



# TEAM Video Library

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Problem-Solving  
Summer 2023



# BEST FOR ALL

We will set all students on a path to success.

## ACADEMICS

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ALL TENNESSEE STUDENTS WILL HAVE ACCESS TO A HIGH-QUALITY EDUCATION, NO MATTER WHERE THEY LIVE

## STUDENT READINESS

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TENNESSEE PUBLIC SCHOOLS WILL BE EQUIPPED TO SERVE THE ACADEMIC AND NON-ACADEMIC NEEDS OF ALL STUDENTS IN THEIR CAREER PATHWAYS

## EDUCATORS

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TENNESSEE WILL SET A NEW PATH FOR THE EDUCATION PROFESSION AND BE THE TOP STATE IN WHICH TO BECOME AND REMAIN A TEACHER AND LEADER FOR ALL

# Problem-Solving

# Evaluator Expectations

In the pre-conference, ask, *"How are students problem solving in your activities and what types of problem solving will I see?"*

To score this indicator, the observer will need to look for:

- Students in productive struggle
- Students actively engaged in the process of reaching an end solution
- Different types of problem solving

This indicator is closely aligned with *Thinking and Activities and Materials*.

# Problem-Solving

The key to this indicator is the teacher's ability to develop activities that provide students with the opportunity to approach problems with different ideas and solutions.

The teacher explicitly demonstrates and reinforces the different problem-solving types through activities that are aligned to the lesson objective. Thinking is the process that leads to the product of problem solving.

# In what ways does this teacher empower students by allowing them to practice different approaches to problem solving?



# Problem Solving Types

Problem Solving Type	Examples
Abstraction	<p>After reading different fairy tales, students use the characteristics and qualities to define a fairy tale.</p> <p>After researching different amphibians, students use the characteristics and qualities to define an amphibian.</p>
Categorization	<p>Students sort words by spelling patterns or shapes into polygons and not polygons.</p>
Drawing Conclusions/ Justifying Solution	<p>After reading and discussing events leading up to the Civil War, students write about which event had the biggest impact and explain why.</p> <p>Student teams research the cost, desirability, and value of candy from the grocery store. They analyze the data to determine which candy would be the best buy for their team. The students provide evidence for their choice.</p>
Predicting Outcomes	<p>Students read about what plants need to survive. Students have 4 plants, one without water, one without sunlight, one without air, and one that receives all 3. Students make predictions on what will happen to each plant.</p> <p>Students read a book with a character who has reactions and responses to problems throughout the story. Students write to predict how the character will react to a new problem based on the evidence from the text of how they reacted in the past.</p>

# Problem Solving Types

Problem Solving Type	Examples
Observing and Experimenting	<p>Students keep daily weather records for 3 months, then develop a hypothesis of what the weather will be for the next month. Students measure the weather for the next month and compare their data to determine if their hypothesis was correct.</p>
Improving Solutions	<p>Students read several books by the same author. Students survey the class to determine which endings they think are strong and which are weak. They rewrite the weak endings to make them better based on their reasoning for the strong endings.</p> <p>Students study the events of WWII. The students pick a battle and determine what the losing side could have done differently to change the outcome.</p>
Identifying Relevant/Irrelevant Information	<p>Students are given a math contextual problem with relevant and irrelevant information needed to solve the problem. Students must analyze each piece of information to determine if it is needed or if it is irrelevant to the solution.</p> <p>Students in a culinary class are researching different cooking styles from different countries. When a student chooses to read a book about France the student must determine the information relevant to cooking styles or cuisine in the text and which information about France is irrelevant to their topic.</p>



# Problem Solving Types

Problem Solving Type	Examples
Generating Ideas	<p>Students are presented with a fraction problem and the teacher asks them to generate a list of different ways/strategies they could solve the problem.</p> <p>Students are creating a set design for a scene in a play. The teacher asks the students to generate a list of different ways they could show or represent rain on stage.</p>
Creating and Designing	<p>Students create a math problem for peers to solve based on the topic they are studying in math class.</p> <p>Students explore potential and kinetic energy then design and build a paper roller coaster with a loop. A marble can successfully go from the start of the track to the end.</p>

# Capture example(s) of problem solving as you watch this video.





**Share out example(s) you saw of problem solving in the video.**



## Example(s) of problem solving in the video.

The activity provided students with the opportunity to analyze words and put them into categories of snap or trap.



# Capture example(s) of problem solving as you watch this video.



TN

Sheron Smith, Cleveland City Schools

2021-22 East Grand Division Tennessee Teacher of the Year





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## Example(s) of problem solving in the video:

The student answered the question and then the teacher asked, "How do you know?" The students justified their answer by sharing their strategy.





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**OPENING ACTIVITY**

- Take a sticky note and write your name on it.
- Assume that we do not know the outcome of the American Revolution. Which side would you bet on to win if you did not have prior knowledge?
- **If Britain:** put sticky note on back wall
- **If Colonies:** put sticky note on front wall

**CLASS RULES**

- BE PROUD, PREPARED, AND ON TASK AT ALL TIMES.
- DON'T DO ANYTHING TO STOP SOMEONE FROM LEARNING.
- SHOW RESPECT TO EVERYONE YOU ENCOUNTER.
- CLEAN UP AFTER YOURSELF.
- TAKE CHARGE OF YOUR OWN LEARNING.
- NO BULLYING. SAY NO TO ANYTHING THAT FEELS FAIR.

**TN** John Frizzell, Germantown Municipal Schools  
2021-22 Shelby County/Municipals CORE Region Tennessee Teacher of the Year







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## Example(s) of problem solving in the video.

- The activity provided students with the opportunity to make predictions on who will win the war based on previous knowledge learned in class.
- After the predictions were posted with sticky notes on the wall, the students then compared the number of predictions for each choice.

**Discuss: “What could be the teacher’s next steps in having students validate their predictions?”**



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## Example(s) of problem solving in the video.

The activity provided students with the opportunity for the students to make the number 13 with two parts. The teacher did not give the two parts. She had students generate their own ideas and viable solutions for how to make 13 with two parts.



# Capture example(s) of problem solving as you watch this video.





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## Example(s) of problem solving in the video:

- The activity reinforced the students' ability to brainstorm ideas of how to represent the different components of the stage design.
- The students generated a list of materials needed to make their vision a reality.
- The students produced viable solutions to problems with safety.





# Culminating Activity

Follow the QR code or the link below to access the form for the culminating activity.

[https://stateoftennessee.formstack.com/forms/team\\_rubric\\_video\\_library](https://stateoftennessee.formstack.com/forms/team_rubric_video_library)

Please use the form to reflect on today's learning and provide feedback about this resource.



QR Code



# Thank You!

Email questions to [TEAM.Questions@tn.gov](mailto:TEAM.Questions@tn.gov)

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