Early Elementary

Answer Key for Observing M^5 in Action: Shapes

Video:

Decomposing Shapes (First Grade)

Decomposing Shapes (First Grade) – Audio Descriptive Version

Mutual Learning

- In what ways was the educator responsive to children's interests, languages, cultures and lived experiences, abilities, and emerging knowledge and skills?
- What did the educator learn about each child during this learning experience?
- In what ways did the educator respond to each child's individual needs?

Some Possible Responses

- This activity invited children to identify which shape didn't belong and explain their thinking. The educator was responsive to each child's emerging knowledge and skills. He listened to their explanations and repeated important ideas each child communicated. Through this process, the educator learned what individual children understood about shape decomposition.
- To ensure that all children could participate, the educator repeated key parts of each child's answer and extended the discussion to involve the entire group. For example, after a child explained that one of the shapes did not have equal parts, the educator pointed to each shape and asked the group, "Is this fair shares?"

Meaningful Investigations

- In what ways did this learning experience allow children to question, experiment, and use math to solve problems that they are interested in?
- What open-ended questions and prompts did the educator use to encourage children's thinking and problem-solving?
- In what ways did the educator encourage children to continue exploring and reasoning about shapes?

Some Possible Responses

- The question "Which one doesn't belong?" had many possible answers. This flexibility allowed each child to use their knowledge of shape decomposition to answer the question.
- One child used the example of a cake to explain that one rectangle was not partitioned fairly. The educator extended this real-life example by asking, "How much of the cake do you get?" Asking this question encouraged children to continue thinking about shape decomposition and use vocabulary related to fractions and partitioning.
- The educator might use additional open-ended questions to extend children's thinking and problem-solving. For example, he might ask:
  - "How might you add lines to make four equal parts?"
  - "How might we check if these two pieces are equal? What tools might we use?"

Materials and Learning Environment

- What did you notice about the materials and learning environment?
- In what ways did the materials and learning environment promote learning about shapes?
- In what ways did the materials and learning environment represent the cultural background and everyday experiences of the children?

Some Possible Responses

- The educator developed a whole group activity in which each set of pictures had multiple correct answers. As a result, children could think critically about the shapes and how they were decomposed, without the pressure of only one correct answer.
- In future shape decomposition activities, the educator might introduce items to decompose that represent the cultural background and everyday experiences of the children. For example, if the community has a bakery, children might discuss how they might fairly share a loaf of bread or pastry between friends.

Math Vocabulary and Discourse

- What shape vocabulary did the children and educator use?
- How does the educator use what they know about the children's home languages and cultural backgrounds to support children's participation in math discussion?

Some Possible Responses

- As children explained their answers, the educator introduced new vocabulary. For example, one child described how most shapes had lines that were up and down, but one shape had a line that was side to side. The educator used this opportunity to introduce "vertical" and "horizontal."

Multiple Representations

- What other learning experiences or materials might the educator provide to continue building on children's learning of shapes?

Some Possible Responses

- The educator might offer a learning experience for children to partition different shapes to get fair shares. For example, they might invite children to divide a rectangle, circle, triangle, or octagon in two, four, or eight equal pieces. This type of activity allows children to think about how different types of shapes can be divided equally while building a foundation for fractions.
- Children made connections between this activity and real-life scenarios like cutting a birthday cake. So the educator might offer other learning experiences that allow children to decompose shapes for a meaningful purpose. For example, they might plan to serve pizza for their families at Open House. Together, they would plan how many pizzas to order and how many slices of pizza they need.