Powerful Problem Solving

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VISION

To create a world-class educational system that gives students the knowledge and skills to be successful in college and the workforce, and to flourish as parents and citizens

MISSION

To provide leadership through the development of policy and accountability systems so that all students are prepared to compete in the global community
MISSISSIPPI STATE BOARD OF EDUCATION

STRATEGIC PLAN GOALS

1. All Students Proficient and Showing Growth in All Assessed Areas

2. Every Student Graduates from High School and is Ready for College and Career

3. Every Child Has Access to a High-Quality Early Childhood Program

4. Every School Has Effective Teachers and Leaders

5. Every Community Effectively Uses a World-Class Data System to Improve Student Outcomes

6. Every School and District is Rated “C” or Higher
Listening & Information Literacy Skills

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Local school districts have discretion over which technology partners and products are utilized in their districts. For legal advice regarding technology services, please contact your local school board attorney.
LISTENING
Communication Skills

- Demonstrate effective listening behaviors
- Identify the purpose, content, organization, and delivery of oral communication and evaluate based upon preset criteria
INFORMATION LITERACY

Given a real situation, the student will identify and define the problem, design a research plan appropriate to the problem, conduct the investigation, decide on the most appropriate media for dissemination of the findings/solutions, and present the results before an authentic audience.
INFORMATION LITERACY

tinyurl.com/y8bafvr5
Gather Research

- Teacher-approved resources IL 2.4
- Assemble information IL 2.5
- Employ various digital media tools to locate and collect accurate and reliable information IL 3.3
ANALYZE SOURCES
Analyze Sources

- Interpret and evaluate information IL 3.5
- Analyze primary sources IL 5.1
- Utilize primary and secondary sources to provide new knowledge or understanding IL 5.2
- Based upon data gathered through research, infer future trends, directions, similarities, and differences IL MS 5
VALIDITY & RELIABILITY
Evaluate Sources

- Interpret and evaluate information IL 3.5
- Define and identify use of propaganda techniques IL 5.3
- Assess the validity, reliability, and relevance of information IL 5.4
- Critical analysis and evaluation of information IL MS 4
<table>
<thead>
<tr>
<th>Evaluate Point of View</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Interpret and evaluate information  <strong>IL 3.5</strong></td>
</tr>
<tr>
<td>● Understand hidden agendas by critical analysis and evaluation  <strong>IL MS 5</strong></td>
</tr>
</tbody>
</table>
Effective Surveys

● Assemble information by conducting interviews  IL 3.2
● Assemble information by utilizing effective survey techniques  IL 4.2
CREATE VISUALS
Visually Organize Info

- Create and visually organize information using maps, webs, chronological order, sequence, or compare/contrast **IL 3.4**

- Create and visually organize information using charts, tables, graphs, evidence, or patterns **IL 4.3**
http://www.pantsonfire.pizza/
In a time where everyone lays claim to the truth, kids should know where they stand. And what better way to test their lie-detecting skills than a game show that puts kids in the driver’s seat, adults on the hot seat, and straps a sound-effects robot to the roof? Each week, a kid interviews two experts in a particular topic—one, a genuine, credentialed expert, the other a low-down dirty liar. Hilarious and fast-paced, the show encourages kids to teach themselves how to ask insightful questions, weigh the evidence before them, and when to trust their gut.
● Listening Skills
● Information Literacy Skills
Prior knowledge
WHAT I KNOW
Take notes
<table>
<thead>
<tr>
<th>EXPERT #1:</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔️ You know these things the expert said are correct</td>
</tr>
<tr>
<td>✗ You know these things the expert said are incorrect</td>
</tr>
<tr>
<td>❓ You have questions about these things the expert said - RESEARCH</td>
</tr>
</tbody>
</table>
Let’s listen!
Who is the liar?

- Discuss at your table.
- Share out.
Extensions

- Continue the research.
- Create their own graphic organizer.
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The Case for
Open Ended Instruction
Open Ended Instruction

- Intents and purposes of individuals are uniquely established and pursued.

- Open ended can mean the learning outcomes (goals), the pursuit of learning (means), or both (goals and means).

http://www.personal.psu.edu/wxh139/Open.htm
Learning is most effective when students:

- Encounter
- Share
- Revise

http://www.personal.psu.edu/wxh139/Open.htm
Open Ended Instruction

Process

Product

http://www.personal.psu.edu/wxh139/Open.htm
Open Ended Instruction

- **Process** is more critical than generating products.
- **Inquiry** is valued more than acquisition.

http://www.personal.psu.edu/wxh139/Open.htm
Student inquiry leading to student inference is an essential and non-negotiable part of learning for understanding.

https://www.teachthought.com/learning/planning-open-ended-learning/
Why?

Because understanding is dependent upon drawing inferences by oneself – as well as testing and justifying those inferences – if only to question or verify claims made by the teacher, other students, or authors.

https://www.teachthought.com/learning/planning-open-ended-learning/
Otherwise, it is rote learning with no thinking behind it.

https://www.teachthought.com/learning/planning-open-ended-learning/
Break the Ice
Break the Ice

- Open the selection
- Complete the tune
Experience

Problem Solving
Step 1

The Problem

Goal: As a group, determine the problem, goal, challenge, or desire that you want to consider.
Step 1: The Problem

→ You must come to a consensus.

→ Once you select a topic, you can pinpoint the focus of the project, but you may not change topics.

→ Before moving to step 2, your topic must be approved by the facilitator.
Step 2
Clarify

Goal: As a group, determine questions based on your topic, then gather information.
Step 2: Clarify

→ Create open ended questions based on your topic.

→ Identify possible sources. Gather additional information.

→ Organize your team so that time and resources are used effectively.
Questioning Techniques
Questioning Techniques

Questioning Hierarchy

- Start with yes/no questions
- Follow with levels of What/How (WH) Questions

http://blog.tesol.org/questioning-techniques-to-engage-students-in-critical-thinking/
Questioning Techniques

Questioning Hierarchy

Yes/No Question: Are there teachers present?

WH Level 1 – Adds detail: How many teachers are present?

http://blog.tesol.org/questioning-techniques-to-engage-students-in-critical-thinking/
Questioning Techniques

Questioning Hierarchy

WH Level 2 – Adds a modifier: What three things do teachers like about summer?

WH Level 3 – Adds choice: What do teachers like and not like about their work?

http://blog.tesol.org/questioning-techniques-to-engage-students-in-critical-thinking/
Questioning Techniques

**FIRE** Questions

**F**actual Thinking – Seeks factual information

**I**nsightful Thinking – Seeks the big picture, or idea depth

**R**ational Thinking – Seeks to analyze or idea breadth

**E**valuative Thinking – Seeks to make judgements or connect

http://blog.tesol.org/questioning-techniques-to-engage-students-in-critical-thinking/
Questioning Techniques

**FIRE Questions**

**F**actual Thinking – Who, when, where, and how many

**I**nsightful Thinking – What, which, why, how, and what if

**R**ational Thinking – What, how, what steps

**E**valuative Thinking – What, how and why

http://blog.tesol.org/questioning-techniques-to-engage-students-in-critical-thinking/
Step 3

Ideate

Goal: As a group, create a solution based mind map.
Step 3: Ideate

→ Select an open-ended question from Step 2.

→ Create a mind map to answer the selected question.

→ Focus thinking and discussion on solutions.
Mind Maps
Mind Maps

**Benefits**
- Overview
- Easy to memorize
- Simple, fast & fun

**Planning**
- Projects
- Goals
- Strategies

**Creativity**
- Ideas
- Innovation
- Thoughts

**Collaboration**
- Teamwork
- Sharing
- Colleagues

**Productivity**
- More efficient
- Intuitive

**Mind Mapping**
Mind Maps

Intro

Example
Step 4

Develop

Goal: Evaluate ideas and/or solutions from step 3, the determine the best idea or solution.
Step 4: Develop

→ Create 3 or more questions and evaluate your ideas/solutions.

Examples: Does it meet your needs?

   Can it be implemented?

   Can you strengthen it?

→ Choose the best solution.
Step 5

Implement

Goal: As a group, determine a creative way to share your problem and best solution.
Step 5: Implement

→ Create a plan of action.
→ List needed resources.
→ Communicate your process and plans.
→ Collect feedback.
Project Presentations
Assessment

As a group, discuss how you would assess this learning process.

→ Actionable Feedback

→ SMART Goals
Specific, Measurable, Achievable, Relevant, Timely
Reflections
Reflections

• What did you learn?

• Who was responsible for the process?
Reflections

- What did you do well?
- What could you have done better?
- What will you change moving forward?
Reflections

• Within your classroom, how could use this process to meet the needs of gifted students?

• What strategies could be added to support the process?
Reflections

• What changes would need to be made for younger students? Older students?
Reflections

• What Outcomes have we addressed?
• How have those Outcomes been implemented?
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