



Thinking Protocol for PARCC Test Items

Teacher Preparation for the Thinking Protocol

- Choose a sample PARCC test item that addresses content you are working on in class. Make a paper copy of the item for each student with the questions listed. (Refer to sample problems on the MC²-Countdown to PARCC website for examples.)
 - What is the math content of the problem? What math practices could be highlighted? How does it connect to what students are learning in class?
 - Consider how children will interact with the technology. Will the teacher project the item or will students have access to the item on a computer/iPAD/etc.?
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Thinking Protocol (15-20 min.)

- 1. Students think individually about the test item and the three questions below using one color writing utensil. (3 min)**
 - ✓ What do I know about the problem?
 - ✓ What questions do I have?
 - ✓ Explain your reasoning or thinking in solving the problem.
 - 2. Think with a partner about the problem. Change colored writing utensils to add to the solution. Don't erase from your original ideas. (5 min.)**
 - ✓ Discuss your thinking to the questions with your partner. Make sure both partners have a chance to share. You may add to your thinking or change your thinking with the different color.
 - 3. Share strategies for solving the problem as a whole group. (6 min.)**
 - ✓ Teacher selects 2-3 students or partners to share their ideas. The purpose is to add new ideas/strategies to the whole group's thinking.
 - 4. Ask students to reflect on the problem and identify what was easy/hard about the problem. (1 min.)**
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Teacher Reflection on the Thinking Protocol

- In your PLC, discuss what data this problem could give you.
- Consider what instructional strategies are needed to support students developing of the mathematical practices and flexibility in problem solving needed for the PARCC assessment.
- How can we use the Thinking Protocol to build math confidence in students?
- How are CCSS content and math practices advanced using the Thinking Protocol as classroom warm-up problems?

Mathematical Practice Questions for MC² Thinking Protocol

Follow the process below in working with the PARCC practice items found in this packet:

1. Choose items from this packet that relate to math concepts studied in the current or previous curriculum units during your math instruction. Each item may be used as a practice item worksheet.
2. Choose a set of Thinking/Writing Prompts below based on the math practice the class is working to develop.
3. Add the prompts to the practice item worksheet or display the prompts for the students to respond to.
4. Continue using the same set of prompts for an extended period of time so children develop competence and confidence in describing their mathematical thinking related to the math practice.

The questions below were intentionally not included on each MC² PARCC practice item worksheet in this packet. These are intended to help students move beyond “answer getting” to fully making sense of test item questions and their own mathematical thinking.

Thinking/Writing Prompts to Promote Mathematical Practices

Math Practice 1: Make sense of problems and persevere in solving them.

1. What do you know about the problem?
2. What questions do you have?
3. Explain your reasoning or thinking in solving the problem.

Math Practice 3: Construct viable arguments and critique the reasoning of others.

1. What are the assumptions, definitions, and previous knowledge to help in thinking about this problem?
2. What are some possible conjectures that you have about the problem?
3. Explain your mathematical argument so that somebody else can make sense of your thinking.

Math Practice 4: Model with mathematics.

1. What are the important quantities in the problem that are needed to solve it?
2. What mathematical operation(s) or representation(s) will you use to solve the problem?
3. Explain how you know your answer makes sense in the context of the situation.

Math Practice 6: Attend to precision.

1. What are the important units in the problem? (What are we measuring or counting?)
2. What relationship between the units/quantities do you need to know in order to solve the problem?
3. Use appropriate and precise mathematical language, units, labels and computations to clearly describe your mathematical reasoning.