MC² Thinking Protocol: Meaningful PARCC Test Prep

Note: Purple Box indicates tweaks to original *MC² Thinking Protocol: Uncovering Student Thinking*

Purpose	Activity	Materials/Resources
Part 1: Preparation during Professional Learning Community (PLC) Why step 3? *Establishing a rubric before implementing the MC² Thinking Protocol is crucial because we tend to skew our own evaluations of student work and understanding when we have not previously set the criteria. For example, we become lenient and assume understanding when we see how much effort a student exerts in solving the problem.*	***1.*** In your PLC or with a trusted colleague, **develop or select a formative assessment task** to administer to your students. The item should be based on instruction that students are currently engaged in or have previously experienced in your classroom. *Released PARCC sample test items are good resources to use because:* - *Students build confidence and competence when they have multiple experiences working on an authentic problem that is in the PARCC test format.* - *Students become more confident and competent when they have multiple experiences with the rigor of PARCC test items.* - *This is a means for students to build problem-solving strategies in collaboration which they can apply when independently working on PARCC.* **2.** Each member of the team should **do the math problem** showing how they would expect students to complete the task in order to **agree on** the mathematical **goals** of the task. **3. Develop rubric** to be used to divide student work into 3 piles based on evidence. For example, - Strong Math Understanding - Incomplete Math Understanding or Misconceptions - Little/No Math Understanding	• **Rich math problems** aligned to CCSS-M (Open-ended tasks) • **Website Link: Illustrative Mathematics** https://www.illustrativemathematics.org/ • **MC² Sample PARCC Test Item Packets**: http://mc2.nmsu.edu/PARCC/CountDown.html • **PARCC 2015-2016 Released Items** https://parcc.pearson.com/practice-tests/math/ • **PARCC 2015-2016 Score Report Samples** http://www.parcconline.org/assessments/score-results
Part 2: Administration of the Task to Students Why step 1? *The intention is to capture the journey of mathematical thinking and through conversations build a stronger understanding of mathematics.*	1. Set aside at least 30 minutes of instructional time for students to: • **Think Alone** – Students think about the problem alone, answer the questions, and write their thinking/reasoning or problem-solving strategy using one of the designated colored pencils. ***For meaningful test prep, add these questions to the test item:*** - *What is the problem asking you to find?* - *What do you know about the problem and what steps might you take to solve it?* - *What questions do you have?* - *Explain your reasoning or thinking in solving the problem.*	• **Copy of student task** for each student • **2 different colored pencils** for each student

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	• **Think with a Partner** – Students share solutions with a partner or group and can change or add to their answer and/or add any new insights they learned using the second designated colored pencil. (*Teacher reminds students that no erasing is allowed, they can only add to their solution with a different colored pencil.*) • **Think Together** – Students share and compare different solution strategies with the whole class. (*Teacher summarizes and records different strategies students used*.) • **Reflect** on *Thinking Protocol* process with students. ***Ask students to reflect using this prompt: If this was the actual test, how confident would you be about tackling this problem?*** - ***Thumbs up*** *if you are totally confident and ready to take the PARCC test right now.* - ***Thumbs sideways*** *if you are almost ready and need a little more practice before taking the PARCC test.* - ***Thumbs down*** *if you are not feeling confident and we need to brain storm ways to build your confidence.* *Ask students what support they need in order to move everyone's thumb to the up position. Script on a poster the supports students request in order to be confident. The intention is to use this poster(s) to influence daily instruction, to help students reflect on their journey towards confidence, and support future experiences during Protocol process.* 2. **Collect student work**.	
Part 3: Collaborative Reflection during PLC	**PLC steps to take and discuss:** 1. **Sort student work** based on the rubric developed in the PLC. (There is no need to score or give a grade for this work, the intent is to formatively assess to guide next steps in instruction.) 2. **Review student work and analyze** for different solution strategies students used to solve the problem. 3. What do students understand? Where is the evidence in the student work? 4. What were misconceptions or gaps in the knowledge of the students? Where is the evidence in the student work? 5. What were the instructional strategies or classroom experiences that can help move learning forward? 6. ***Share student-generated posters*** *that express the supports they need in order to be confident. Create next steps for all students.*	**Student work** (Sorted based on rubric developed in PLC)