

# 5 VIDEO #5 Number and Counting; Numerals

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## Overview

Mathematics in early childhood education is more than counting to ten, but knowing how to count and learning that each numeral stands for a specific number of objects are basic math concepts. Children gradually come to understand the constancy of numbers such as the threeness of three. Children are encouraged to think about numbers when the need arises naturally from any activity or experience which has some meaning for them.

In this module you will see children and teachers involved in activities which help children learn to say the numerals in correct order (rote counting) and to attach a number of units to each numeral (rational counting). You will hear the teachers ask open-ended questions to encourage the children to think critically about numbers, and you will hear the children's responses indicating their understanding of these concepts.

## Questions to Consider

1. How do children learn to count?
2. What activities and materials enhance children's learning that numerals stand for something?
3. What do teachers do to help children understand numbers and numerals?

## Vocabulary

Read these terms with their definitions before viewing the program.

**Number** a collection of units, larger or small.

**Numeral** a symbol used to express a number.

**Rational counting** attaching numeral names to a specific number of objects or units.

**Rote learning** repetitious, mechanical learning without intelligent attention.

## Instructional Objectives

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

1. Define the concepts: number, rote counting, rational counting, numerals.
2. Match each concept with materials and/or activities appropriate to learning the concepts.
3. Describe how children learn numbers, counting and numerals.
4. Analyze the teacher's role in children learning these concepts.

## Self-Test

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

1. Define each of the following:
  - a. number
  - b. rote counting
  - c. rational counting
  - d. numeral
2. Next to each material or activity write the math concept learned
  - a. making pizzas using recipe cards \_\_\_\_\_
  - b. singing *5 Little Ducks* \_\_\_\_\_
  - c. using shoe bag with different number of objects in each packet \_\_\_\_\_
  - d. listening to story *This Old Man* \_\_\_\_\_
  - e. playing *Mr. Fox*, counting steps taken \_\_\_\_\_
  - f. using class made phone book \_\_\_\_\_

Select the phrase which best completes the statement.

- \_\_\_ 3. In order to learn numbers the children need
  - a. work book materials.
  - b. opportunities to sing counting songs.
  - c. no association with other concepts.
  - d. all of the above.
- \_\_\_ 4. When learning to count rationally children should be encouraged to
  - a. touch each object counted.
  - b. set the table for a specific number.
  - c. keep scores in games.
  - d. all of the above.
- \_\_\_ 5. If a child makes a counting error the teacher should
  - a. ask the child to count again.
  - b. tell the child he has made a mistake.
  - c. let child discover own error.
  - d. all of the above.

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- \_\_\_ 6. To encourage numeral recognition the teacher
- a. provides activities which pair objects and numerals.
  - b. sings counting songs.
  - c. uses recipe cards with pictures only.
  - d. all of the above.

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

- \_\_\_ 7. Correcting own mistakes builds child's self esteem.
- \_\_\_ 8. Counting experiences should be included in all areas of curriculum.
- \_\_\_ 9. Making up game rules interferes with numeral recognition.
- \_\_\_ 10. Making graphs enhances counting skills.
- \_\_\_ 11. Children as young as three years are not interested in numbers.
- \_\_\_ 12. Questions which require children to think critically about their activity delay numeral recognition.

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# Path to Math

## Self-Test Answer Key

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### Video #1 - One to One Correspondence; Comparing

- |   |                              |      |       |       |       |
|---|------------------------------|------|-------|-------|-------|
| 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                                  |                              |      |       |       |       |
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### 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 |
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### 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 |       |
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### 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           |
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### 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 |      |
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