

## **MCAP Reasoning and Modeling**

MCAP Reasoning (MP3 and MP6) and Modeling (MP4 and MP2) tasks in Middle School Mathematics classrooms aim to develop students' ability to reason and model in mathematical contexts. These focus questions and "look fors" guide the observation and discussion during the learning lab, providing insights into the alignment of tasks, student application of concepts, problem-solving strategies, and the communication of mathematical reasoning.

### **Focus Question(s):**

#### **Task Alignment:**

- How effectively does the teacher align mathematical tasks with the MCAP (Maryland Comprehensive Assessment Program) Reasoning and Modeling standards (MP3, MP6, MP4, MP2)?
- In what ways do the tasks emphasize the application of mathematical reasoning and modeling?

#### **Application of Mathematical Concepts:**

- To what extent do students apply mathematical concepts to real-world situations during MCAP Reasoning and Modeling tasks?
- How effectively are students able to connect abstract mathematical ideas to concrete modeling scenarios?

#### **Problem-Solving Strategies:**

- How do students approach problem-solving within the context of MCAP Reasoning and Modeling tasks?
- In what ways are they encouraged to use a variety of strategies to reason through and model mathematical situations?
- To what extent do students use the scoring rubric to assist with responding to the task?

#### **Communication of Mathematical Reasoning:**

- How actively do students communicate their mathematical reasoning and models to their peers and the teacher?
- To what extent does the teacher foster an environment that encourages students to articulate their thought processes?

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**Look Fors:**

**Task Alignment:**

Tasks that clearly align with the MCAP Reasoning (MP3 and MP6) and Modeling (MP4 and MP2) standards, emphasizing the application of mathematical reasoning.

Evidence of tasks that challenge students to apply mathematical skills in real-world contexts or justify their reasoning about mathematics using academic language.

**Application of Mathematical Concepts:**

Observable instances of students applying mathematical concepts to solve real-world problems.

Student work and responses that reflect a deep understanding of how mathematical concepts can be utilized in various contexts.

**Problem-Solving Strategies:**

Varied approaches to problem-solving, with students employing multiple strategies to reason through MCAP Reasoning and Modeling tasks.

Teacher guidance that supports students in selecting and implementing appropriate problem-solving strategies.

Use of the MCAP scoring rubrics to assist with developing responses.

**Communication of Mathematical Reasoning:**

Students actively engaging in discussions about their reasoning and modeling choices.

A classroom environment where students feel comfortable sharing their mathematical thinking with their peers and the teacher.

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