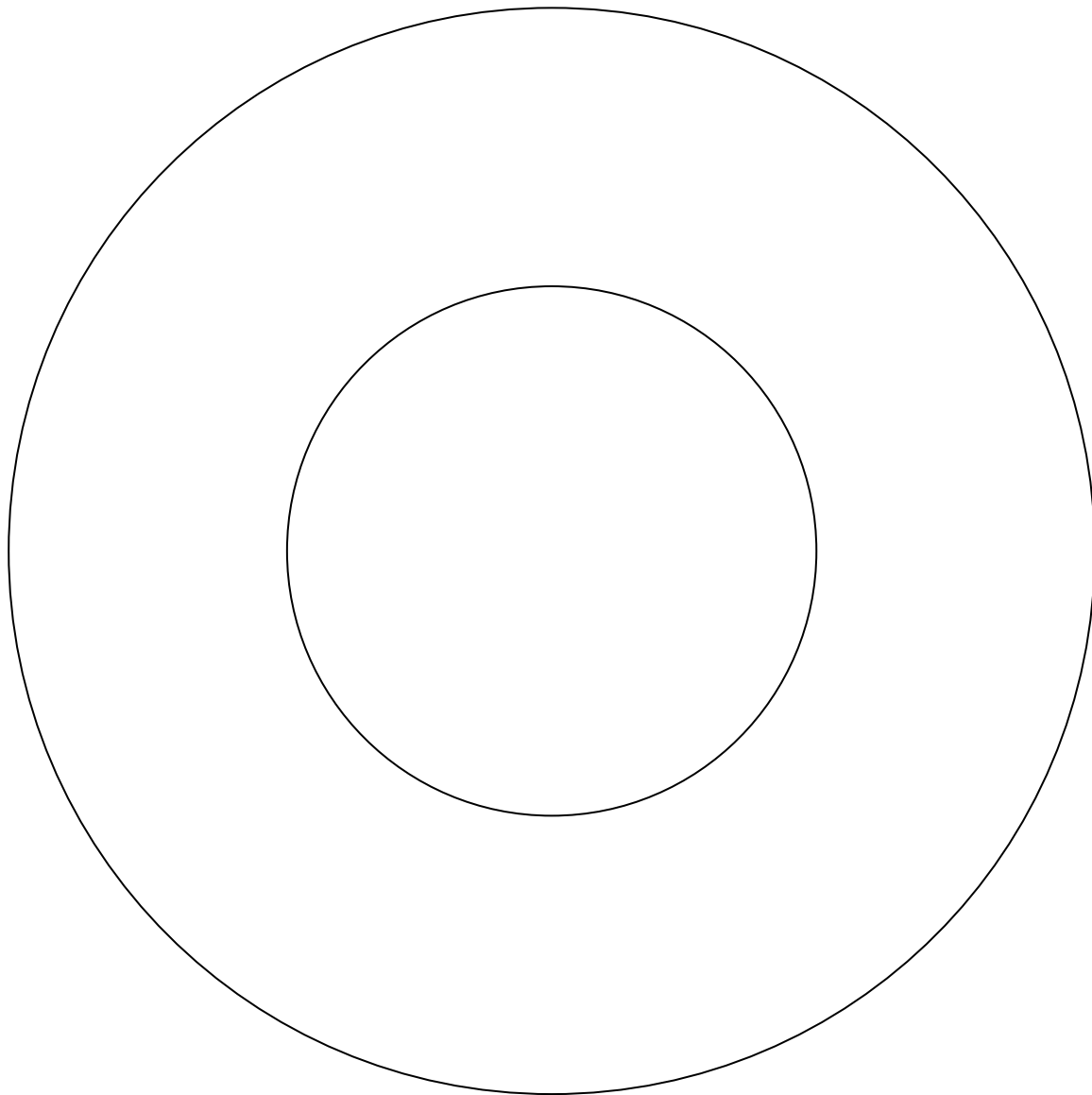
How many apples does Sabrina have now? \_\_\_\_\_

Draw pictures to model these problems:

3. Lisa ate 6 chips. She ate 4 more. How many chips did Lisa eat?

4. Jay got 7 stickers in class today. He gave 3 to Dan. How many stickers does Jay have?

**Handout 1.2 Circle Map**



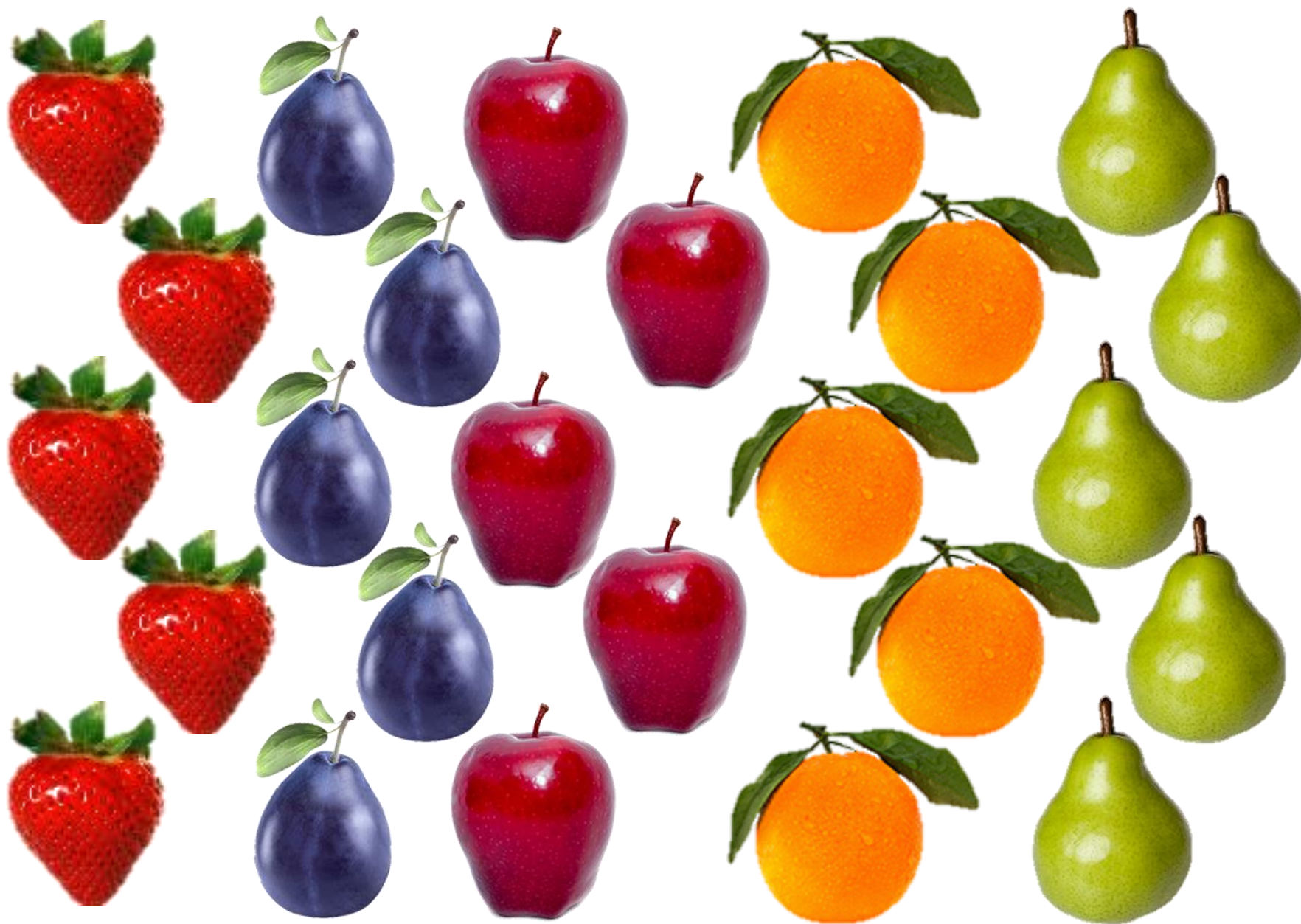


Handout 1.3: Five Frame

# Five Frame

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Handout 1.4: Hungry Caterpillar Fruit



Handout 1.5: Daily Mastery Tracker

Standard	K.OA.2		K.OA.2		K.OA.2		K.OA.2		K.OA.2		K.OA.2		K.OA.2		K.OA.2		K.OA.2																			
	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7		Day 8		Day 9		Day 9																	
<p><b>O</b> not progressing toward mastery, remediate before proceeding.</p> <p><b>+</b> progressing toward mastery, may some remediation</p> <p>demonstrating mastery of this lesson</p>	O	+	O	+	O	+	O	+	O	+	O	+	O	+	O	+	O	+	Performance Task Rubric Score																	
		S cannot add within 10 using models or equations	S can add but not use equations to addition within 10	S can create add. equations from models and add	S can hear a W.P. and pick out mathematical info.	S can find mathematical info. in a W.P. to model	S can tell how many needed to make five	S can solve addition when given the model. (not W.P.)	S working to find addends/ model to solve on a 10 frame	S can supply missing addend to solve a W.P. using a model	S can understand and model addition of a W.P. in 2 ways.	S can model addition of a W.P. in 0-1 ways.	S can understand and model addition of a W.P. in 3 ways.	S can understand and model addition of a W.P. in 2 ways.	S can model addition of a W.P. in 0-1 ways.	S can understand and model addition of a W.P. in 3 ways.	S can understand and model addition of a W.P. in 2 ways.	S cannot subtract with a provided model		S can understand and model subtraction in a W.P.	S cannot subtract with a provided model and a W.P.	S can understand and model subtraction in a W.P.	S can understand and model subtraction in a W.P.	S cannot subtract with a provided model	S can understand and model subtraction in a W.P.	S can model subtraction with assistance interpreting the W.P.	S cannot model a subtraction W.P. with some assistance.	S can understand and model subtraction in a W.P.	S answers 0-2 questions correctly on Sum. Assessment.	S answers 3-4 questions correctly on Sum. Assessment.	S answers 5 questions correctly on Sum. Assessment.					
<b>Students:</b>																																				

## Lesson 2: Fruity Problems

**Focus Standard:** K.OA.2

**Additional Standards:** K.OA.1 (embedded), K.OA.3, K.OA.4, K.CC.4a, K.CC.4b, RL.K.1, RL.K.2, RL.K.3, RL.K.6

**Standards for Mathematical Practice:** SMP.2, SMP.6, SMP.7

**Resources and Materials:**

- Chart stand
- Highlight/washi tape
- *The Very Hungry Caterpillar* by Eric Carle
- Handout 1.1: Pre-assessment
- Handout 1.2: Circle Map
- Handout 1.3: Five Frame
- Handout 1.4: Hungry Caterpillar Fruit
- Handout 2.1: Hungry Caterpillar
- Handout 2.2: Hungry Caterpillar Pictures
- Video of [The Very Hungry Caterpillar](#), by Eric Carle
- [“My Dog, Addition, Song”](#)

**Learning Center Materials:**

- Art paper
- Construction paper circles
- Fruit
- Glue
- Music
- Markers
- Paint
- Paint brushes
- Story props for *The Very Hungry Caterpillar*
- Student journals

- Vegetables

**Lesson Targets:**

- Students join two different quantities up to 10, using one-to-one correspondence to show understanding of putting together and adding to.
- Students use a five frame to understand numbers zero to five and one-to-one correspondence.

**Guiding Questions:**

- How does modeling a story problem help in understanding how to solve it?
- Why is the addition symbol important?

### Vocabulary

**Academic Vocabulary:**

- add
- addition
- altogether
- and
- equal
- join
- less/least
- more/most
- plus
- put together
- sum
- total

**Instructional Strategies for Academic Vocabulary:**

- Introduce words with student-friendly definitions and pictures
- Model how to use the words in discussion
- Discuss the meaning of word in a mathematical context
- Create pictures/symbols to represent words
- Write/discuss using the words
- Act out the words or attach movements to the words

Symbol	Type of Text and Interpretation of Symbol
	Instructional support and/or extension suggestions for students who are EL, have disabilities, or perform well below the grade level and/or for students who perform well above grade level



✓

Assessment (Pre-assessment, Formative, Self, or Summative)

### Instructional Plan

**Understanding Lesson Purpose and Student Outcomes:** Students will demonstrate what the caterpillar ate during read aloud with fruit cut outs. Manipulatives, counters, models and five frames will be used to represent word problems.

**Anticipatory Set/Introduction to the Lesson:** “My Dog, Addition”

Show [“My Dog, Addition” song](#).

**Note: Teacher Guidance**

1. Struggling students are placed near the presenter or assistant, who occasionally redirects the students’ attention during whole group and small group activities.
2. **Whole Group should last about 15-20 minutes maximum.** If this time frame is too long for students, the Whole Group activities may be divided into two sessions. **Small Group should last about 15 minutes.** Using the pre-assessment results, the teacher will design the formation of small groups to reflect student capability and to drive the instruction throughout every lesson.
3. **Movement:** The teacher will conduct a movement/physical activity with the students between the anticipatory set and Activity 1 to make sure students are not sitting still for too long.

**For students who are EL, have disabilities, or perform well below grade level:**

- Allow students to re-watch video in media center.
- Allow students to move while learning.
- Allow students to communicate their answers in their preferred mode of communication (i.e. pictures, assistive technology, sign language, verbal, and/or written).
- Narrow the number of food cut outs.
- Provide small group and one-on-one assistance.

**Extensions for students with high interest or working above grade level:**

- Summarize the video for the class, highlighting the mathematical practice learned from the video.
- Retell the story based upon the caterpillar’s body.
- Make ten with the combination of other quantities.

**Activity 1 (Whole Group): Demonstration of Story**

Activate students' prior knowledge by asking guiding questions to prompt student memory.

- Who remembers what the caterpillar ate Monday? Tuesday? Wednesday? Thursday? Friday?
- How many \_\_\_\_\_ did he eat Monday? Tuesday? Wednesday? Thursday? Friday?

Display **Handout 2.1: Hungry Caterpillar**. Distribute pre-cut pictures from **Handout 2.2: Hungry Caterpillar Pictures** to each student.

Read *The Very Hungry Caterpillar* aloud. Have students put the correct number of food items on the caterpillar as the story is read. Ask questions and allow the students to reflect upon the story to gain a better understanding and respond (SMP.7).

Prompting questions:

- On which day did the caterpillar eat the least amount of food?
- How do you know he ate the least amount of food on this day?
- On which day did the caterpillar eat the most food?
- How do you know he ate the most food on this day?
- After eating too much food, did the caterpillar get bigger or smaller?
- If the caterpillar is getting bigger, which operation do you think of, addition or subtraction?
- If the caterpillar is getting smaller, which operation do you think of, addition or subtraction?

**Activity 2 (Teacher-led Small Group): Representing Word Problems with Manipulatives**

Display a five frame on the board or chart/easel. Count the number of boxes in the five frame along with the students.

Remind students of the sentences from the previous lesson as well as the interactive caterpillar in today's lesson.

Students' dictations during initial reading of the story may have been:

- The caterpillar ate 1 apple Monday.
- The caterpillar ate 2 pears Tuesday.
- The caterpillar ate 3 plums Wednesday.
- The caterpillar ate 4 strawberries Thursday.
- The caterpillar ate 5 oranges Friday.

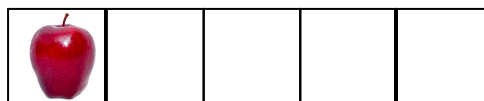
- The caterpillar ate 1 piece of chocolate cake, 1 ice cream cone, 1 pickle, 1 slice of Swiss cheese, 1 slice of salami, 1 lollipop, 1 piece of cherry pie, 1 sausage, 1 cupcake, and 1 slice of watermelon Saturday.
- The caterpillar ate 1 nice green leaf Sunday.

Ask the students questions about what the caterpillar ate on Monday. The following are possible responses:

- ... an apple.
- ... some apples.
- ... one apple.
- ... a pear.

Correct wrong responses by referring students back to the story and the caterpillar, which shows how many of each food item the caterpillar ate.

Tape the apple in the first box of the five frame.



Ask students to count the number of empty boxes.

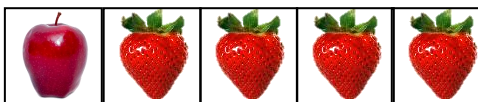
Ask how many pieces of fruit are needed to equal five. Students should respond, "4 more pieces."

Ask on which day the caterpillar only ate 4 pieces of fruit. Students should respond, "Thursday." Ask the students what the caterpillar ate Thursday. Students should respond, "strawberries." Display the following:

On Monday, the caterpillar ate 1 apple. On Thursday, the caterpillar ate 4 strawberries. How many pieces of fruit did the very hungry caterpillar eat in all on Monday and Thursday?

Use highlighting tape or washi tape to cover the 1 and 4 and move the tape as needed for the other word problems. Use a random method to ask a student to use the strawberry cut-outs to complete the five frame.



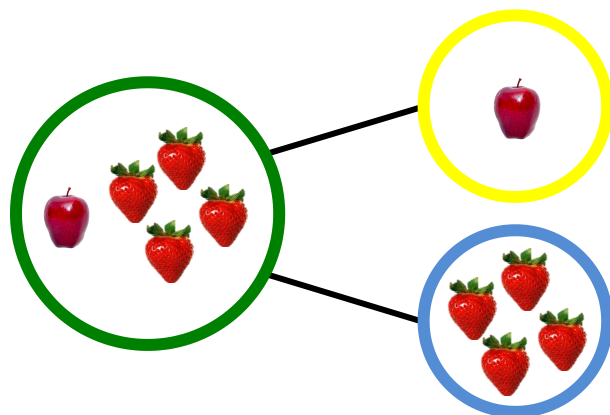


Write the number sentence on the board representing the five frame.  $1 + 4 = 5$  When most the students are comfortable with this example use a part-part-whole model or a combination mat to show how to solve the problem in a different model. Students should see the problem demonstrated in 3 formats (SMP.2).

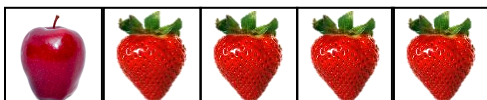
**WORD PROBLEM:**

The caterpillar ate 1 apple Monday. The caterpillar ate 4 strawberries Thursday. How many pieces of fruit did the very hungry caterpillar eat Monday and Thursday?

**1. Part-Part-Whole Model**



**2. Five Frame**



**3. Number Sentence (Equation)**

$$1 + 4 = 5$$

**Note:** The blue/yellow/green part-part-whole model can be visually assistive to students learning addition and subtraction. Students should understand that yellow and blue can be combined to make green. This can be taught as a separate art lesson or imbedded in math. Other color combinations may be used, but these three are visually more distinctive than red/orange or blue/purple in other arrangements.

### Learning Centers

**Note:** Learning Centers are designed to be developmentally appropriate for all students. The teacher and assistant move about to observe and offer support, as needed. Learning centers will operate in conjunction with small group.

- ✓ **Dramatic Play Center/Music/Listening-** Students will make props for the story of the Very Hungry Caterpillar and act out the story. Students will listen to music and pretend to be a butterfly or some other type of insect.
- ✓ **Math Center-** Cut out 5 circles using construction paper of various colors. Count by 5s to 25 writing one number on each circle and then connecting the circles with glue. Students will also count by 10s to 50 and 20s to 100. Students will add an extra circle to make a head for each set of circles to make a caterpillar (SMP.6).
- ✓ **Computer** - Students will play math and reading games. The teacher will choose the website(s).
- ✓ **Reading Center/Writing Center-** Students will read and picture read fiction and non-fiction books. Students will write and illustrate their own stories about addition, subtraction, foods, insects, animals, etc. Students will reference the word wall, available books, charts and pictures in the classroom for assistance with words.
- ✓ **Science Center-** Provide a variety of fruits and vegetable. Throughout the unit, the students will observe the texture of the fruits and the vegetables. Decide which are alike and which are different and record their observations in their journal. Students will also smell the fruits and vegetables. Students will draw the fruit and or vegetable he or she likes best and write a sentence to explain why he or she likes it.
- ✓ **Art Center** – Provide a variety of art materials. Students will paint a picture of their choice or create their own work of art.

### Reflection and Closing:

Display the following student dictated responses:

- The caterpillar ate 1 apple Monday.
- The caterpillar ate 2 pears Tuesday.
- The caterpillar ate 3 plums Wednesday.
- The caterpillar ate 4 strawberries Thursday.
- The caterpillar ate 5 oranges Friday.

Distribute five frames. Tell the students to choose a combination that equals 5.

The following are possible combinations:

- 1+4
- 4+1
- 2+3
- 3+2
- 5+0
- 0+5

Have students justify their combinations on the five frame.

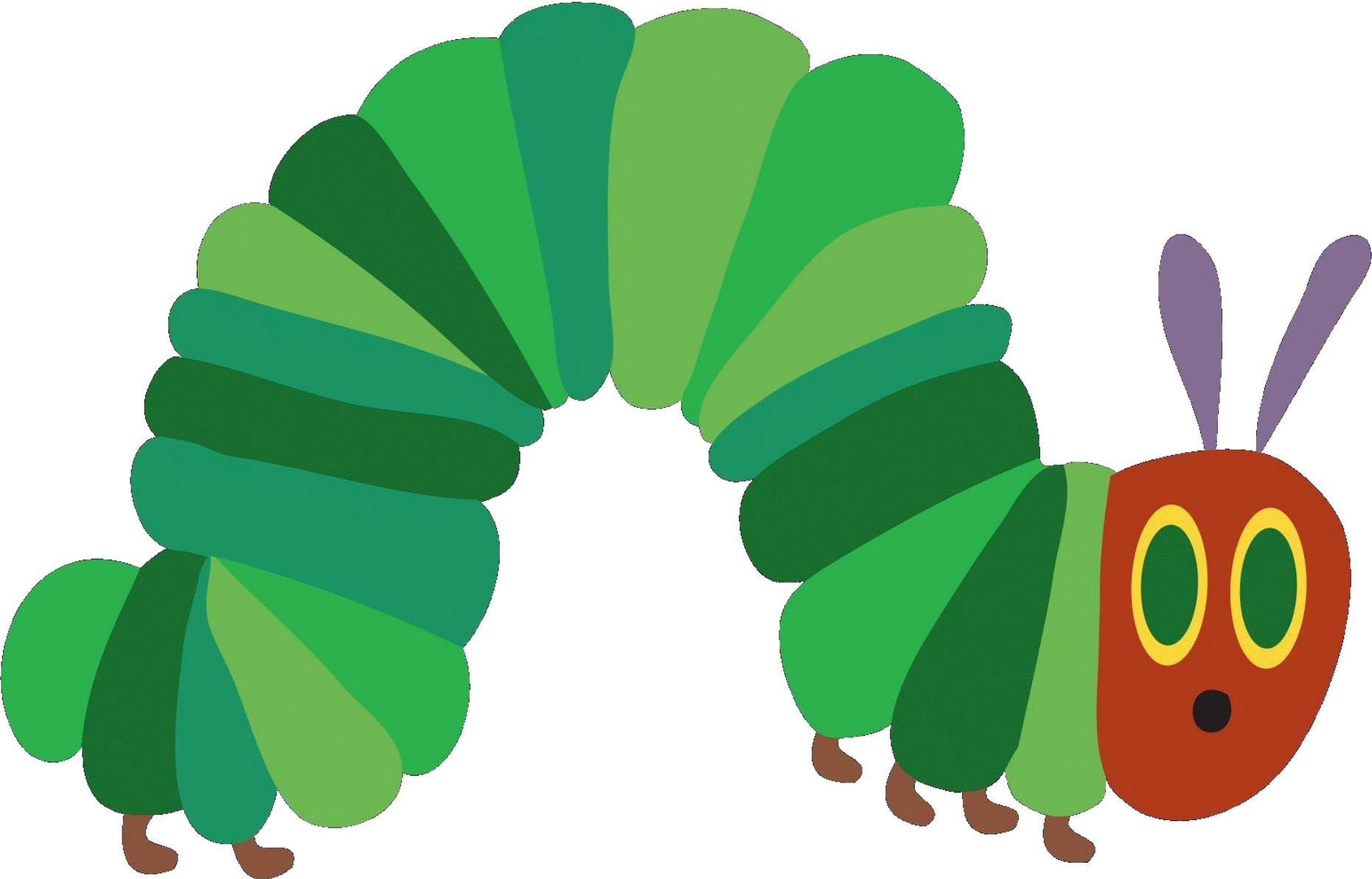
Reflect on how well students were able to answer the following essential questions by examining evidences of student learning.

- How is knowing different combinations to make a certain quantity helpful?
- What models can you use to represent the number 10?

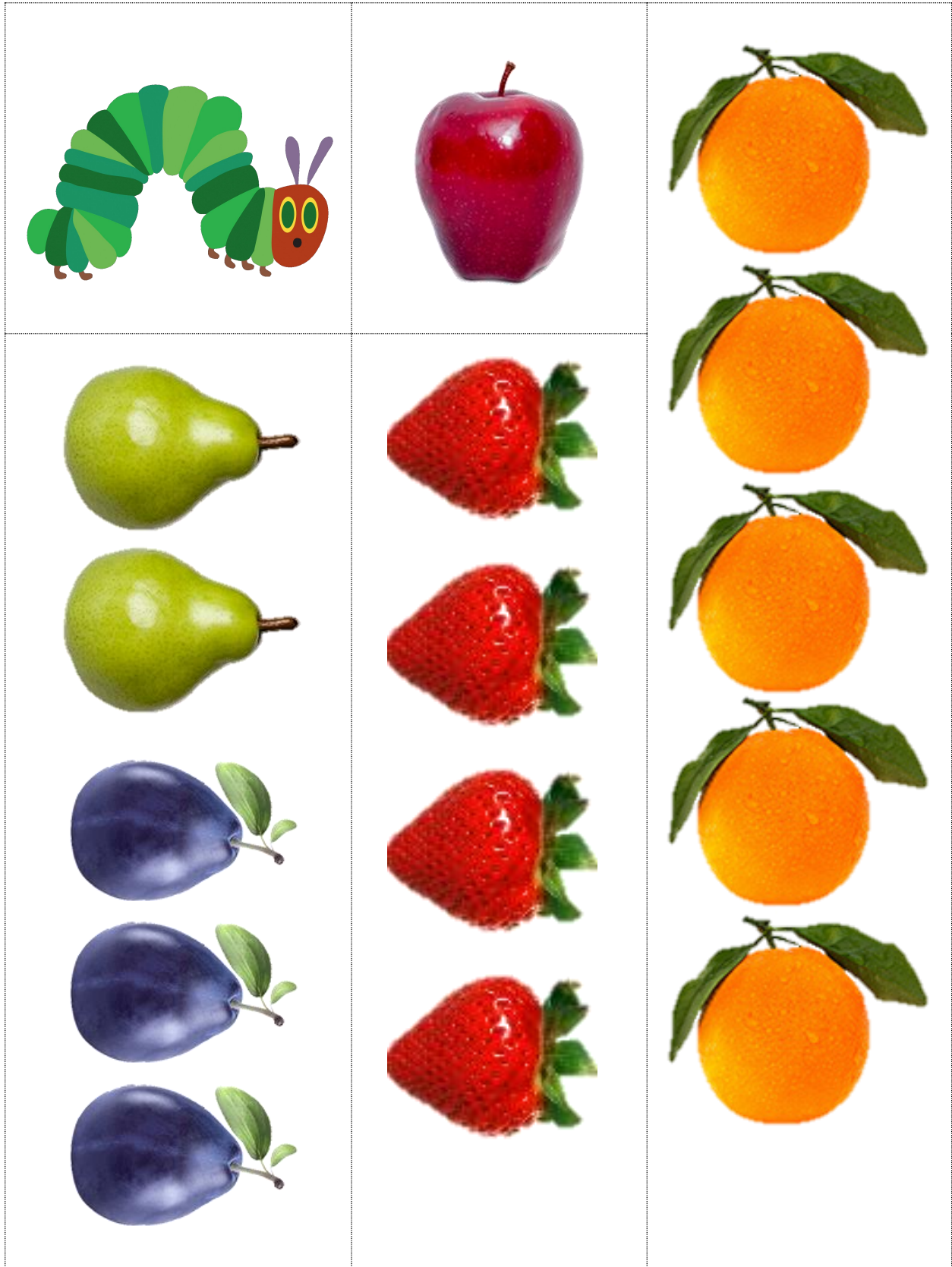
### Homework

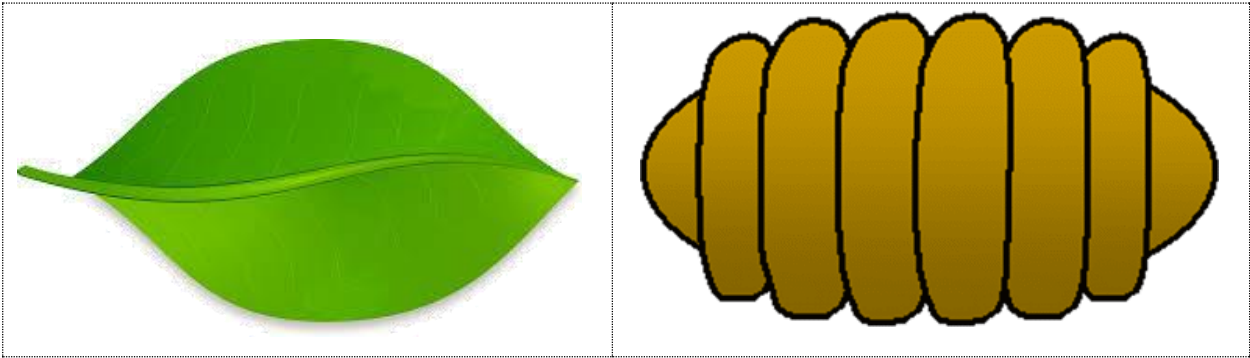
Students will share and retell the story of The Very Hungry Caterpillar with their family members.

Handout 2.1: Hungry Caterpillar Picture



### Handout 2.2: Hungry Caterpillar Pictures





## Lesson 3: Fruit Squares

**Focus Standard:** K.OA.2

**Additional Standards:** K.OA.1 (embedded); K.OA.3 and K.OA.4 (prerequisites), K.CC.4a, K.CC.4b

**Standards for Mathematical Practice:** SMP.4, SMP.6

**Resources and Materials:**

- Chart stand
- Highlight/washi tape
- Painter's tape
- *The Very Hungry Caterpillar*, by Eric Carle
- Handout 1.3: Five Frame
- Handout 1.4: Hungry Caterpillar Fruit
- Handout 3.1: The Very Hungry Caterpillar Cutouts
- Handout 3.2: Large Ten Frame
- Handout 3.3: Word Problems

**Learning Center Materials:**

- Art paper
- Construction paper circles
- Fruit
- Glue
- Markers
- Music
- Paint
- Paint brushes
- Story props for *The Very Hungry Caterpillar*
- Student journals
- Vegetables



**Lesson Targets:**

- Students will join two different quantities up to 10, using one-to-one correspondence to show understanding of putting together and adding to.
- Students will anchor numbers zero to five using a five frame to solidify understanding.

**Guiding Questions:**

- What are the connections between the words join, plus, all together and total?
- Why is it important to understand different combinations for a quantity?

### Vocabulary

**Academic Vocabulary:**

- add
- addition
- altogether
- and
- equal
- items
- join
- less/least
- more/most
- plus
- put together
- sum
- total

**Instructional Strategies for Academic Vocabulary:**

- Introduce words with student-friendly definitions and pictures
- Model how to use the words in discussion
- Discuss the meaning of word in a mathematical context
- Create pictures/symbols to represent words
- Write/discuss using the words
- Act out the words or attach movements to the words

Symbol	Type of Text and Interpretation of Symbol
	Instructional support and/or extension suggestions for students who are EL, have disabilities, or perform well below the grade level and/or for students who perform well above grade level







Assessment (Pre-assessment, Formative, Self, or Summative)

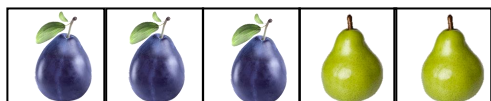
### Instructional Plan

**Understanding Lesson Purpose and Student Outcomes:** Students will represent number sentences with their bodies on a life-size ten frame, as well as represent word problems with use of student-made manipulatives as a model. Students will distinguish different ways to represent and solve word problems.

**Anticipatory Set/Introduction to the Lesson (Whole Group): Using a Five Frame**

Review use of the five frame with the following word problems. The students will use **Handout 1.3: Five Frame** and **Handout 1.4: Hungry Caterpillar Fruit** to count and solve each problem (SMP.4).

The caterpillar ate 2 pears. The caterpillar ate 1 apple. How many pieces of fruit did the caterpillar eat? The caterpillar ate 3 plums. The caterpillar ate 2 pears. How many pieces of fruit did the caterpillar eat?



**Note: Teacher Guidance**

1. Struggling students are placed near the presenter or assistant, who occasionally redirects the students' attention during whole group and small group activities.
2. **Whole Group should last about 15-20 minutes maximum.** If this time frame is too long for students, the Whole Group activities may be divided into two sessions. **Small Group should last about 15 minutes.** Using the pre-assessment results, the teacher will design the formation of small groups to reflect student capability and to drive the instruction throughout every lesson.
3. **Movement:** The teacher will conduct a movement/physical activity with the students between the anticipatory set and Activity 1 to make sure students are not sitting still for too long.

**For students who are EL, have disabilities, or perform well below grade level:**

- Move from representing the relationship to counting using the five frame.
- Allow students to express their answers in their preferred mode of communication (pictures, assistive technology, sign language, verbal and/or written).
- Allow students to move while learning.
- Provide individual assistance as needed.
- Narrow number of food cut-outs.
- Tell students to show you with blocks or their fingers how the two numbers equal five. (Example:  $2 + 3$  would be 2 fingers on one hand and 3 fingers on the other)

**Extensions for students with high interest or working above grade level:**

- Move from representing the relationship to recording them through expressions and equations.
- Write equations on their white boards.
- Students create their own word problems.
- Students will solve addition problems within 10.

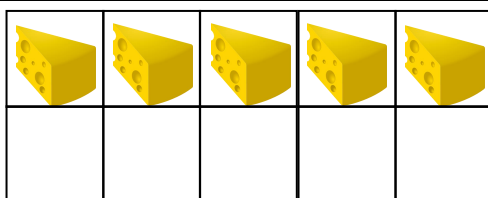
**Activity 1 (Whole Group): Representing Number Sentences on a Ten**

Explain that a ten frame works the same as a five frame. Display a ten frame.



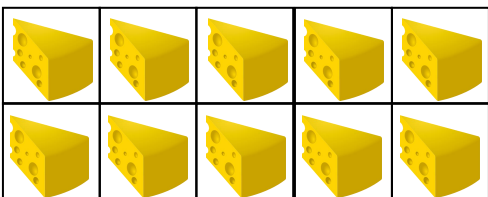
Count the spaces in the ten frame along with the students.

Model using a ten frame with teacher-made fruit pictures. For example, put 5 wedges of Swiss cheese in 5 spaces in the ten frame.



Tell students to count the empty spaces. Ask how many more wedges of Swiss cheese must be added to the ten frame to equal ten.

Students will say, "5 more wedges."



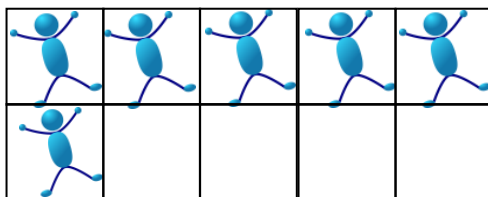
Add 5 more wedges of Swiss cheese to the ten frame. Count the wedges of Swiss cheese altogether. Reinforce with students that  $5+5=10$ .

**Note:** Prior to the lesson, make a life-sized 10 frame on the floor with painter's tape.

Direct students to the life-sized 10 frame on the floor. Use a random method to call on 6 students to stand in the ten frame. Students will stand in the appropriate spaces (SMP.4).

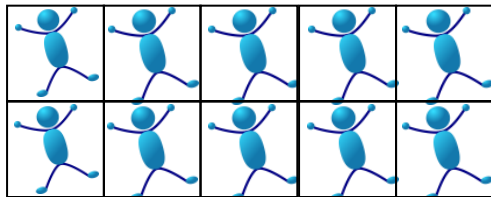
Lead students in counting the students to confirm the number.

Write the number 6 on the board. Add the plus sign (+) and review what the plus sign (+) means: 6 and some more. Fill in a ten frame on the board so that all students can see.



Tell the students to count the empty spaces.

Ask how many more students must be added to equal 10. Tell students to count the empty spaces. The students will say, “4.”  
Use a random method to call on 4 students to complete the ten frame.



Complete the number sentence on the board:  $6 + 4 = 10$

### **Activity 2 (Teacher-led Small Group): Creating Manipulatives to Solve Addition Word Problems**

Distribute **Handout 3.1: The Very Hungry Caterpillar Cutouts**.

**Note:** Teacher should have 10 of each picture. Laminate for durability.

Have students color and cut out their pictures.

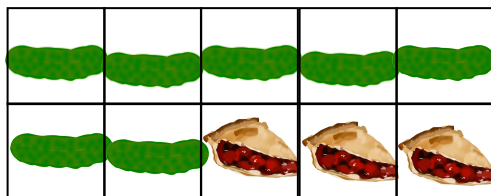
**Note:** It will save time if you have the students' pictures cut out ahead of time.

Distribute **Handout 3.2: Large Ten Frame** for students to use to solve word problems to 10.

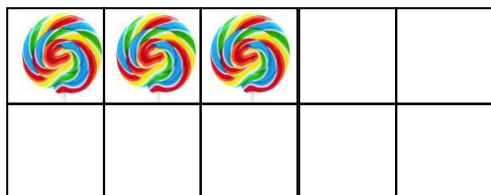
Distribute **Handout 3.3: Word Problems** to the group. Include a portion of the items in the word problem. Use cutouts for the main portion of the word problem.

Have students complete the ten frame to determine the correct answer (SMP.4). Use a ten frame with pictures already on it or use the teacher made food templates. Encourage students to think critically to answer the questions. Model and assist as needed by asking probing questions. Encourage cooperative learning, discussion and accurate placement of templates in the ten frame.

- The caterpillar ate 10 items all together. The caterpillar ate 7 pickles. How many pieces of cherry pie did the caterpillar eat?

**EXAMPLE:**

- The caterpillar ate 10 items in all. The caterpillar ate 3 lollipops. How many ice cream cones did the caterpillar eat?

**EXAMPLE:**

- The caterpillar ate 10 items in all. The caterpillar ate 5 oranges. How many sausages did the caterpillar eat?
- The caterpillar ate 10 items all together. The caterpillar ate 8 pieces of chocolate cake. How many slices of watermelon did the caterpillar eat?
- The caterpillar ate 10 items. The caterpillar ate 6 slices of salami. How many strawberries did the caterpillar eat?

**Learning Centers**

**Note:** Learning Centers are designed to be developmentally appropriate for all students. The teacher and assistant move about to observe and offer support as needed. Learning centers will operate in conjunction with small group.

- ✓ **Dramatic Play Center/Music/Listening-** Students will make props for the story of the Very Hungry Caterpillar and act out the story. Students will listen to music and pretend to be a butterfly or some other type of insect.

- ✓ **Math Center**- Cut out 5 circles using construction paper of various colors. Count by 5s to 25 writing one number on each circle and then connecting the circles with glue. Students will also count by 10s to 50 and 20s to 100. Students will add an extra circle to make a head for each set of circles to make a caterpillar (SMP.6).
- ✓ **Computer** - Students will play math and reading games. The teacher will choose the website(s).
- ✓ **Reading Center/Writing Center**- Students will read and picture read fiction and non-fiction books. Students will write and illustrate their own stories about addition, subtraction, foods, insects, animals, etc. Students will reference the word wall, available books, charts and pictures in the classroom for assistance with words.
- ✓ **Science Center**- Provide a variety of fruits and vegetable. Throughout the unit, the students will observe the texture of the fruits and the vegetables. Decide which are alike and which are different and record their observations in their journal. Students will also smell the fruits and vegetables. Students will draw the fruit and or vegetable he or she likes best and write a sentence to explain why he or she likes it.
- ✓ **Art Center** – Provide a variety of art materials. Students will paint a picture of their choice or create their own work.

**Reflection and Closing:**

- ✓ Have students name all number combinations to make 10.

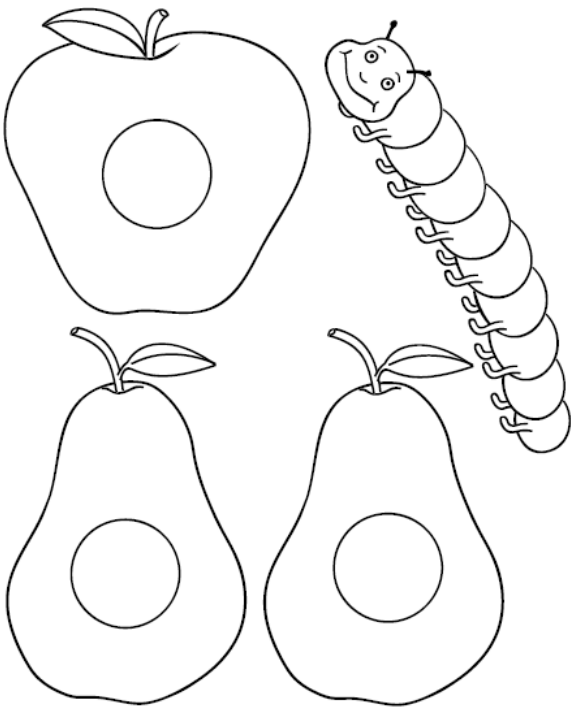
**Prompting Questions:**

- ✓ How is knowing different combinations to make a certain quantity helpful?
- ✓ What methods can you use to represent the number 10?

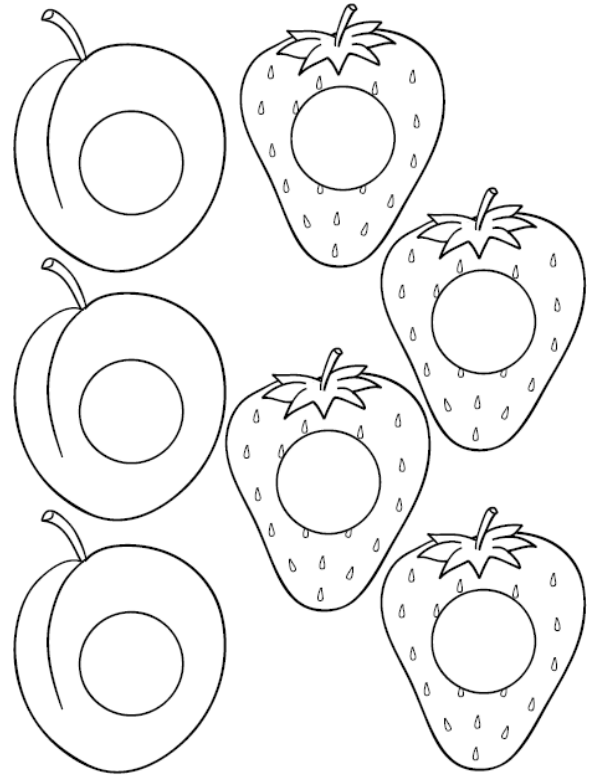
## Homework

Students create a story problem and use **Handout 3.2: Large Ten Frame** to model the solution. These will be shared with the class tomorrow.

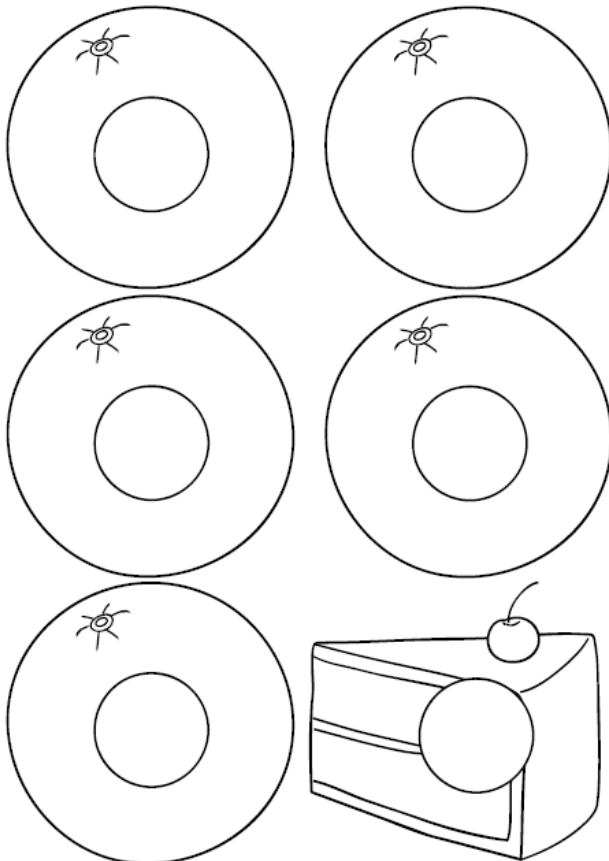
### Handout 3.1: The Very Hungry Caterpillar Cutouts



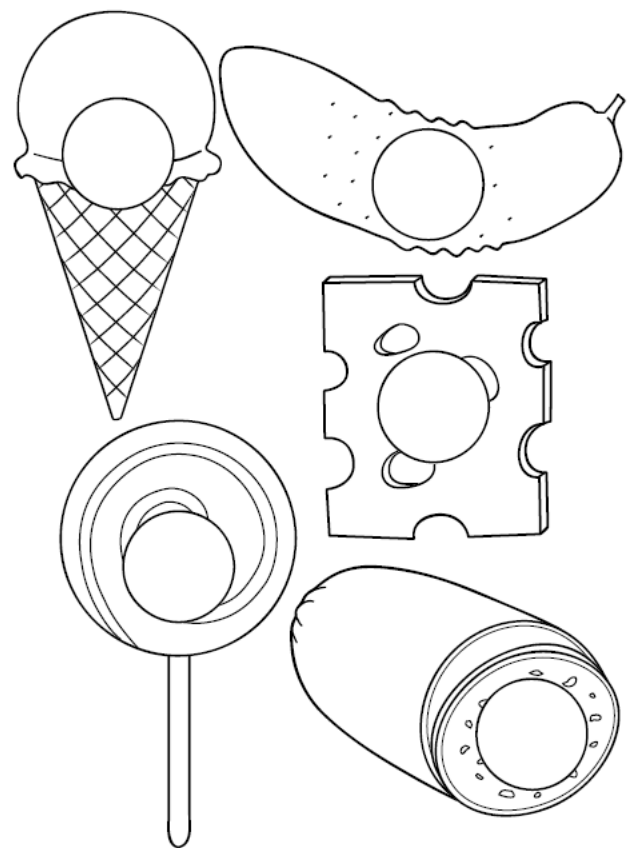
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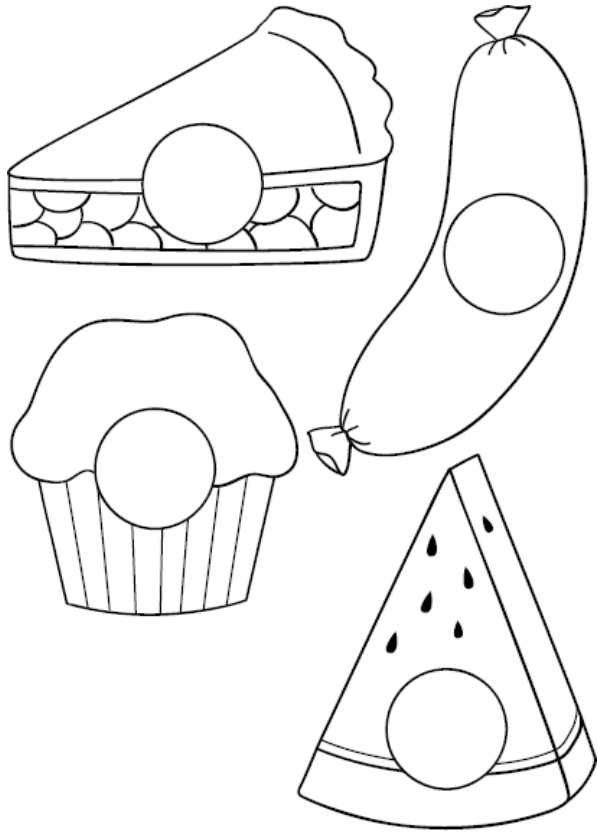
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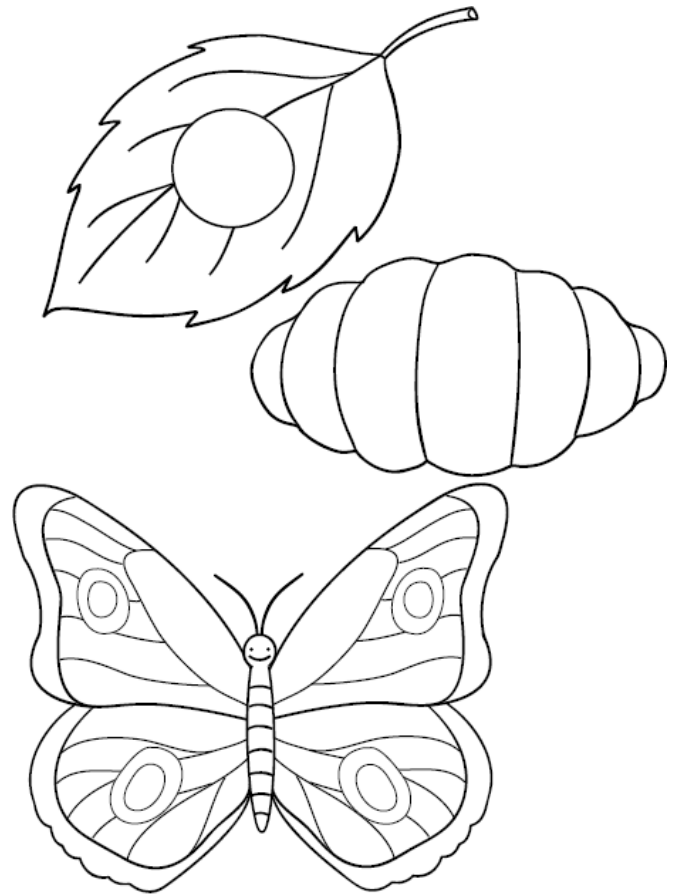
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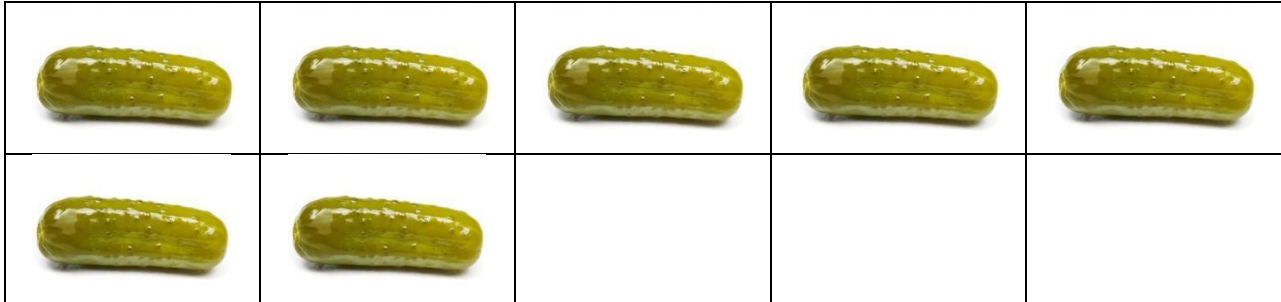
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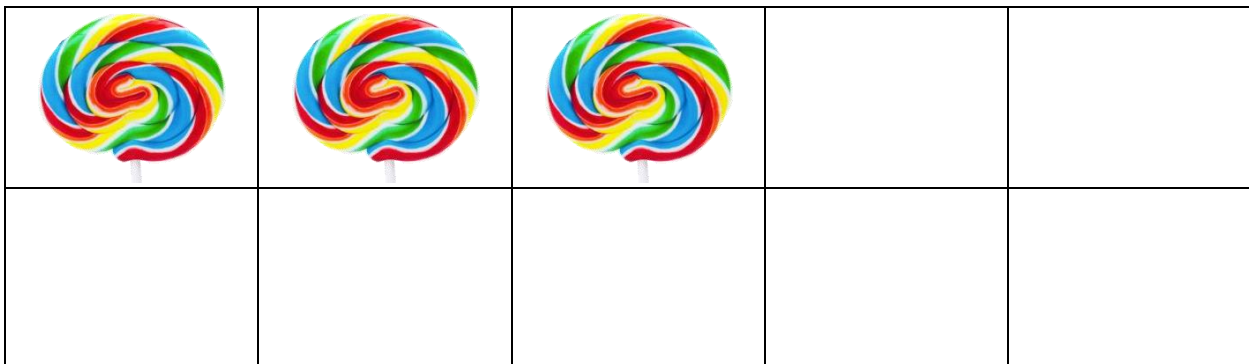
**Handout 3.2 Large Ten Frame**


## Handout 3.3 Word Problems

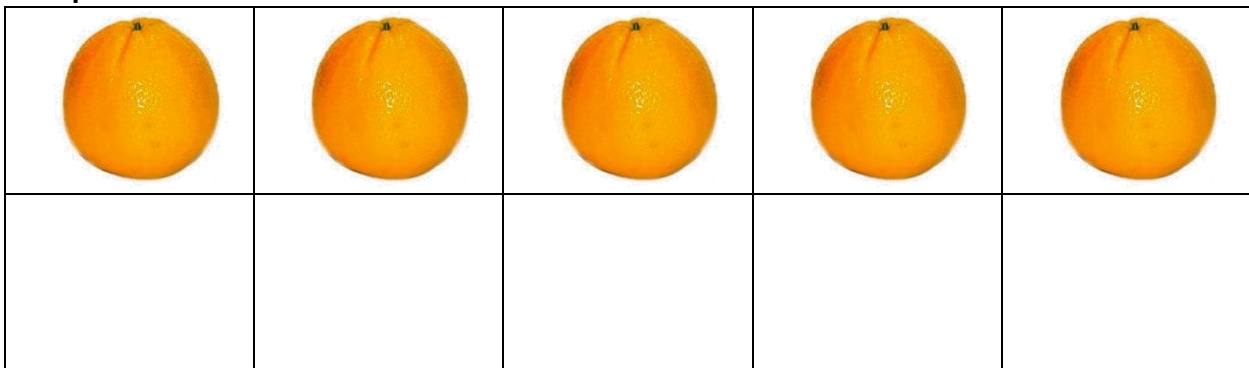
1. The caterpillar ate 10 items all together. The caterpillar ate 7 pickles. How many pieces of cherry pie did the caterpillar eat?



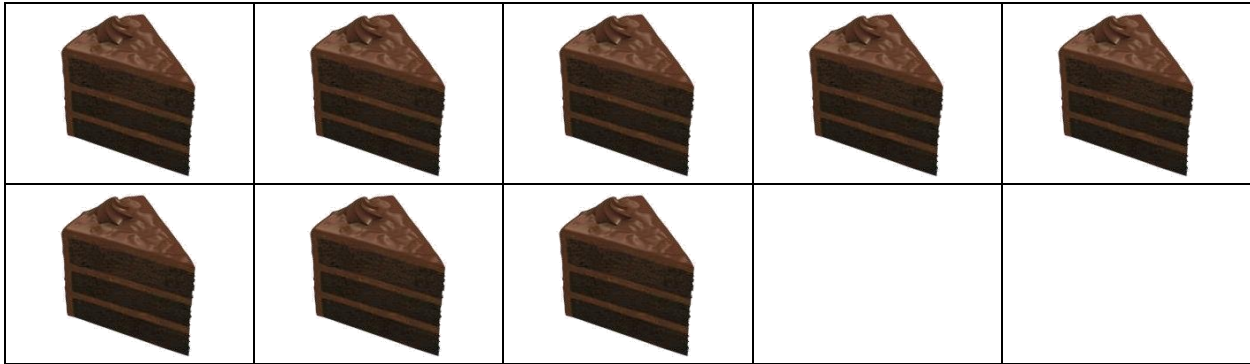
2. The caterpillar ate 10 items in all. The caterpillar ate 3 lollipops. How many ice cream cones did the caterpillar eat?



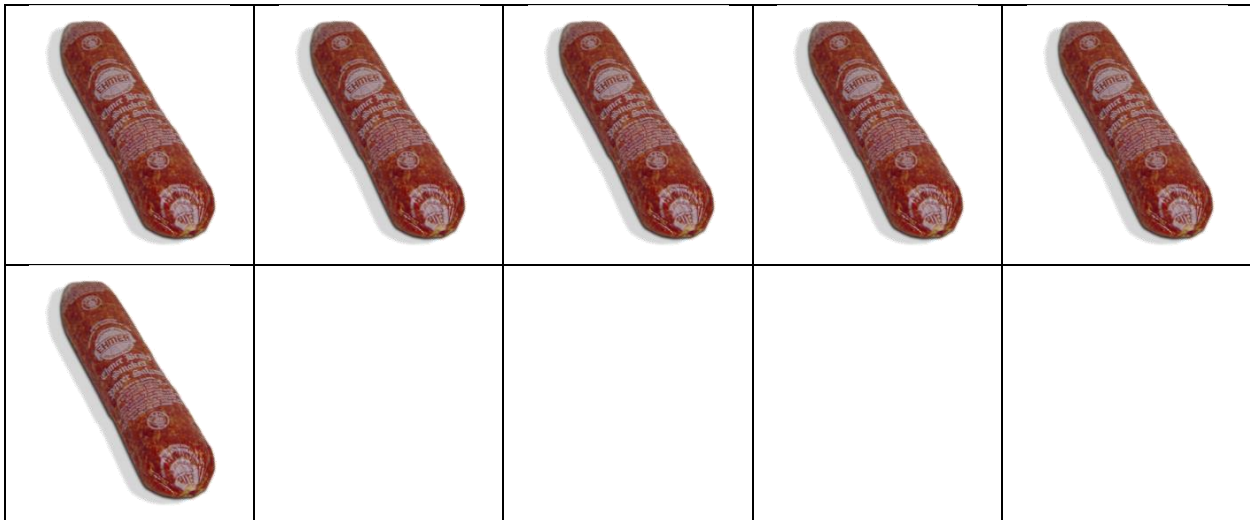
3. The caterpillar ate 10 items in all. The caterpillar ate 5 oranges. How many sausages did the caterpillar eat?



4. The caterpillar ate 10 items all together. The caterpillar ate 8 pieces of chocolate cake. How many slices of watermelon did the caterpillar eat?



5. The caterpillar ate 10 items. The caterpillar ate 6 slices of salami. How many strawberries did the caterpillar eat?



## Lesson 4: Gobbling Up Math Strategies

**Focus Standard:** K.OA.2

**Additional Standards:** K.OA.1 (embedded); K.OA.3 and K.OA.4 (prerequisites), K.CC.4a, K.CC.4b

**Standards for Mathematical Practice:** SMP.1, SMP.4, SMP.6, SMP.7

**Resources and Materials:**

- Chart paper
- Glue
- Markers
- Number cubes 1 – 6
- Paper: light green, dark green, red, and white
- *The Very Hungry Caterpillar*, by Eric Carle
- Handout 4.1: Circles Template
- Handout 4.2: Story Problem Diagram
- Handout 4.3: Story Problems

**Learning Center Materials:**

- Art paper
- Construction paper circles
- Fruit
- Glue
- Markers
- Music
- Paint
- Paint brushes
- Story props for *The Very Hungry Caterpillar*
- Student journals
- Vegetables

**Lesson Targets:**

- Students join two different quantities up to 10, using one-to-one correspondence to show understanding of putting together and adding to.
- Students use a diagram to organize and solve addition word problems.

**Guiding Questions:**

- How is adding like gaining weight?


## Vocabulary

**Academic Vocabulary:**

- add
- addition
- altogether
- and
- equal
- items
- join
- less/least
- more/most
- plus
- put together
- sum
- total

**Instructional Strategies for Academic Vocabulary:**

- Introduce words with student-friendly definitions and pictures
- Model how to use the words in discussion
- Discuss the meaning of word in a mathematical context
- Create pictures/symbols to represent words
- Write/discuss using the words
- Act out the words or attach movements to the words

Symbol	Type of Text and Interpretation of Symbol
	Instructional support and/or extension suggestions for students who are EL, have disabilities, or perform well below the grade level and/or for students who perform well above grade level
✓	Assessment (Pre-assessment, Formative, Self, or Summative)

## Instructional Plan

**Understanding Lesson Purpose and Student Outcomes:** Students will represent number sentences with their bodies on a life-size ten frame. Students will distinguish different ways to represent and solve word problems.

### **Anticipatory Set/Introduction to the Lesson: Sharing Homework**

Have students complete a choral reading of the text and use a random method to select students to act out the story using food cutouts during the second choral read. Repeat about four times to give other students an opportunity to dramatize the story (SMP.4).

Students will share their ten frames and illustrations from their homework the previous night. Revisit the text *The Very Hungry Caterpillar*.

### **Note: Teacher Guidance**

1. Struggling students are placed near the presenter or assistant, who occasionally redirects the students' attention during whole group and small group activities.
2. **Whole Group should last about 15-20 minutes maximum.** If this time frame is too long for students, the Whole Group activities may be divided into two sessions. **Small Group should last about 15 minutes.** Using the pre-assessment results, the teacher will design the formation of small groups to reflect student capability and to drive the instruction throughout every lesson.
3. **Movement:** The teacher will conduct a movement/physical activity with the students between the anticipatory set and Activity 1 to make sure students are not sitting still for too long.

#### **For students who are EL, have disabilities, or perform well below grade level:**

- Allow students to move while learning (if needed).
- Have students use a five frame (instead of the ten frame).
- Provide small group instruction, peer tutoring, and one-on-one assistance.

#### **Extensions for students with high interest or working above grade level:**

- Illustrate additional combinations to get a sum of 10 or within 10.
- Solve word problems using greater numbers.

**Activity 1 (Teacher-led Small Group): Creating Caterpillar Body to Represent Sums of Ten**

**Note:** Prior to the lesson, print **Handout 4.1: Circles Template** on both dark green, light green, and red paper and cutout. The number of circles will vary depending on the number of students in the class.

Group students with no more than 5 students per group. Tell students that they will construct a caterpillar using 10 circles, some light and some dark green. Show students the number cube. Explain that when a student rolls the number cube, the number on top will represent the number of light green circles students will use on their caterpillar and the number of dark green circles will be the number needed to have 10 circles in all (SMP.7).

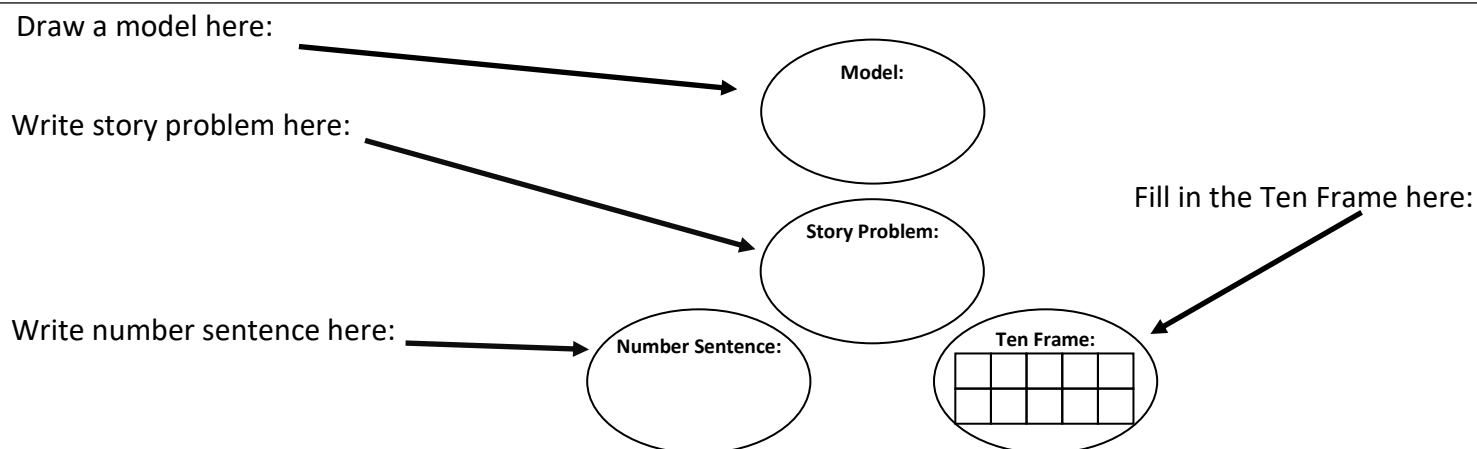
Model by rolling the number cube, counting out the corresponding number of light circles, and counting out the number of dark green circles needed to make 10 circles in all. Model using a ten frame to help determine the number of dark green circles needed. Glue the circles on a piece of paper with a red circle for the head, to make a caterpillar.

Distribute number cubes, glue, dark green circles, light green circles, and 1 red circle for the head. Have students construct their personalized caterpillars following the model above. Students write the equation that determined the number of dark and light green circles of their caterpillar. Have students complete their caterpillar by adding eyes, antenna and feet. If time permits, they can draw and color the background. Display their pictures in the hallway or the classroom.

**Activity 2 (Teacher-led Small Group): Creating Word Problem Diagrams**

On chart paper, draw the Word Problem Diagram pictured on **Handout 4.2: Word Problem Diagram**. Explain that we will use the diagram to help understand and solve story problems. Read each part of the diagram and have students explain what they think each part represents. Allow time for discussion and let students add to each other's explanation. Clarify any misconceptions by presenting this story problem and asking where we would put it on the diagram (SMP.1).

Sammy Snake slithered over 4 rocks on his way to find his supper. He slithered over 3 plants. How many objects did Sammy Snake slither over to find his supper?



Distribute 2 copies of **Handout 4.2: Word Problem Diagram** and a story problem from **Handout 4.3 Word Problems** and tell students to glue the story problem into the center circle of their diagram. Model doing this on a diagram drawn on chart paper as students follow along. Draw a picture in the top circle and complete the ten frame and number sentence portions of the diagram. Give students another story problem and have them complete their own diagram.

### Learning Centers

**Note:** Learning Centers are designed to be developmentally appropriate for all students. The teacher and assistant move about to observe and offer support, as needed. Learning centers will operate in conjunction with small group.

- ✓ **Dramatic Play Center/Music/Listening-** Students will make props for the story of the Very Hungry Caterpillar and act out the story. Students will listen to music and pretend to be a butterfly or some other type of insect.
- ✓ **Math Center-** Cut out 5 circles using construction paper of various colors. Count by 5s to 25 writing one number on each circle and then connecting the circles with glue. Students will also count by 10s to 50 and 20s to 100. Students will add an extra circle to make a head for each set of circles to make a caterpillar (SMP.6).
- ✓ **Computer** - Students will play math and reading games. The teacher will choose the website(s).
- ✓ **Reading Center/Writing Center-** Students will read and picture read fiction and non-fiction books. Students will write and illustrate their own stories about addition, subtraction, foods, insects, animals, etc. Students will reference the word wall, available books, charts and pictures in the classroom for assistance with words.



- ✓ **Science Center-** Provide a variety of fruits and vegetable. Throughout the unit, the students will observe the texture of the fruits and the vegetables. Decide which are alike and which are different and record their observations in their journal. Students will also smell the fruits and vegetables. Students will draw the fruit and or vegetable he or she likes best and write a sentence to explain why he or she likes it.
- ✓ **Art Center** – Provide a variety of art materials. Students will paint a picture of their choice or create their own work.

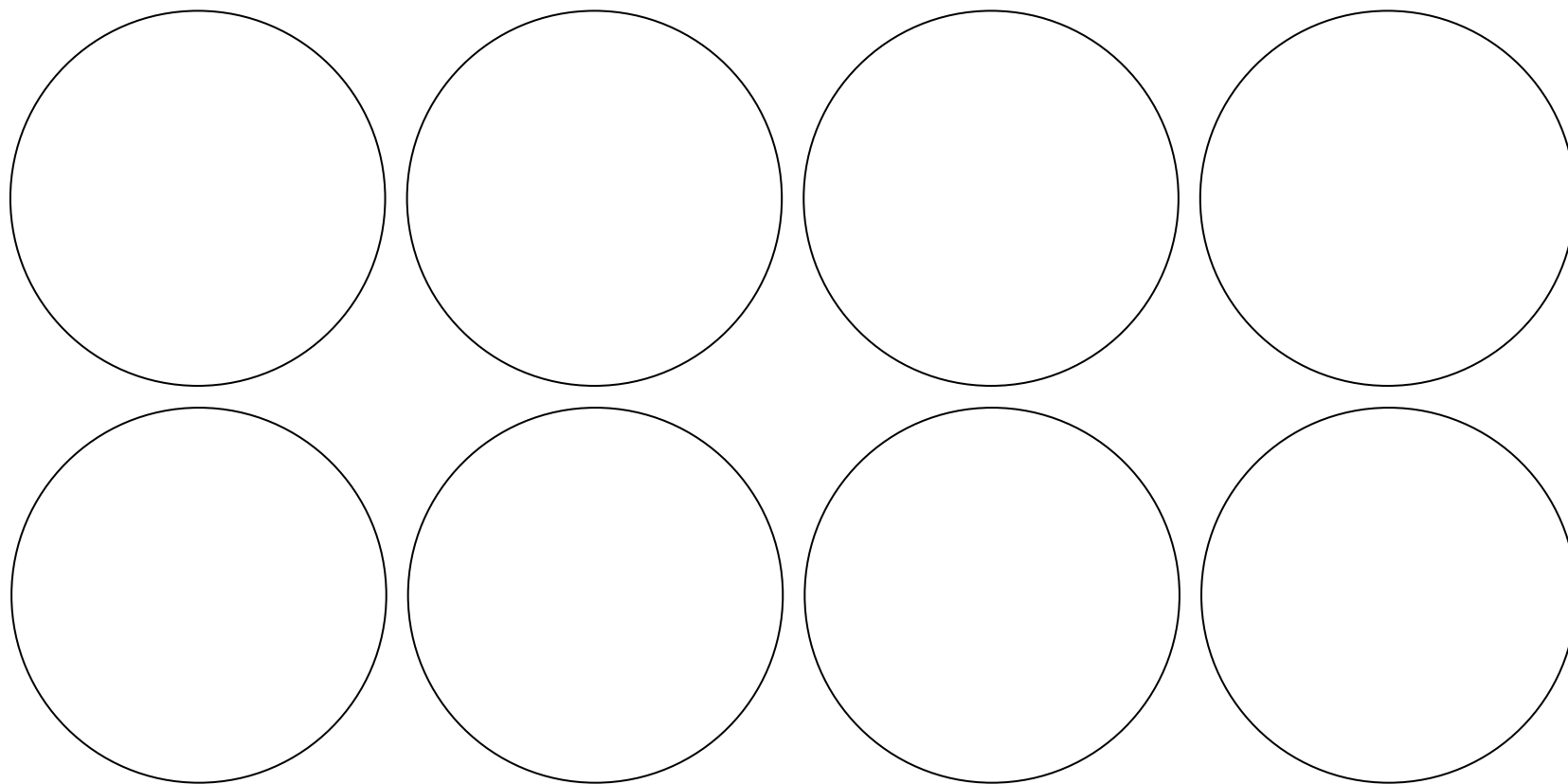
**Reflection and Closing:**

- ✓ Students present their completed Word Problem Diagram. Teacher uses a master checklist to record mastery.

### Homework

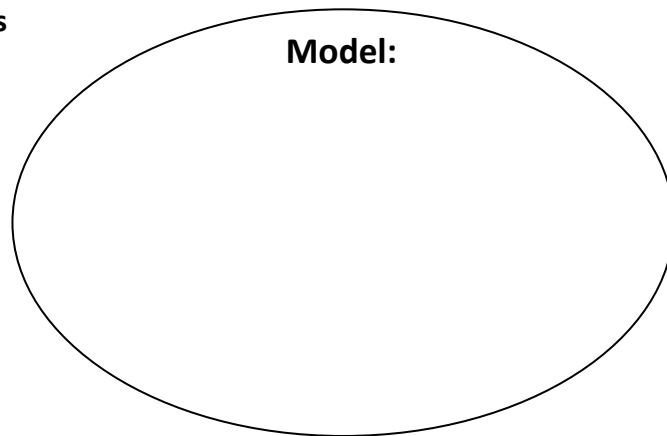
Students will create and illustrate their own addition story problem. Drawing paper and crayons will be given to students.

**Handout 4.1: Circles Template**

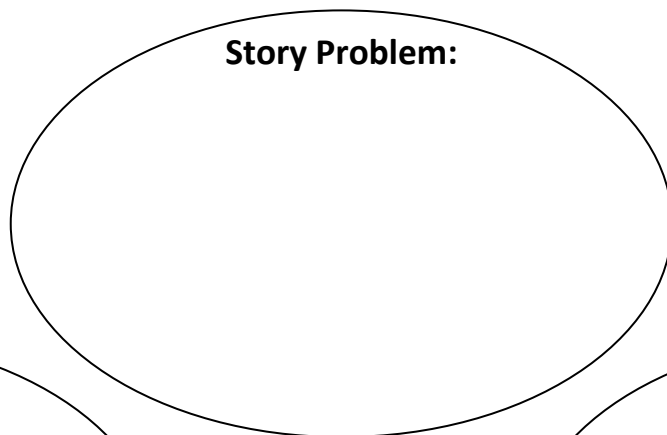


**Handout 4.2: Story Problem Diagrams**

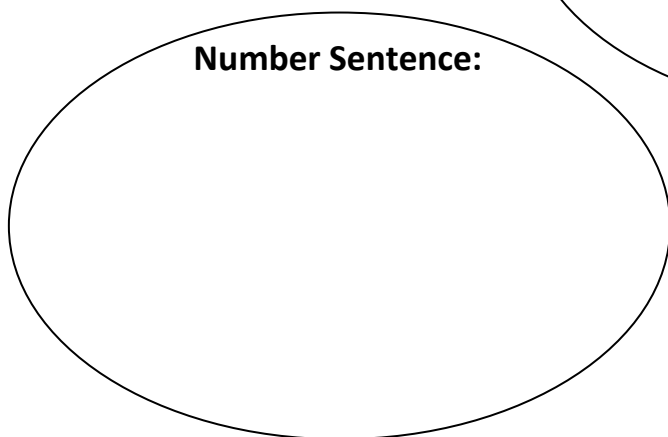
**Model:**



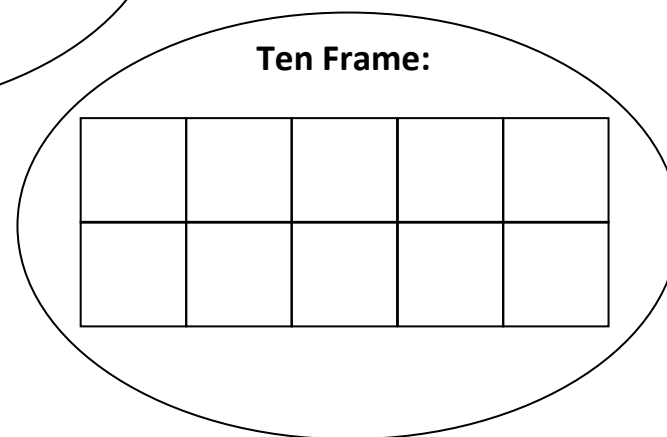
**Story Problem:**



**Number Sentence:**

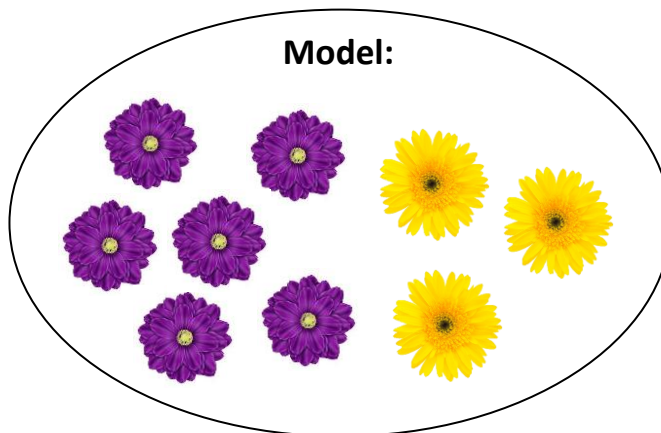


**Ten Frame:**



## Handout 4.2: Story Problem Diagrams - Sample

Model:



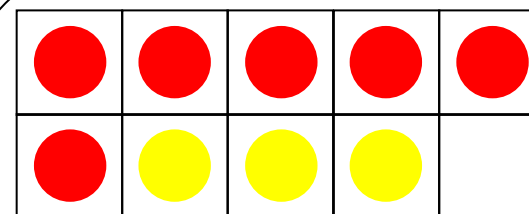
Story Problem:

A butterfly landed on 6 purple flowers and 3 yellow flowers.  
How many flowers did the butterfly land on?

Number Sentence:

$$6 + 3 = 9$$

Ten Frame:



Handout 4.3: Story Problems

**A blue bird flew 3 miles on Monday and she flew 6 miles on Tuesday. How many miles did she fly in 2 days?**

**If Rabbit ate 7 carrots for lunch and 3 carrots for supper, how many carrots did Rabbit eat today?**

**A blue bird flew 3 miles on Monday and she flew 6 miles on Tuesday. How many miles did she fly in 2 days?**

**If Rabbit ate 7 carrots for lunch and 3 carrots for supper, how many carrots did Rabbit eat today?**

**A blue bird flew 3 miles on Monday and she flew 6 miles on Tuesday. How many miles did she fly in 2 days?**

**If Rabbit ate 7 carrots for lunch and 3 carrots for supper, how many carrots did Rabbit eat today?**

## Lesson 5: Math is REALLY Yummy

**Focus Standard:** K.OA.2

**Additional Standards:** K.OA.1 (embedded); K.OA.3 and K.OA.4 (prerequisites), K.CC.4a, K.CC.4b

**Standards for Mathematical Practice:** SMP.3, SMP.6, SMP.7

**Resources and Materials:**

- Chart paper
- Erasable markers
- Erasers
- Page protectors or Smart Pal sleeves
- *The Very Hungry Caterpillar*, by Eric Carle
- Handout 5.1: 4-Part Foldable
- Handout 5.2: Real World Problem

**Learning Center Materials:**

- Art paper
- Construction paper circles
- Fruit
- Glue
- Markers
- Music
- Paint
- Paint brushes
- Story props for *The Very Hungry Caterpillar*
- Student journals
- Vegetables

**Lesson Targets:**

- Students join two different quantities up to 10, using one-to-one correspondence to show understanding of putting together and adding to.
- Students use organizers and strategies to solve addition story problems, including 4-Fold Foldables

**Guiding Questions:**

- What are some examples of times when you have had to add?
- Which strategies help you solve addition story problems?


## Vocabulary

**Academic Vocabulary:**

- add
- addition
- altogether
- and
- equal
- items
- join
- less/least
- more/most
- plus
- put together
- sum
- total

**Instructional Strategies for Academic Vocabulary:**

- Introduce words with student-friendly definitions and pictures
- Model how to use the words in discussion
- Discuss the meaning of word in a mathematical context
- Create pictures/symbols to represent words
- Write/discuss using the words
- Act out the words or attach movements to the words

Symbol	Type of Text and Interpretation of Symbol
	Instructional support and/or extension suggestions for students who are EL, have disabilities, or perform well below the grade level and/or for students who perform well above grade level
✓	Assessment (Pre-assessment, Formative, Self, or Summative)

## Instructional Plan

**Understanding Lesson Purpose and Student Outcomes:** Students will use different strategies to solve real-world word problems. Students will use a foldable as a memory cue for use in solving word problems.

**Anticipatory Set/Introduction to the Lesson (Whole Group):**

Have students who did not present their Word Problem Diagram from the previous lesson present theirs. Read *The Very Hungry Caterpillar* while students act out the story.

**Note: Teacher Guidance**

1. Struggling students are placed near the presenter or assistant, who occasionally redirects the students' attention during whole group and small group activities.
2. **Whole Group should last about 15-20 minutes maximum.** If this time frame is too long for students, the Whole Group activities may be divided into two sessions. **Small Group should last about 15 minutes.** Using the pre-assessment results, the teacher will design the formation of small groups to reflect student capability and to drive the instruction throughout every lesson.
3. **Movement:** The teacher will conduct a movement/physical activity with the students between the anticipatory set and Activity 1 to make sure students are not sitting still for too long.

**For students who are EL, have disabilities, or perform well below grade level:**

- One-on-one assistance, and peer tutoring using concrete items
- Provide word problems with smaller numbers.
- Use numbers only to solve addition problems

**Extensions for students with high interest or working above grade level:**

- Create additional word problems, including those with real-world point of view
- Offer peer tutoring to classmates.
- Solves addition problems with greater numbers.



**Activity 1 (Teacher-led Small Group): Solving Real-World Word Problems**

Distribute paper to students and have them fold the paper in half hamburger style, then open the paper up and fold it hotdog style. Demonstrate the four sections created on chart paper. Tell students use the four sections to work a story problem (SMP.7). Display the story problem below and write it in the top left section of the chart paper:

**Amy had 3 cookies. Her mom gave her 5 more cookies. How many cookies does Amy have now?**

In the top right section have a student draw a ten frame and represent the story in the ten frame.



In the lower right section, have another student draw a picture to represent the story problem. Then in the lower left section, have a student write a number sentence to represent the work.

Story Problem:	Ten Frame
Number Sentence:	Model:

Have students turn their paper over and use the backside to solve this problem in the same way as they did on the front (SMP.6): Mikey has 6 marbles. Some of the marbles are green and the rest are purple. How many marbles are purple?

Have students share their work and discuss the different interpretations. Allow students to self-correct and correct each other.

**Activity 2 (Teacher-led Small Group): Creating 4-Fold Foldable for Real-World Word Problems**

**Note:** Prior to the lesson, copy **Handout 5.1: 4-Part Foldable** and **Handout 4.2: Word Problem Diagram**. Put them in Smart Pal Sleeves or page protectors so students can reuse them by writing on them and erasing. Another option is to laminate them.

Distribute **Handout 5.1: 4-Part Foldable**, **Handout 4.2: Word Problem Diagram**, **Handout 5.2: Real World Problems**, an erasable marker and eraser to each student. Put students in pairs and have students solve the same real world problem, but each student will use a different organizer: 4-Part Foldable or Word Problem Diagram. After solving their problem, have them exchange and check each other's work. (SMP.3) Repeat with as many problems as possible.

**Learning Centers**

**Note:** Learning Centers are designed to be developmentally appropriate for all students. The teacher and assistant move about to observe and offer support, as needed. Learning centers will operate in conjunction with small group.

- ✓ **Dramatic Play Center/Music/Listening-** Students will make props for the story of the Very Hungry Caterpillar and act out the story. Students will listen to music and pretend to be a butterfly or some other type of insect.
- ✓ **Math Center-** Cut out 5 circles using construction paper of various colors. Count by 5s to 25 writing one number on each circle and then connecting the circles with glue. Students will also count by 10s to 50 and 20s to 100. Students will add an extra circle to make a head for each set of circles to make a caterpillar (SMP.6).
- ✓ **Computer -** Students will play math and reading games. The teacher will choose the website(s).
- ✓ **Reading Center/Writing Center-** Students will read and pre-tend read fiction and non-fiction books. Students will write and illustrate their own stories about addition, subtraction, foods, insects, animals, etc. Students will reference the word wall, available books, charts and pictures in the classroom for assistance with words.
- ✓ **Science Center-** Provide a variety of fruits and vegetable. Throughout the unit, the students will observe the texture of the fruits and the vegetables. Decide which are alike and which are different and record their observations in their journal. Students will also smell the fruits and vegetables. Students will draw the fruit and or vegetable he or she likes best and write a sentence to explain why he or she likes it.
- ✓ **Art Center –** Provide a variety of art materials. Students will paint a picture of their choice or create their own work.

**Reflection and Closing:**

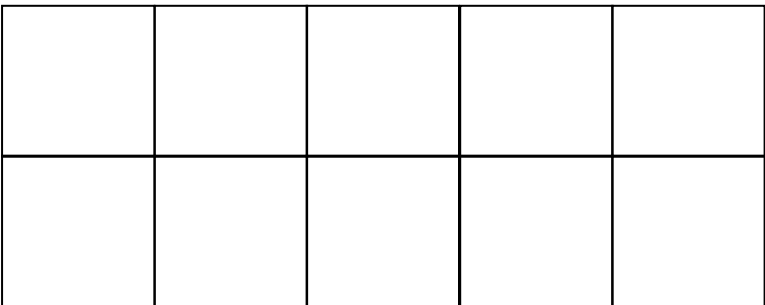
Students will share some times when they have had to add at home or other places. Prompting Questions:

- ✓ How are the 4-Part Foldable and the Story Problem Diagram alike? Different?
- ✓ How do they help us do work?

**Homework**

Students will share how to use the 4-Part Foldable with their parents.

**Handout 5.1: 4-Part Foldable**

<b>Story Problem:</b>	<b>Ten Frame:</b> 
<b>Number Sentence:</b>	<b>Model:</b>

## Handout 5.2: Real World Word Problem

Name \_\_\_\_\_ Date \_\_\_\_\_

1. Ani had 8 cookies.



Her mom gave her 2 more cookies.



How many cookies does Amy have now? \_\_\_\_\_

2. Priya went to the beach. She found 6 seashells.

Later Priya found 2 more seashells. How many seashells did Priya find in all?



Priya found \_\_\_\_\_ seashells.

3. Jan got some toys for his birthday. There were 5 games and 4 balls.

How many toys did Jan get for his birthday?

Jan got \_\_\_\_\_ toys for his birthday.

Dad went to the store. He bought 8 bananas and 2 apples. How many pieces of fruit did Dad buy?

Dad bought \_\_\_\_\_ pieces of fruit at the store.

## Lesson 6: Math REALLY Satisfies

**Focus Standard:** K.OA.2

**Additional Standards:** K.OA.1 (embedded); K.OA.3 and K.OA.4 (prerequisites), K.CC.4a, K.CC.4b

**Standards for Mathematical Practice:** SMP.2, SMP.4, SMP.5, SMP.6, SMP.8

**Resources and Materials:**

- Floor number line
- Linking cubes
- Painter's tape
- Pencils
- Handout 6.1: Real World Subtraction Problems
- Flocabulary Video ["I Wanna Know About 10"](#)

**Learning Center Materials:**

- Art paper
- Construction paper circles
- Fruit
- Glue
- Markers
- Music
- Paint
- Paint brushes
- Story props for *The Very Hungry Caterpillar*
- Student journals
- Vegetables

**Lesson Targets:**

- Students take part away from a whole and identify the remaining amount.
- Students deconstruct subtraction story problems.

**Guiding Questions:**

- What differentiates addition and subtraction?
- When have you had to use subtraction?

## Vocabulary

**Academic Vocabulary:**

- decrease
- deduct
- difference
- how many more
- left
- less than
- minus
- remain
- subtract
- subtraction
- take away

**Instructional Strategies for Academic Vocabulary:**

- Introduce words with student-friendly definitions and pictures
- Model how to use the words in discussion
- Discuss the meaning of word in a mathematical context
- Create pictures/symbols to represent words
- Write/discuss using the words
- Act out the words or attach movements to the words

Symbol	Type of Text and Interpretation of Symbol
	Instructional support and/or extension suggestions for students who are EL, have disabilities, or perform well below the grade level and/or for students who perform well above grade level
✓	Assessment (Pre-assessment, Formative, Self, or Summative)



## Instructional Plan

**Understanding Lesson Purpose and Student Outcomes:** Students will comprehend and act out a subtraction story problem using the classroom as the setting. Students will use manipulatives to understand subtracting within 10.

**Anticipatory Set/Introduction to the Lesson (Whole Group): Making 10**

Show [“I Wanna Know About 10”](#) Flocabulary video several times getting the students to dance and sing along.

**Note: Teacher Guidance**

1. Struggling students are placed near the presenter or assistant, who occasionally redirects the students’ attention during whole group and small group activities.
2. **Whole Group should last about 15-20 minutes maximum.** If this time frame is too long for students, the Whole Group activities may be divided into two sessions. **Small Group should last about 15 minutes.** Using the pre-assessment results, the teacher will design the formation of small groups to reflect student capability and to drive the instruction throughout every lesson.
3. **Movement:** The teacher will conduct a movement/physical activity with the students between the anticipatory set and Activity 1 to make sure students are not sitting still for too long.

**For students who are EL, have disabilities, or perform well below grade level:**

- Provide small group instruction, one-on-one assistance, and peer tutoring.
- Provide word problems with smaller numbers or use numbers only.
- Re-watch the video in the media center to strengthen understanding of the content.
- Have students draw simple pictures to solve the word problems with teacher guidance.

**Extensions for students with high interest or working above grade level:**

- Create additional word problems, including those with real-world point of view. Encourage use of greater numbers.
- Offer peer tutoring to classmates.
- Have students create and solve their own word problems.



**Activity 1 (Whole Group): Acting Out Word Problems**

**Note:** Before class, make a life-sized ten frame and a life-sized number line on the floor with painter's tape.

Ask the students the following questions (possible student responses provided) T: What happens when we add? (We get more. It gets bigger. ...plus.)

What happened to the caterpillar when it ate too much food? (It grew. He got fat. It got bigger.) What happens when we subtract, which means to take away? (Things get smaller. It gets less.)

*(Be prepared to re-direct incorrect responses with real-world examples.)*

Read the following word problem aloud:

- There are 7 students in the classroom. Two students left the classroom. How many students are in the classroom now?

Use a random method to select students to act out the problem by having 7 students stand in the front of the classroom and have 2 of them walk away. Ask students how many students are left? (5)

Review the symbol for subtraction. Ask students to remind you what it means to subtract. Ask students if they know any strategies that will help them to be able to subtract. Possible answers might be: fold your fingers down, cross out pictures of objects, or take objects away (SMP.8).

Write the number sentence for the problem above:  $7 - 2 = 5$ .

Use a life-sized ten frame mat to demonstrate the previous problem using students (SMP.4).

Write the following word problem putting 6 pencils in the ten frame and having a student remove 2 pencils to see that there are 4 pencils left.

- Lee has 4 pencils. He gives 2 pencils to Ray. How many pencils does Lee have left?

Use the life-sized number line and pencils. Ask students what number sentence goes with the problem.  $4 - 2 = 2$  Show the following word problem and use a number line to show how to move to the left when we are subtracting:

- 8 students are in line. 3 students walked away to sit at the blue table. How many students are still in line?

Write a number sentence to represent the problem:  $8 - 3 = 5$  (SMP.2).

Draw examples on the board (or display on interactive white board). Say, "Joy has 4 cookies. Joy shared 2 cookies with Dan. How many cookies does Joy have left?"

Solve the problem on the board along with students ( $4-2=2$ ). Clear up any misconceptions. When cookies are taken away draw one line through it. If time allows demonstrate one more subtraction problem of your choice with a difference of 10 or less.

**Note:** Do not tell students that when we subtract, we always put the biggest or largest number first. Refer to the value of numbers not the size. In later grades, they will subtract numbers of greater value from numbers of lesser value and get negatives. Plant that seed even as early as Kindergarten.

### **Activity 2 (Teacher-led Small Group): Decomposing Word Problems Using Linking Cubes**

Distribute linking cubes. Display real-world story problems one at a time. Solve the story problems together.

- Five cars are in the parking lot at McDonald's. Two cars leave the parking lot. How many cars are in the parking lot now?

Have students determine how many linking cubes they need to represent the total number of cars in the parking lot. (5)

Have students determine how many linking cubes they need to take away to represent number of cars that left the parking lot. Have students count the number of cars (linking cubes) left in the parking lot.

Distribute **Handout 6.1: Real World Subtraction Problems** and have students solve using linking cubes (SMP.5). Read the problems aloud to the students and assist them in solving each problem

- Eight chickens were in the yard. Four chickens left when they saw a snake. How many chickens are in the yard now?
- Ten cats were in the tree. Two cats jumped out of the tree. How many cats are in the tree now?
- Ashley had 8 crayons in her box. She lost 2 crayons. How many crayons does he have in her box now?

## Learning Centers

**Note:** Learning Centers are designed to be developmentally appropriate for all students. The teacher and assistant move about to observe and offer support, as needed. Learning centers will operate in conjunction with small group.

- ✓ **Dramatic Play Center/Music/Listening-** Students will make props for the story of the Very Hungry Caterpillar and act out the story. Students will listen to music and pretend to be a butterfly or some other type of insect.
- ✓ **Math Center-** Cut out 5 circles using construction paper of various colors. Count by 5s to 25 writing one number on each circle and then connecting the circles with glue. Students will also count by 10s to 50 and 20s to 100. Students will add an extra circle to make a head for each set of circles to make a caterpillar (SMP.6).
- ✓ **Computer** - Students will play math and reading games. The teacher will choose the website(s).
- ✓ **Reading Center/Writing Center-** Students will read and picture read fiction and non-fiction books. Students will write and illustrate their own stories about addition, subtraction, foods, insects, animals, etc. Students will reference the word wall, available books, charts and pictures in the classroom for assistance with words.
- ✓ **Science Center-** Provide a variety of fruits and vegetable. Throughout the unit, the students will observe the texture of the fruits and the vegetables. Decide which are alike and which are different and record their observations in their journal. Students will also smell the fruits and vegetables. Students will draw the fruit and or vegetable he or she likes best and write a sentence to explain why he or she likes it.
- ✓ **Art Center** – Provide a variety of art materials. Students will paint a picture of their choice or create their own work.

### Reflection and Closing:

Read the following word problem:

Mom has 5 children. They were watching a movie. 2 of them fell asleep. How many children are still awake?

- ✓ Randomly select students who will solve the word problem by implementing a subtraction strategy they learned today: act it out, use manipulatives or use a model and cross out the items being taken away.

Reflect on ways to help students grasp a better understanding of subtracting.

## Homework

Students interview their parents to find out how they use subtraction at home or work. Students will share their findings in class the next day.

## Handout 6.1: Real World Subtraction Problems

Name \_\_\_\_\_ Date \_\_\_\_\_

1. There were 8 chickens in the yard. Then, 4 chickens left when they saw a snake.



How many chickens are in the yard now? \_\_\_\_\_

---

2. Ten cats were in the tree, but 2 cats jumped out of the tree.



How many cats are in the tree now? \_\_\_\_\_

---

3. Ashley had 7 crayons in her box. She lost 3 crayons.



How many crayons does he have in her box now? \_\_\_\_\_

---

4. Andy found 8 balls in his closet. His big brother took his football.



How many balls did Andy have left? \_\_\_\_\_

## Lesson 7: Subtraction is Quite Handy

**Focus Standard:** K.OA.2

**Additional Standards:** K.OA.1 (embedded); K.OA.3 and K.OA.4 (prerequisites), K.CC.4a, K.CC.4b, RF.K.2a, RL.K.1, RL.K.2, RL.K.3, RL.K.6

**Standards for Mathematical Practice:** SMP.1, SMP.3, SMP.5, SMP.6

**Resources and Materials:**

- Counters
- *Ten Little Monkeys Jumping on the Bed* by Keith Faulkner
- *The Very Hungry Caterpillar*, by Eric Carle
- Handout 3.1: Large Ten Frame

**Learning Center Materials:**

- Art paper
- Construction paper circles
- Fruit
- Glue
- Markers
- Music
- Paint
- Paint brushes
- Story props for *The Very Hungry Caterpillar*
- Student journals
- Vegetables

**Lesson Targets:**

- Students model subtraction by taking apart using a variety of strategies.

**Guiding Questions:**

- How do we subtract?
- When do people use subtraction?

### Vocabulary

**Academic Vocabulary:**

- decrease
- deduct
- difference
- how many more
- left
- less than
- minus
- remain
- subtract
- subtraction
- take away

**Instructional Strategies for Academic Vocabulary:**

- Introduce words with student-friendly definitions and pictures
- Model how to use the words in discussion
- Discuss the meaning of word in a mathematical context
- Create pictures/symbols to represent words
- Write/discuss using the words
- Act out the words or attach movements to the words

Symbol	Type of Text and Interpretation of Symbol
	Instructional support and/or extension suggestions for students who are EL, have disabilities, or perform well below the grade level and/or for students who perform well above grade level
✓	Assessment (Pre-assessment, Formative, Self, or Summative)



### Instructional Plan

**Understanding Lesson Purpose and Student Outcomes:** Students will productively struggle to determine favorable and accurate subtraction strategies to solve word problems. Students will express understanding of subtracting within 10 using acquired strategies.

**Anticipatory Set/Introduction to the Lesson:**

Allow students to share their interview with their parents or other adult about how they use subtraction. Add to the conversation by explaining times when you use subtraction. Read *Ten Little Monkeys Jumping on the Bed* by Keith Faulkner. Review the parts of the book and name the author and the illustrator. Explain that this book is a rhyming book about ten monkeys who were doing something that you should never do, jump up and down on a bed. Ask students to share reasons for not jumping on a bed. Read the book and elicit from students the rhyming words in the story. Ask students what math skill is taught through this story (SMP.7). (subtraction or taking away) Read the book again and put emphasis on the subtraction.

**Note: Teacher Guidance**

1. Struggling students are placed near the presenter or assistant, who occasionally redirects the students' attention during whole group and small group activities.
2. **Whole Group should last about 15-20 minutes maximum.** If this time frame is too long for students, the Whole Group activities may be divided into two sessions. **Small Group should last about 15 minutes.** Using the pre-assessment results, the teacher will design the formation of small groups to reflect student capability and to drive the instruction throughout every lesson.
3. **Movement:** The teacher will conduct a movement/physical activity with the students between the anticipatory set and Activity 1 to make sure students are not sitting still for too long.

**For students who are EL, have disabilities, or perform well below grade level:**

- Provide small group instruction, one-on-one assistance, and peer tutoring.
- Provide guidance for student exploration of subtraction word problems.
- Simplify assigned problems for students to solve using manipulatives.

**Extensions for students with high interest or working above grade level:**

- Offer peer tutoring to classmates.
- Create addition and subtraction problems for classmates and create an answer key.

**Activity 1 (Teacher-led Small Group): Solving Subtraction Word Problems Using Think-Pair-Share, Guided Practice and Independent Work**

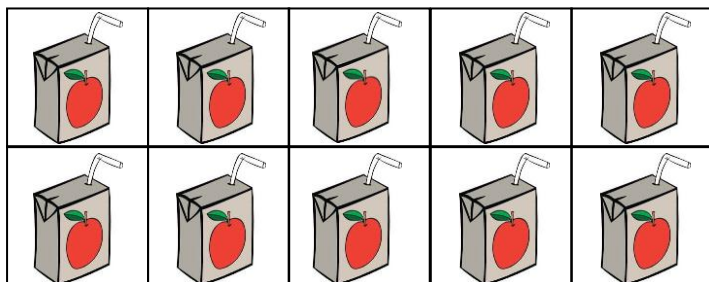
Display and read the following word problem:

There are 10 juice boxes in a box. Dad drank 6. How many juice boxes are left?

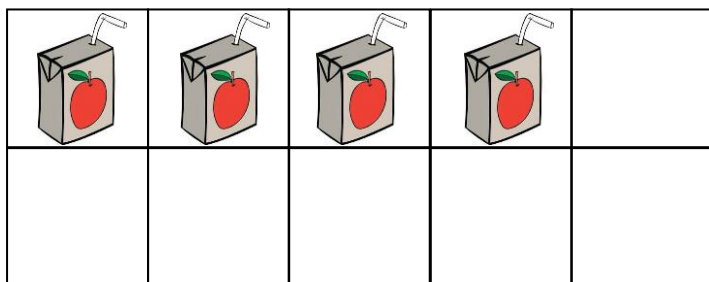
Allow students to talk to shoulder partner to figure out how to solve the problem. This allows the students to have productive struggle (SMP.1). Have students explain their solution to the problem with a justification. Allow other students to agree or disagree with their peers' answer. Have them share why they agree or do not agree (SMP.3).

Distribute ten frames and counters. Model how to use the ten frame to solve subtraction word problems while students use 10- frames and counters (SMP.5).

Place a counter on each space to represent a full box of juice boxes.



Remove six counters to represent the juice boxes Dad drank.





Have students determine how many counters were left.

Distribute **Handout 3.2: Large Ten Frame** and counters. Read the following word problem:

- Mom baked 10 brownies. Susie ate some brownies. There were only 3 brownies left in the pan. How many brownies did Susie eat?

Work with individual students as needed to help solve this problem using the ten-frame and counters. Let students volunteer to explain how to solve the problem. Discuss other ways the problem could be solved. Complete additional problems:

- Mom made 10 sushi rolls. Johnny ate 2 rolls. How many rolls are left?
- Coach brought 9 balls out for recess. Justin put 7 balls back after recess. How many balls were left out?
- Teacher has 5 books on her desk. Mika took 3 books to read. How many books are left on teacher's desk?

### Learning Centers

**Note:** Learning Centers are designed to be developmentally appropriate for all students. The teacher and assistant move about to observe and offer support, as needed. Learning centers will operate in conjunction with small group.

- ✓ **Dramatic Play Center/Music/Listening-** Students will make props for the story of the Very Hungry Caterpillar and act out the story. Students will listen to music and pretend to be a butterfly or some other type of insect.
- ✓ **Math Center-** Cut out 5 circles using construction paper of various colors. Count by 5s to 25 writing one number on each circle and then connecting the circles with glue. Students will also count by 10s to 50 and 20s to 100. Students will add an extra circle to make a head for each set of circles to make a caterpillar (SMP.6).
- ✓ **Computer -** Students will play math and reading games. The teacher will choose the website(s).
- ✓ **Reading Center/Writing Center-** Students will read and picture read fiction and non-fiction books. Students will write and illustrate their own stories about addition, subtraction, foods, insects, animals, etc. Students will reference the word wall, available books, charts and pictures in the classroom for assistance with words.
- ✓ **Science Center-** Provide a variety of fruits and vegetable. Throughout the unit, the students will observe the texture of the fruits and the vegetables. Decide which are alike and which are different and record their observations in their journal. Students will also smell the fruits and vegetables. Students will draw the fruit and or vegetable he or she likes best and write a sentence to explain why he or she likes it.
- ✓ **Art Center –** Provide a variety of art materials. Students will paint a picture of their choice or create their own work.

**Reflection and Closing:**

- ✓ Have students solve the following word problem using the ten frame. Discuss with students their favorite strategy for solving subtraction problems.

Jenny ordered 10 tacos at Taco Bell. Her sister ate 3. How many tacos does Jenny have left?

Reflect on students' answers and what strategy works best for each individual child.

**Homework**

Students will share the story of "Ten Little Monkeys" with their parents and explain how it teaches subtraction.

## Lesson 8: Taste the Rainbow

**Focus Standard:** K.OA.2

**Additional Standards:** K.OA.1 (embedded); K.OA.3 and K.OA.4 (prerequisites)

**Standards for Mathematical Practice:** SMP.2, SMP.6, SMP.7

**Resources and Materials:**

- Bags with 10 Skittles in each
- *Ten Little Monkeys Jumping on the Bed* by Keith Faulkner
- *The Very Hungry Caterpillar*, by Eric Carle
- Handout 8.1: Pair of Hands
- Handout 8.2: Addition and Subtraction Problems
- Video [Friends of 10](#)
- MathFox [Addition Problems](#)
- MathFox [Subtraction Problems](#)

**Learning Center Materials:**

- Art paper
- Construction paper circles
- Fruit
- Glue
- Markers
- Music
- Paint
- Paint brushes
- Story props for *The Very Hungry Caterpillar*
- Student journals
- Vegetables

**Lesson Target:**

- Students will join two different quantities up to 10, using one-to-one correspondence to show understanding of putting together and adding to. Students will use subtraction to demonstrate their understanding of taking apart or taking away

**Guiding Questions:**

- What are some occupations that require workers to add and subtract?
- Why is adding and subtracting important to our world?


## Vocabulary

**Academic Vocabulary:**

- add
- addition
- altogether
- and
- decrease
- deduct
- difference
- equal
- how many more
- items
- join
- left
- less than
- minus
- more
- plus
- put together
- remain
- subtract

**Instructional Strategies for Academic Vocabulary:**

- Introduce words with student-friendly definitions and pictures
- Model how to use the words in discussion
- Discuss the meaning of word in a mathematical context
- Create pictures/symbols to represent words
- Write/discuss using the words
- Act out the words or attach movements to the words

<ul style="list-style-type: none"> <li>• subtraction</li> <li>• sum</li> <li>• take away</li> <li>• total</li> </ul>	
Symbol	Type of Text and Interpretation of Symbol
	Instructional support and/or extension suggestions for students who are EL, have disabilities, or perform well below the grade level and/or for students who perform well above grade level
✓	Assessment (Pre-assessment, Formative, Self, or Summative)
Instructional Plan	
<p><b>Understanding Lesson Purpose and Student Outcomes:</b> Students will construct addition and subtraction word problems using Skittles.</p> <p><b>Anticipatory Set/Introduction to the Lesson (Whole Group): What make 10</b> Show the <a href="#">Friends of 10</a> video and play the What Makes 10 Quiet game. Hold up 2 fingers and ask student to hold up the number of fingers I need to make 10. (8 fingers) Repeat using different numbers (SMP.7).</p> <p><b>Note:</b> Kindergarten students are not expected to have the 10 facts memorized but they will need to learn how to find 10 when given any number 0 – 9.</p> <p>Revisit the texts <i>The Very Hungry Caterpillar</i> and <i>Ten Little Monkeys</i>. Explain that in <i>The Very Hungry Caterpillar</i> items increased or were added on and in <i>Ten Little Monkeys</i> things decreased or were taken away. Encourage students to tell you the mathematical term for adding on and the term for taking away. Students should say addition and subtraction.</p> <p><b>Note: Teacher Guidance</b></p> <ol style="list-style-type: none"> <li>1. Struggling students are placed near the presenter or assistant, who occasionally redirects the students' attention during whole group and small group activities.</li> </ol>	

2. **Whole Group should last about 15-20 minutes maximum.** If this time frame is too long for students, the Whole Group activities may be divided into two sessions. **Small Group should last about 15 minutes.** Using the pre-assessment results, the teacher will design the formation of small groups to reflect student capability and to drive the instruction throughout every lesson.
3. **Movement:** The teacher will conduct a movement/physical activity with the students between the anticipatory set and Activity 1 to make sure students are not sitting still for too long.

**For students who are EL, have disabilities, or perform well below grade level:**

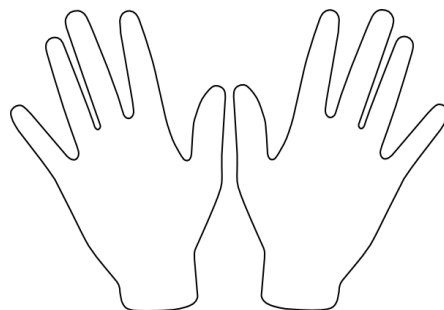
- Allow students to re-watch the video to ensure understanding of content.
- Provide small group instruction, one-on-one assistance, and peer tutoring.
- Provide guidance for student exploration of subtraction word problems.
- Simplify assigned problems for students to solve.

**Extensions for students with high interest or working above grade level:**

- Offer peer tutoring to classmates.
- Remove equations from handout and have students write their own equation using the model.
- Have students generate their own story problems to accompany models from Activity 1 and 2.

**Activity 1 (Teacher-led Small Group): Solving Subtraction Word Problems Using Skittles**

Distribute **Handout 8.1: Pair of Hands** and small bags with ten Skittles. Explain that we will use the Skittles as manipulatives to help us solve addition and subtraction problems.



Display and read aloud the following subtraction word problem substituting names with names of students in the classroom or small group.

- Rodriguez had 7 Skittles. Matthew took 2 of Rodriguez's Skittles. How many Skittles did Rodriguez have left?

Ask students how many Rodriguez started with, which is 7. Encourage students to place one Skittle on each finger or thumb until they reach 7. Have students touch and count to make sure the correct amount is on the paper. Ask students how many Skittles Matthew took from Rodriguez. Students will say, "2." Ask students how many Skittles he or she should put back in their bag.

Students will say, "2." After removing the 2 Skittles have students count the remaining Skittles on the hands. Ask how many Skittles does Rodriguez has left. Students will say, "5." Write the subtraction problem on the board or chart paper using numbers and symbols only and review the subtraction fact with the student. Create additional story problems using the equations below. Use the names of students in the small group or class. Alternate between subtraction and addition problems. Assist students as needed to help solve problems correctly (SMP.4 & 8). Sample problems are listed below:

- $8-3=$
- $10-4=$
- $4+5=$
- $5+3=$

### **Activity 2 (Teacher-led Small Group): Solving Addition and Subtraction Problems**

Distribute **Handout 8.2: Addition and Subtraction Problems** and tell students to solve all problems on each page using their Pair of Hands and Skittles.

### **Learning Centers**

**Note:** Learning Centers are designed to be developmentally appropriate for all students. The teacher and assistant move about to observe and offer support, as needed. Learning centers will operate in conjunction with small group.

- ✓ **Dramatic Play Center/Music/Listening-** Students will make props for the story of the Very Hungry Caterpillar and act out the story. Students will listen to music and pretend to be a butterfly or some other type of insect.

- ✓ **Math Center**- Cut out 5 circles using construction paper of various colors. Count by 5s to 25 writing one number on each circle and then connecting the circles with glue. Students will also count by 10s to 50 and 20s to 100. Students will add an extra circle to make a head for each set of circles to make a caterpillar (SMP.6).
- ✓ **Computer** - Students will play math and reading games. The teacher will choose the website(s).
- ✓ **Reading Center/Writing Center**- Students will read and picture read fiction and non-fiction books. Students will write and illustrate their own stories about addition, subtraction, foods, insects, animals, etc. Students will reference the word wall, available books, charts and pictures in the classroom for assistance with words.
- ✓ **Science Center**- Provide a variety of fruits and vegetable. Throughout the unit, the students will observe the texture of the fruits and the vegetables. Decide which are alike and which are different and record their observations in their journal. Students will also smell the fruits and vegetables. Students will draw the fruit and or vegetable he or she likes best and write a sentence to explain why he or she likes it.
- ✓ **Art Center** – Provide a variety of art materials. Students will paint a picture of their choice or create their own work.

**Reflection and Closing:**

Write the following math problems on the board.

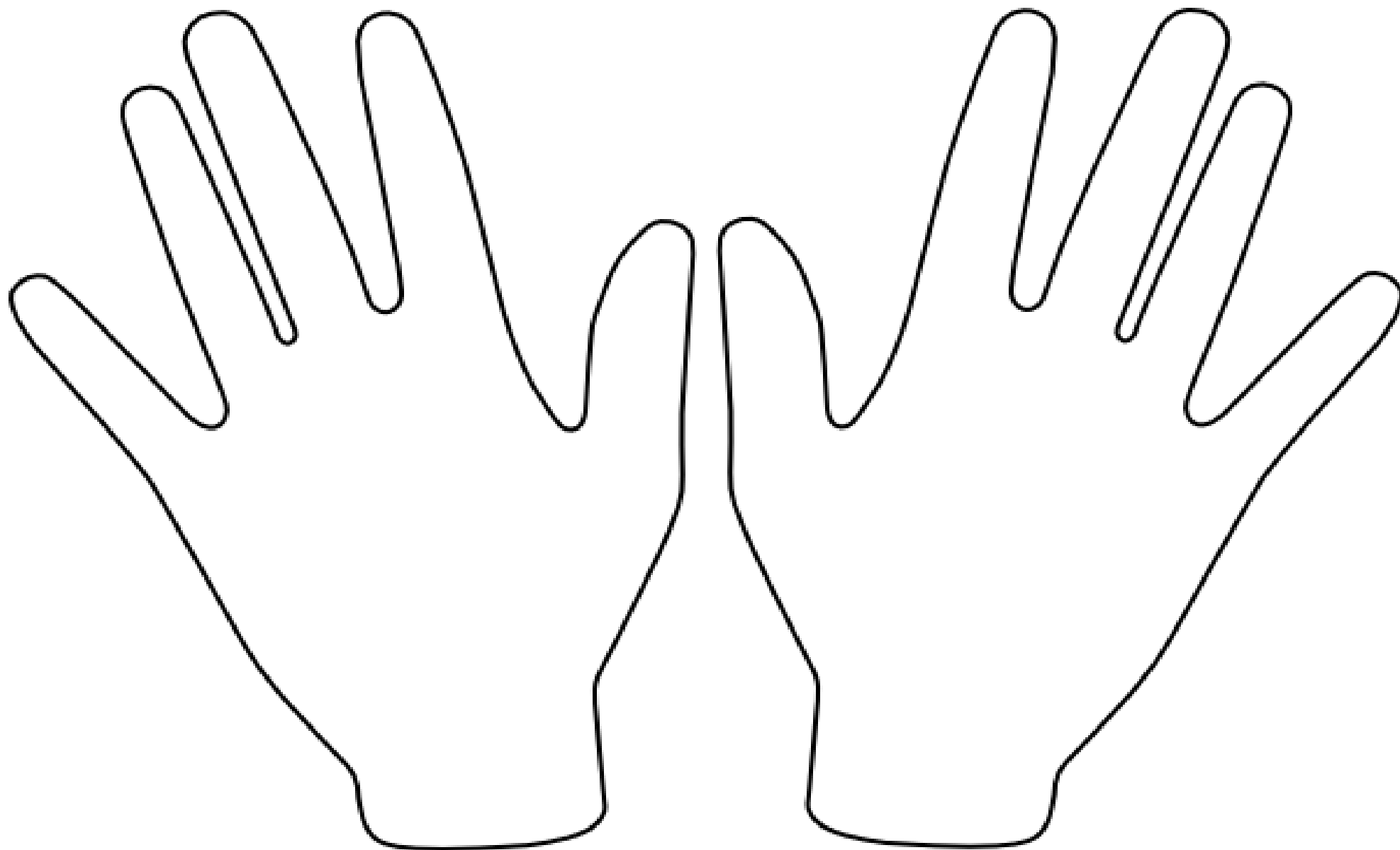
- $5 + 5 = \underline{\quad}$
- $8 - 2 = \underline{\quad}$
- ✓ Have students create a story problem for each math problem and to choose a strategy to solve the problems by drawing a model of the math problems, using a ten frame, using manipulatives or fingers.

**Homework**

Students create and solve either a subtraction or addition story problem. Students will draw a model of the problem.

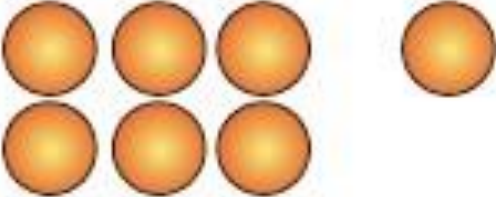


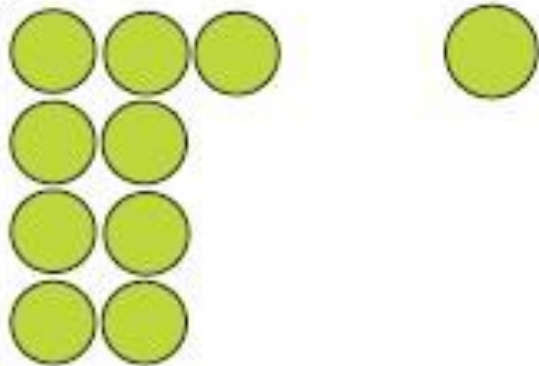
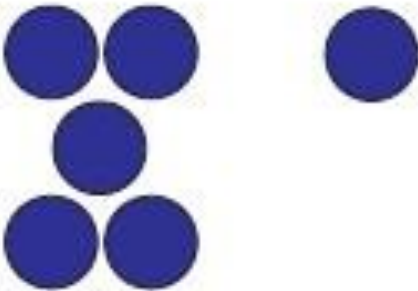



Handout 8.1: Pair of Hands



## Handout 8.2: Addition and Subtraction Problems

## Addition

 <p>1. <math>6 + 1 =</math></p>	 <p>2. <math>7 + 1 =</math></p>
 <p>3. <math>8 + 1 =</math></p>	 <p>4. <math>9 + 1 =</math></p>
 <p>5. <math>5 + 1 =</math></p>	 <p>6. <math>6 + 1 =</math></p>

## Subtraction

1.



$$8 - 3 =$$

2.



$$10 - 4 =$$

3.



$$4 - 1 =$$

4.



$$7 - 4 =$$

5.



$$2 - 2 =$$

6.



$$3 - 2 =$$

## Lesson 9: Hungry, Hungry Kindergarteners

**Focus Standard:** K.OA.2

**Additional Standards:** K.OA.1 (embedded); K.OA.3 and K.OA.4 (prerequisites), K.CC.4a, K.CC.4b

**Standards for Mathematical Practice:** SMP.4, SMP.5, SMP.6

**Resources and Materials:**

- Counters
- Crayons
- Erasable markers
- Erasers
- Linking cubes
- Handout 1.2: Circle Map
- Handout 1.3: Five Frame
- Handout 3.2: Large Ten Frame
- Handout 4.2: Word Problem Diagram
- Handout 5.1: 4-Part Foldable
- Handout 8.1: Pair of Hands
- Handout 9.1 Summative Assessment
- Handout 9.2: Performance Task & Rubric
- Video [Ten Little Monkeys Jumping on the Bed](#)

**Learning Center Materials:**

- Art paper
- Construction paper circles
- Fruit
- Glue
- Markers
- Music
- Paint

- Paint brushes
- Story props for *The Very Hungry Caterpillar*
- Student journals
- Vegetables

**Lesson Targets:**

- Students will join two different quantities up to 10, using one-to-one correspondence to show understanding of putting together and adding to.
- Students will demonstrate knowledge of adding and subtracting word problems using acquired strategies.

**Guiding Questions:**

- How do adding and subtracting differ?
- What are some key words that help you determine whether you are adding or subtracting?


## Vocabulary

**Academic Vocabulary:**

- add
- addition
- and
- decrease
- deduct
- difference
- equal
- how many more
- items
- join
- left
- less than
- minus
- more

**Instructional Strategies for Academic Vocabulary:**

- Introduce words with student-friendly definitions and pictures
- Model how to use the words in discussion
- Discuss the meaning of word in a mathematical context
- Create pictures/symbols to represent words
- Write/discuss using the words
- Act out the words or attach movements to the words

<ul style="list-style-type: none"> <li>• plus</li> <li>• put together</li> <li>• remain</li> <li>• subtract</li> <li>• subtraction</li> <li>• sum</li> <li>• take away</li> <li>• total</li> </ul>	
Symbol	Type of Text and Interpretation of Symbol
	Instructional support and/or extension suggestions for students who are EL, have disabilities, or perform well below the grade level and/or for students who perform well above grade level
✓	Assessment (Pre-assessment, Formative, Self, or Summative)
Instructional Plan	
<p><b>Understanding Lesson Purpose and Student Outcomes:</b> Students will use acquired skills to solve addition and subtraction word problems within 10.</p> <p><b>Anticipatory Set/Introduction to the Lesson (Whole Group):</b> Show the video <a href="#">“Ten Little Monkeys Jumping on the Bed.”</a></p> <p>Have students share their homework illustrations with the class. Ask them to provide a justification for the illustration they chose to draw (SMP.6).</p> <p><b>Note: Teacher Guidance</b></p> <ol style="list-style-type: none"> <li>1. Struggling students are placed near the presenter or assistant, who occasionally redirects the students’ attention during whole group and small group activities.</li> <li>2. <b>Whole Group should last about 15-20 minutes maximum.</b> If this time frame is too long for students, the Whole Group activities may be divided into two sessions. <b>Small Group should last about 15 minutes.</b> Using the pre-assessment results, the</li> </ol>	

teacher will design the formation of small groups to reflect student capability and to drive the instruction throughout every lesson.

3. **Movement:** The teacher will conduct a movement/physical activity with the students between the anticipatory set and Activity 1 to make sure students are not sitting still for too long.

**For students who are EL, have disabilities, or perform well below grade level:**

- Read word problems to students who cannot read.
- Allow students to use additional manipulatives or manipulatives of their choice.
- Give students extra time as needed to complete their work

**Extensions for students with high interest or working above grade level:**

- Have students compose additional facts with accompanying ten frames to represent the facts.

**Students will complete Activities 1 and 2 in a small group of 2 to 4 children or individually. Activities will take more than one day to complete. All students not being assessed will go to learning centers of their choice.**

**Activity 1 (Individual or Small Group):** Assessing Comprehension of Addition and Subtraction Word Problems

- ✓ Distribute **Handout 9.1: Summative Assessment**. Instruct students to use tools and manipulatives they know to solve addition and subtraction problems (SMP.5).

**Activity 2 (Individual or Small Group): Performance Task**

Read and explain the following performance task:

**You have been chosen to co-author a children’s picture book. Each of you must create one page that pictorially represents either an addition or subtraction story problem within 10. The title of the book is The Very Hungry Kindergarten Student. Your picture should correctly represent the story problem with accuracy and precision. Also, be creative and have FUN! (SMP.4, 5, & 6)**

Explain to the students how you will grade their work going over **Handout 9.2: Performance Task Rubric**. Give students examples of what the best and the worst work might look like. Encourage students to do their best and monitor them as they work asking questions and prompting them to complete the task. Answer any questions students may have.

Distribute paper, crayons, and markers. Make available all the handouts and manipulatives that were used in the unit. Encourage students to use the manipulatives and include them in their drawings.

Work with students to write their math story problem about hungry kindergarten students. If necessary, write students' stories as they dictate to you.

### Learning Centers

**Note:** Learning Centers are designed to be developmentally appropriate for all students. The teacher and assistant move about to observe and offer support, as needed. Learning centers will operate in conjunction with small group.

- ✓ **Dramatic Play Center/Music/Listening-** Students will make props for the story of the Very Hungry Caterpillar and act out the story. Students will listen to music and pretend to be a butterfly or some other type of insect.
- ✓ **Math Center-** Cut out 5 circles using construction paper of various colors. Count by 5s to 25 writing one number on each circle and then connecting the circles with glue. Students will also count by 10s to 50 and 20s to 100. Students will add an extra circle to make a head for each set of circles to make a caterpillar (SMP.6).
- ✓ **Computer** - Students will play math and reading games. The teacher will choose the website(s).
- ✓ **Reading Center/Writing Center-** Students will read and picture read fiction and non-fiction books. Students will write and illustrate their own stories about addition, subtraction, foods, insects, animals, etc. Students will reference the word wall, available books, charts and pictures in the classroom for assistance with words.
- ✓ **Science Center-** Provide a variety of fruits and vegetable. Throughout the unit, the students will observe the texture of the fruits and the vegetables. Decide which are alike and which are different and record their observations in their journal. Students will also smell the fruits and vegetables. Students will draw the fruit and or vegetable he or she likes best and write a sentence to explain why he or she likes it.
- ✓ **Art Center** – Provide a variety of art materials. Students will paint a picture of their choice or create their own work.



**Reflection and Closing:**

Discuss occupations that require you to be able to add and subtract. Reflect on student understanding of the performance task.

**Homework**

No Homework.

## Handout 9.1: Summative Assessment

Name \_\_\_\_\_

Date \_\_\_\_\_

1.  +  = \_\_\_\_\_

$4 + 3 = \underline{\hspace{2cm}}$

Workspace:

2.  = \_\_\_\_\_

$8 - 5 = \underline{\hspace{2cm}}$

Workspace:

3. Roscoe had 10 crackers. Roscoe gave James 4 crackers.

How many crackers did Roscoe have left?



Workspace:

\_\_\_\_\_ crackers

4. The football players used 3 footballs  in practice. They used 6 footballs  in the game. What was the total number of footballs the football players used?

Workspace:

\_\_\_\_\_ footballs

5. The very hungry caterpillar ate 4 strawberries Thursday. The caterpillar ate 5 oranges Friday. How many pieces of fruit did the caterpillar eat all together Thursday and Friday?

Draw a picture to represent the word problem.

\_\_\_\_\_ pieces of fruit

**Handout 9.2: Performance Task*****The Very Hungry Kindergarten Student***

You have been chosen to co-author a children's picture book with a partner. Each of you must create one page that models either an addition or subtraction story problem within 10. The title of the book is *The Very Hungry Kindergarten Student*. Your picture should model the story problem with accuracy and precision. Be creative and have fun!

**Handout 9.2: Performance Task – *The Very Hungry Kindergarten Student***

Name: \_\_\_\_\_

Performance Level	Mastery Level	Accuracy	Effort
4	Exemplifying Mastery	Student chose the correct numbers in the word problem and accurately and precisely represents the word problem.	Student submitted a project showing great thought for details and creativity.
3	Approaching Mastery	Student chose the correct numbers in the word problem and made a discernable attempt toward modeling the problem.	Student completed the project with acceptable effort, but more could have done more to show mathematical thought, creativity, and/or detail.
2	Developing Mastery	Student chose one correct number in the word problem and made a discernable attempt toward modeling the problem.	Student completed the project but it lacked clear thought, creativity, and/or detail.
1	Not Representing Mastery	Student chose no correct numbers in the word problem and did not represent the word problem.	Student submitted an incomplete project.
0	No Understanding	No response.	No task submitted.

For training or questions regarding this unit,  
please contact:

[exemplarunit@mdek12.org](mailto:exemplarunit@mdek12.org)