

Answer Key for Observing M⁵ in Action: Addition and Subtraction

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:

[Solving an Addition Problem \(Early Elementary\)](#)

[Solving an Addition Problem \(Early Elementary\) – Audio Descriptive Version](#)

In this video, children in second grade use different materials that support them in solving an addition word problem. After solving the problem, they discuss their approach with peers.

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 children's interests, languages, cultures and lived experiences, abilities, and emerging skills and knowledge.

Possible Responses

- The educator learned about children's math and language abilities, emerging skills, and knowledge by observing children's work and their conversations with partners. For example, she asked a child to explain the strategy she had used. Then, the educator learned that the child understood the approach and how to use the materials yet made an error when swapping out the ten frames.
- The educator also observed the materials children prefer and how this influences how they share their math strategies.
- The educator learned more about children's understanding of composing and decomposing numbers and use of different materials by reviewing children's work with the whole class toward the end of the clip.

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 this 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 related to addition or subtraction.

Possible Responses

- The experience was open-ended and invited children to use different materials to solve the problem. For example, children could use base ten blocks, ten frames, or number lines to solve the problem using their own mathematical strategies.
- The educator supported children's thinking and problem-solving by asking them to explain their approach to both peers and the educator. Similarly, the educator prompted children to "try and convince each other ..." as a way to encourage children to evaluate and justify their solutions.

Materials and Learning Environment

- What did you notice about the materials and learning environment?
- In what ways did the materials and learning environment offer opportunities for children to use addition or subtraction?

Possible Responses

- The materials in the video clip included base ten blocks, ten frames, and writing materials. These materials supported children to add and subtract in different ways. For example, children could choose which concrete object (base ten blocks or ten frames) to add with. Children were encouraged to record their work in their notebooks and provide additional representations of the word problem through writing and drawing. For example, some children also modeled the problem using number lines.
- The base ten blocks and ten frames that the children used helped them skip count by ten and use visual representations to count on.

Math Vocabulary and Discourse

- What addition or subtraction vocabulary did the children or educator use?
- In what ways did the educator encourage children to notice and communicate about addition or subtraction (for example, by asking open-ended questions)?
- In what ways did the educator encourage children to participate in math discussions related to adding or subtracting? 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 adding and subtracting?

Possible Responses

- The educator and children used words like “combine” to communicate about the addition word problem.
- Children also used number words to communicate about quantity as they explained their approaches to each other and the educator.
- The educator encouraged children to participate in math discussions by inviting them to explain their approaches to a partner. The educator also modeled math discourse when she reviewed children’s work toward the end of the clip.

Multiple Representations

- What opportunities did the educator offer children to use addition or subtraction in different ways?
- What other learning experiences or materials might the educator offer to continue to build children's understanding of addition or subtraction?

Possible Responses

- The educator offered many opportunities for the children to add in different ways. For example, she encouraged them to use multiple strategies to solve the problem and model their solution. This included the use of base ten blocks, ten frames, number lines, and equations.
- The educator could also create word problems based on children's experiences or other learning across content areas.