

3 VIDEO #3 Shape; Parts and Whole

Overview

Mathematics in early childhood education is more than counting to 10. Teachers present a variety of experiences and provide many materials through which children learn mathematical concepts. The children by their hands-on experiences construct the mental relationships that lead to their understanding math concepts.

In this module you will see children and teachers engaged in the exploration of the concepts of **Shape** and **Parts and Wholes**. The teachers are knowledgeable about each concept. They are familiar with the children's interests and ages. This helps them plan the appropriate and stimulating experiences you see the children enjoying. You will hear the teachers asking open-ended questions enabling them to determine the children's grasp of the concepts.

Questions to Consider

1. How do children learn to recognize and name shapes?
2. What materials enhance children's learning parts and whole?
3. What do teachers do to help children learn these concepts?
4. How do teachers know if these concepts have been learned?

Vocabulary

Read these terms with their definitions before viewing the program.

Part a certain portion or amount of anything.

Shape outward form; configuration; contour.

Whole containing all the parts necessary to make up the total.

Instructional Objectives

When you have successfully completed this module, you will be able to:

1. Describe the concepts: shape, parts and whole.
2. Match each concept with materials and/or activities appropriate to learning the concept.
3. Describe how children learn the mathematical concepts: shape, parts and wholes.
4. Analyze the teacher's role in children learning to recognize and name shapes.
5. Analyze the teacher's role in children learning the relationship between parts and wholes.
6. Recognize children's behaviors which indicate level of interest in math activity.

Self-Test

After studying the objectives and watching the video tape take the self-test to check your progress.

1. Describe the following concepts:
 - a. shape
 - b. parts and wholes
2. Next to each material or activity write the math concept being learned
 - a. making fruit salad _____
 - b. identifying doughnut and pizza flannel board pieces _____
 - c. taking bites out of sandwiches and discussing results _____
 - d. putting puzzle together _____
 - e. constructing something from pipes or Legos _____
 - f. playing with blocks _____

Select the phrase which best completes the statement.

- ___ 3. In order to learn shape young children need
 - a. paper and pencil tasks.
 - b. three dimensional experiences.
 - c. information regarding length of sides and angles of a shape.
 - d. all of the above.
- ___ 4. If a child makes a mistake the
 - a. teacher should correct it immediately so the error is not set in child's mind.
 - b. teacher should encourage child to stop and try again.
 - c. child should continue activity and eventually correct mistake on his own.
 - d. all of the above.
- ___ 5. To correctly reassemble a puzzle the child should
 - a. have a mental image of the completed puzzle.
 - b. feel the contours of each piece with her fingers.
 - c. have all the pieces.
 - d. all of the above.

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- ___ 6. While building with blocks children may be learning
 - a. several concepts at the same time.
 - b. only the concept of shape.
 - c. very little about mathematics.
 - d. all of the above.

 - ___ 7. Children will show sustained interest in an activity if
 - a. the teacher insists they stay with it.
 - b. it is very easy for them to do.
 - c. they find it intellectually engaging.
 - d. all of the above.

 - ___ 8. To determine what the child has grasped of the concept the teacher may
 - a. ask "what is it?"
 - b. ask "How do you know that?"
 - c. only observe child in action.
 - d. all of the above.

 - ___ 9. Teachers organize the room so that children
 - a. may initiate shape activities in learning centers.
 - b. put materials away by matching shapes on shelves
 - c. have a variety of sensory experiences.
 - d. all of the above.

Write **T** if statement is true, **F** if it is false.

- ___10. The imaginative quality of play has no bearing on learning math concepts.

- ___11. Simple home made games are appropriate math materials.

- ___12. The average 6 year old will handle shapes only in a manipulative manner.

- ___13. Children may incorrectly assemble pieces in body parts games just to be funny.

- ___14. Through experiences such as making fruit salad children learn fractions are parts of a whole.

- ___15. Teachers should provide math terms and labels before the child has grasped the concept.

- ___16. Children need to feel in control of their learning.

Path to Math

Self-Test Answer Key

Video #1 - One to One Correspondence; Comparing

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|---|------------------------------|------|-------|-------|-------|
| 1. a. Match one object to another. | e. one to one correspondence | | | | |
| b. Finding a relationship between two things. | f. comparing | | | | |
| 2. a. one to one correspondence | 3. d | 4. b | 5. c | 6. a | 7. d |
| b. one to one correspondence | 8. T | 9. F | 10. T | 11. T | 12. F |
| c. comparing | | | | | |
| d. comparing | | | | | |

Video #2 - Classification and Seriation

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|---|---------------------------|-------------------|------|-------|
| 1. a. Organize things into groups based on some characteristic. | c. length - long to short | | | |
| b. Comparing more than two things and arranging them in order. | d. width - thin to fat | | | |
| 2. a. classification | b. seriation | c. classification | 5. b | 10. F |
| d. seriation | e. seriation | f. classification | 6. d | 11. T |
| 3. a. color | b. shape | c. size | 7. a | 12. T |
| d. function, texture, pattern | | | 8. d | 13. F |
| 4. a. pitch - high to low | | | 9. c | 14. T |
| b. size - short to tall | | | | 15. T |

Video #3 - Shape; Parts and Wholes

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|---|---------------------|----------|-------|-------|-------|
| 1. a. Recognize and name outward form of an object. | 3. b | 4. c | 5. d | 6. a | 7. c |
| b. Recognize that portions of something make a total. | 8. b | 9. d | 10. F | 11. T | 12. F |
| 2. a. parts and wholes | b. shape | c. shape | 13. T | 14. T | 15. F |
| d. parts and wholes | e. parts and wholes | f. shape | | 16. T | |

Video #4 - Space, Measurement

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| 1. a. recognizing the relationships (direction, position, distance) and uses (pattern, organization, construction). | 9. The teachers provided a variety of experiences and materials. If no climbing equipment was available they made an obstacle course using tables and chairs. They commented appropriately about what the children were doing by using <i>space</i> words referring to the child's direction and position. They asked open-ended questions which encouraged children to think about their own actions and gave teachers insights into children's thinking processes. | |
| b. determining the dimensions of anything. | They appreciated that younger children used materials more manipulatively. They asked children to make predictions, to test them, and to draw conclusions. They did not correct children's mistakes, allowing the children to find their own solutions. | |
| 2. a. space | b. space | c. measurement |
| d. measurement | e. measurement | |
| 3. a. length, height | b. weight | c. volume |
| d. quantity, width | | |
| 4. Children are learning direction - up and down; position - high, middle, low; distance - near, far. | | |
| 5. Children are learning to make patterns with the blocks, they are organizing the space when they make enclosures, and they are constructing using space as part of their structures. | | |
| 6. d | 7. c | 8. b |

Video #5 - Number and Counting; Numerals

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|---|----------------|---------------------|-------|------|
| 1. a. a collection of units. | 2. a. numerals | b. number | | |
| b. counting in order from memory. | c. numerals | d. number, numerals | | |
| c. attaching numeral names to specific number of objects. | e. number | f. numerals | | |
| d. a symbol used to express a number. | 3. b | 4. d | 5. c | 6. a |
| | 7. T | 8. T | 9. F | |
| | 10. T | 11. F | 12. F | |