



CONSTRUCTING TASK: The Cardinal Cup (0-10) [Back To Task Table](#)

Approximately 1-2 days, then repeated

STANDARDS FOR MATHEMATICAL CONTENT

MGSEK.CC.1 Count to 100 by ones and by tens.

MGSEK.CC.2. Count forward beginning from a given number within the known sequence (instead of having to begin at 1).

MGSEK.CC.4 Understand the relationship between numbers and quantities; connect counting to cardinality.

- a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. **(one-to-one correspondence)**
- b. Understand that the last number name said tells the number of objects counted **(cardinality)**. The number of objects is the same regardless of their arrangement or the order in which they were counted.
- c. Understand that each successive number name refers to a quantity that is one larger.

STANDARDS FOR MATHEMATICAL PRACTICE

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

BACKGROUND KNOWLEDGE

Students should learn that counting objects in a different order does not alter the result, and they may notice that the next whole number in the counting sequence is one more than the number just named. Children should learn that the last number named represents the last object as well as the total number of objects in the collection (NCTM Principles and Standards, 2012).

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For more information about common misconceptions, please refer to the unit overview.

ESSENTIAL QUESTIONS

- Why do we need to be able to count objects?
- Why do we need to be able to count forwards and backwards?

MATERIALS

- Cardinal Cup playing mat
- Playing cards from [*Numerals, Pictures, Words*](#) Task
- (10) cubes or counters for the cup and 20 counters to keep score
- Cup
- Math journal to record numbers

GROUPING

Whole group and partner task

TASK DESCRIPTION, DEVELOPMENT, AND DISCUSSION

Part I (counting forward)

Students use the task cards from *Numerals, Pictures and Words* and place them in a pile face down. Player 1 turns over the top card and places that many cubes in the cup and counts out loud as each cube is placed into the cup. Once Player 1 is finished counting, Player 2 removes the contents from the cup and verifies that the correct number of cubes was placed in the cup by placing the counters on the counting mat. (1-to-1 correspondence). If the player was correct in counting out the cubes they receive 1 chip to be placed on their ten-frame. The first player to fill up their ten frame wins.

As students place cubes on the number line ask questions that pertain to ordinal numbers and positional words. What color is the 5th cube? What color is next to the 7th cube? (SMP 2, 3, 4, 5, 6)

Part II (counting forward and/or backwards)

Students use the task cards from *Numbers, Pictures, Words* and place them in a pile face down. Player 1 turns over the top card and places that many cubes in the cup and counts out loud as

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each cube is placed into the cup. Once Player 1 has finished placing all the counters into the cup, they turn over the next card from the pile and add/ remove cubes to/ from the cup to match the second card. As player 1 adds/removes cubes from the cup they must count out loud forward or backward in sequence, with the starting number being the quantity in the cup. *The key is that player 1 must mentally retain the number of cubes that were in the cup after the first card and adjust the quantity in the cup without recounting the initial set of cubes. The new quantity must match the number displayed on the second card.*

After Player 1 has made the necessary change to the cup, Player 2 dumps the cup out to verify that the quantity in the cup matches the second card by using the counting mat. If the card and quantity match, player 1 gets a chip to place on their ten frame. The first player to fill up their ten frame wins. (SMP 1, 2, 3, 4, 5, 6, 7, 8)

Comment:

- Students can record the numeral they counted in their journal for practice.
- Ordinal numbers and understanding of positional words can be introduced /revisited through teacher questioning. (Example: What was the second number you had to count?)
- Only using two different colored cubes would allow students to count while creating a pattern. (Example: 1st cube red, 2nd cube blue, 3rd cube red, etc...)

TEACHER REFLECTION QUESTIONS

- Are students able to count dots/counters with one-to-one correspondence?
- Are students able to identify ordinal positions using the number line?
- Are students able to mentally retain the number of cubes in the cup after the first count?
- Are students able to adjust the quantity in the cup without recounting the initial set of cubes?

FORMATIVE ASSESSMENT QUESTIONS

- How many cubes are there in this *set*?
- How do you know that you counted correctly?
- What color is the 5th cube? (ordinal numbers)
- What color comes after the blue cube? (positional words)
- If you created a pattern using red, blue, red, blue (ABAB) what color would the 7th cube be?

DIFFERENTIATION

Extension

- Ordinal numbers and understanding of positional words can be introduced /revisited through teacher questioning.
- Only using two different colored cubes would allow students to count while creating a pattern. (Example: 1st cube red, 2nd cube blue, 3rd cube red, etc...)

Intervention

- Repeated practice is the best intervention. To develop counting, engage students in almost any game or activity that involves counts and comparison.
- Have students model the Cardinal Cup with their Rekenrek or ten-frame.

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TECHNOLOGY

Five Frames: <http://illuminations.nctm.org/ActivityDetail.aspx?ID=74>

Students manipulate objects to fill and answer the question “how many” in a five frame.

Ten Frames: <http://illuminations.nctm.org/ActivityDetail.aspx?ID=75>

Students manipulate objects to fill and answer the question “how many” in a ten frame.

Number Rack (Rekenrek): <http://www.mathlearningcenter.org/web-apps/number-rack/>

Students use the number rack to develop an understanding of number and quantity.

Concentration: <http://illuminations.nctm.org/ActivityDetail.aspx?ID=73>

Students play concentration finding the number word that matches the numeral, ten frame or dot representation.