Number Rods

Sample task from achievethecore.org
Task by Illustrative Mathematics, annotation by Student Achievement Partners

WHAT WE LIKE ABOUT THIS TASK

Mathematically:
- Connects counting, cardinality, and linear ordering of numbers (K.CC.B)
- Builds meaning for numbers 11–19 as ten ones and some more ones (K.NBT.A.1)
- Relates concrete quantities and abstract symbols (MP.2)

In the classroom:
- Uses concrete representations to make the mathematics explicit
- Allows for group or individual work
- Can lead into related discussions (such as one more / one less)

MAKING THE SHIFTS[1]

Focus	Belongs to the major work[2] of kindergarten	
Coherence	Prepares for first grade work in multi-digit operations	
Rigor[3]	Conceptual Understanding: primary in this task	
	Procedural Skill and Fluency: secondary in this task	
	Application: not targeted in this task	

[1]For more information read Shifts for Mathematics.
[2]For more information, see Focus in Kindergarten.
[3]Tasks will often target only one aspect of rigor.

ADDITIONAL THOUGHTS

When using manipulatives, it is important for the concrete objects to represent the mathematics faithfully. In this case, the two colors for the cubes correspond directly to the two places in the numbers 11–19. Second, it is important always to connect manipulatives to written symbols and methods. In this case, students connect the cubes to written numerals. For more information on best practices with manipulatives, read page 19 of the Publishers' Criteria, available at on www.achievethecore.org/publisherscriteria.

For more insight on the concepts in this activity, read pages 4 and 5 of the progression document, *K Counting and Cardinality; K–5 Operations and Algebraic Thinking,* available on www.achievethecore.org/progressions.

K.CC Number Rods

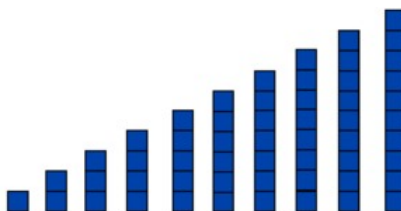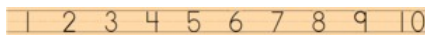## MATERIALS

- Unifix cubes or snap cubes, composed into rods with 1-10 cubes (or any counting sequence the class is currently working on within 20)

If the chosen number range includes numbers greater then 10, then make the rods using two colors so that the set of 10 in easily identified (see the image in the solution).

- A number line for the chosen number range

ACTION

The students count the number of unifix cubes then match the rod up to the correct number of the number line. Students can work in pairs or on their own.

Commentary

This activity gives students practice counting for meaning. This task also allows students to see the size of the rod grow as the number gets larger.
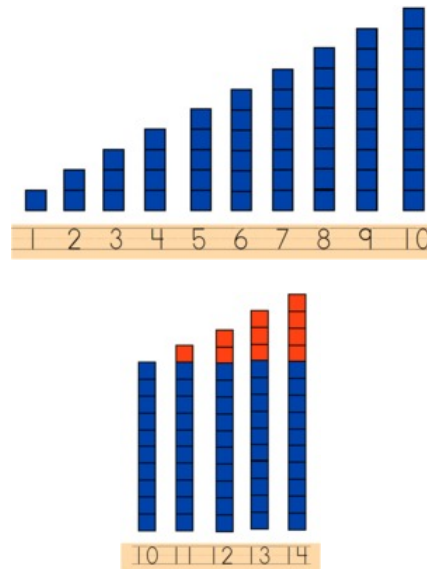
One variation of this game is to give students a tub of unifix cubes and have them build the rods. However, this version is for students who are proficient counters. Students whose counting skill are still emerging will do better with the number rods already made for them.

As an extension, students can be asked to figure out why 2 colors were used to represent the numbers larger than 10. Also students can be asked what they notice about the cubes as you go from one number to the next (up or down). This could lead to a good discussion on one more and one less.

Materials Note: Very long rods of unifix cubes can break easily. Check to make sure each rod is intact before students start the game. Also instruct students to handle the rods carefully if the rods are longer then ten cubes. If the teacher does not have access to unifix cubes or snap cubes, or colored number strips could be made on heavy-duty paper.

Solution: 1

Students will match the rods to the number line so that each rod is above its number.