

# Counting Centers

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**Reporting Category** Number and Number Sense

**Topic** Telling how many are in a set by counting the number of objects orally

**Primary SOL** K.2 The student, given a set containing 15 or fewer concrete objects, will  
a) tell how many are in the set by counting the number of objects orally.

**Related SOL** K.1, K.2b, c, K.4a, b, K.6

## Materials

- Toothpicks
- Glue
- Connecting cubes
- Tiles
- Pattern blocks
- Lima beans painted on one side
- Geoboards
- Squares of paper that will fit between the nails on the geoboards

## Vocabulary

*set, empty set, numeral, number, zero (0), one (1), two (2), three (3), four (4), five (5), six (6), seven (7), eight (8), nine (9), ten (10), eleven (11), twelve (12), thirteen (13), fourteen (14), fifteen (15)*

## Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

Note: Prior to instruction, set up materials in a learning center format, as explained below.

Students will explore one number for several days. When they have had sufficient practice with that number, they will explore the next number, using the same learning centers.

1. Group students so that each student can be involved with the materials in several learning centers. It is not necessary for each student to have equal experience with each material. Demonstrate use of one of the materials, such as the toothpicks, as follows.
2. For the number 4, arrange four toothpicks in a design, and show it to the students. Distribute four toothpicks and a sheet of 6 x 9 inch dark construction paper to each student. Explain to students that the one rule they must follow when creating their designs is that all materials must touch at a corner or on a side. Have students make different designs with four toothpicks. Talk about the different designs, pointing out all the different designs the students made. Allow the students time to continue exploring the number 4 by making as many designs as they can. After students have created many different designs, have them choose one design to record on their paper by gluing the toothpicks to the paper.
3. After a designated time, have the students move in groups to other centers to explore the same number, using different materials. Listed below are the materials and recording activities for the other centers:

- **Tile Center:** Place a variety of ceramic tiles or colored tiles on the table. Remind students that when they arrange the given number of tiles, every tile must touch a corner or at least part of the side of another tile. Provide precut paper tiles for students to glue to 6 x 9 inch drawing paper to record their arrangements, or have students trace around the ceramic tiles and then color their tracings.
- **Pattern Block Center:** Provide pattern blocks in two different shapes. Have students arrange a given number of blocks into several designs. Provide cut-out pattern block shapes for students to glue to 6 x 9 inch drawing paper, or have students trace their pattern block designs and color their tracings.
- **Connecting Cube Center:** Provide connecting cubes in two different colors to make different patterns with the number being explored. Ask students to describe the stacks of cubes by determining the total number of each color grouped together as they read from left to right. Have students trace each cube on 6 x 9 inch drawing paper and color in the combinations of each color that equal the total number.
- **Geoboard Center:** Provide geoboards and squares of paper that fit between the nails on the geoboard. Have the students use a given number of paper squares to make different arrangements on the geoboard. Students may then glue the paper squares in the same arrangement onto a piece of dark construction paper that is the same size as the geoboard.
- **Beans Center:** Prepare lima beans by spray painting them on one side. Provide a given number of beans in a cup to each student. Have students “spill the beans” and read their number combinations, e.g., 3 red beans and 2 white beans. Instruct students to record their number combinations by using a recording sheet with bean outlines that can be colored, or by recording the number sentence.

### Assessment

- **Questions**
  - “How did you decide how to make your toothpick design? How do you know there are four toothpicks?”
  - Show the students two recording sheets for the same number showing that number with the same manipulative and a different arrangement or with different manipulatives. “How are these designs the same? How are they different?” Repeat with designs from other materials and numbers.
- **Journal/Writing Prompts**
  - “Show the number 4.”
  - Direct students to put a predetermined number (up to 15) of stickers on a page. “Show how you count the stickers.”
- **Other**
  - Observe students in each of the centers. Ask questions relating to the designs they create. Ask them to talk about the number combinations they see in their designs.
  - Use recording sheets for assessment purposes.

### Extensions and Connections (for all students)

- Have students fold a 12 x 18 inch piece of newsprint into eight boxes. As they move through the centers, have them create designs in each of the eight boxes with the

materials. Then, have them record number sentences that represent their designs. When they have completed their number sentences, have them clear their materials and move on to the next center, where they will recreate the designs to match the number sentences they have written.

- Have the students create booklets from their recording sheets to represent the numbers.
- Create a class book from student recording sheets to represent the numbers.

**Strategies for Differentiation**

- Lead students in creating a picture chart of classroom items to count and record. The chart might include items such as desks, chairs, flags, computers, trash cans, and pencil sharpeners.
- For students requiring additional support with mobility and performance of the tasks in each counting center (counting, patterning, grouping, recording, writing), assign a peer buddy or classroom aide to assist with any switch-activated devices and to give visual or occupational support as needed.