



Preschool/TK/K

Answer Key for Observing M⁵ in Action: Spatial Thinking



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: Exploring Spatial Thinking While Building

In this video, children and their educator build a structure with blocks.

- [Exploring Spatial Thinking While Building \(3–5 years\)](#)
- [Exploring Spatial Thinking While Building \(3–5 years\) – Audio Descriptive Version](#)

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.

Some Possible Responses

- The educator was responsive to children's lived experiences. She encouraged them to build a structure of their choice—their school called, "The Lighthouse for Children."
- The educator was able to learn about children's spatial thinking (for example, a child demonstrated her understanding of "bottom" and the need to begin building the structure from the bottom up).





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 spatial thinking?

Some Possible Responses

- The experience was based on children's real-world experiences—they wanted to build their school, "The Lighthouse for Children."
- The experience was open-ended. Children could build structures of their choice and were encouraged to orient the blocks in different ways.
- The educator supported children to think critically and problem-solve by using open-ended questions (for example, she asked, "What should we start with?").
- The educator scaffolded the children's building process by supporting them in making a plan (for example, she asked, "Do you want to leave this open? Or should we add more to the middle?" and "Should we make the structure taller by making it go up?").
- The educator also narrated the process to help children notice the shape and orientation of the blocks (for example, she said, "We are adding these square blocks around and in the middle...").



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 spatial thinking?

Some Possible Responses

- The materials included blocks made of different materials and of different shapes and sizes.
- Children were able to arrange the blocks to create different structures.
- The materials encouraged children to use spatial thinking (for example, they noticed how the blocks were oriented in relation to each other). They also used mental rotation to think about how the blocks might be placed to achieve the design they wanted.

Math Vocabulary and Discourse

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

Some Possible Responses

- The educator modeled spatial vocabulary (for example, she said, “bottom,” “middle,” “around,” and “up”). She also paired some of the spatial vocabulary with gestures (for example, patting the floor when she said, “bottom”). A child also used the word “bottom” when describing where she wanted to start building.
- The educator used open-ended prompts and questions to encourage children to use discuss their structure and use spatial vocabulary (for example, she said, “What should we start with?”).





Multiple Representations

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

Some Possible Responses

- The educator offered blocks of different shapes and sizes. The different shapes and sizes might support children to use their understanding of space in different ways.
- The educator might provide other learning experiences that continue to build children's spatial thinking (for example, the educator might encourage children to construct other familiar structures with the blocks, such as building a barn for toy animals).

