

Answer Key for Observing M⁵ in Action

This handout provides sample responses that help facilitators discuss each of the M⁵ teaching practices observed in the video clip. It includes questions that apply across ages. Use the questions that work best for the video you have chosen. The video clip may or may not include examples related to each question.



Video:

[Comparing Length with Unit Blocks \(3–5 years\)](#)

This two-part video shows the ways an educator supports a preschooler's understanding of measurement concepts, mathematical reasoning, and problem-solving. In Part 1, the educator and child use connecting cubes to compare heights. In Part 2, they use the cubes to measure and compare the lengths of their hands.

Mutual Learning

- What did (or might) the educator learn about each child during this experience?
- In what ways was the educator responsive to individual children? Consider the children's interests, languages, cultures and lived experiences, abilities, and emerging skills and knowledge.

Some Possible Responses

The educator observed the child exploring relative heights by comparing her family members' heights. She extended the conversation about heights and modeled how to use comparative language. She asked, "So your daddy is this tall, your mommy is this tall, and you are ...?" By making connections to the child's family members in an authentic way, she built on the child's lived experiences and strengths (for example, her knowledge of family members' relative heights).

Meaningful Investigations

- In what ways was the experience based on children’s questions, interests, or real-world situations?
- In what ways was the experience open-ended? How did the open-ended nature support children to experiment with different approaches to solving a problem or answering a question?
- In what ways did the educator support children’s thinking and problem-solving?

Some Possible Responses

The experience was based on children’s interests—discussing the child’s family while comparing different lengths of connecting cubes. The experience was open-ended; the child had a choice in how to use the materials. The child experimented with math concepts related to measurement and comparing heights.

The educator encouraged thinking and problem-solving by asking open-ended questions:

- “What else we can measure?”
- “What do we need to do?”
- “How many more do you think we need? ... Let’s try it.”

Materials and Learning Environment

- What did you notice about the materials and learning environment?
- In what ways did the materials and learning environment promote children’s understanding of relevant math concepts?

Some Possible Responses

The educator and child used connecting cubes to experiment with measurements. The experience was hands-on and open-ended. The child could use the materials in multiple ways.

Math Vocabulary and Discourse

- What math vocabulary did the children or educator use?
- In what ways did the educator encourage children to notice and communicate about math concepts (for example, by asking open-ended questions)?
- In what ways did the educator encourage children to participate in math discussions? Some ways children might participate in math discussions include questioning, describing, comparing, or explaining.
- In what ways did the educator support multilingual learners to communicate about math concepts?

Some Possible Responses

- The educator introduced a variety of descriptive and comparative vocabulary related to measurement (long, longest, tall, tallest, shorter, shortest, small). She invited the child to use comparative vocabulary by asking questions such as, “Is Charlie ... shorter than you?”
- The educator and child also used quantity vocabulary (five, six, more, less, add) in the measurement process.
- The educator and child engaged in math discourse, using comparative language when discussing the relative height of family members.

Multiple Representations

- What opportunities did the educator offer children to explore and learn about math concepts in different ways?
- What other learning experiences or materials might the educator offer to continue building children’s understanding of relevant math concepts?

Some Possible Responses

- The child explored concepts related to measurement. The educator might encourage the child to use other materials to represent and compare the length of their hands (a string, paper clips).
- The educator might also encourage the child to explore measurement in different contexts and with other materials. For example, they might use blocks to measure structures in the block area, a string to measure a table, or same-sized unit blocks to measure a leaf they found outside.

