CONSTRUCTING TASK: The Cardinal Cup Revisited

STANDARDS FOR MATHEMATICAL CONTENT

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

MCC.K.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.
b. Understand that the last number name said tells the number of objects counted. 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

Children will learn *how* to count (matching counting words with objects) before they understand that the last count word indicates the *amount* of a set or the *cardinality* of a set. Children who have made this connection are said to have the *cardinality principle,* which is a refinement of their early ideas about quantity. (Van de Walle, 2006, p.39)

ESSENTIAL QUESTIONS

- Why do we need to be able to count objects?
- How do we use numbers every day?
- How do we use counting in our everyday life?
- Why do we need to be able to count forwards and backwards?

MATERIALS

- Cardinal Cup playing mat
- Playing cards from *Numerals, Pictures, Words*
- 20 objects for the cup and 20 counters to keep score
- Cup
- 6 or 10 sided dice or spinner
- Math journal to record numbers

GROUPING

Whole group/partners

TASK DESCRIPTION, DEVELOPMENT, AND DISCUSSION

Part I (counting forward)

Students use the task cards from *Numbers, Pictures, Words(11-19)* and place them in a pile face down. Player 1 rolls the dice and places the corresponding number of objects in the cup. *Example: if a 4 was rolled, then player 1 places 4 counters in the cup.* Player 1 then turns over the top card and counts on from the number of objects in the cup to the number shown on the card. Player 1 counts out loud as each object 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 objects on the counting mat. (1-to-1 correspondence) If the player was correct in counting out the objects they receive 1 counter to be placed on their ten-frame. The first player to fill up their ten frame wins.

Part II (counting forward and/or backwards)

Students use the task cards from *Numbers, Pictures, Words (11-19)* and place them in a pile face down. Player 1 rolls the dice and places the corresponding number of objects in the cup. (*Example: if a 4 was rolled then player 1 places 4 counters in the cup).* Player 1 then turns over the top card and counts on from the number of counters in the cup to the number shown on the card. Player 1 counts out loud as each counter 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 in forward or backward 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.

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?

FORMATIVE ASSESSMENT QUESTIONS

- How many counters are there in this *set?*
- How do you know that you counted correctly?
- What strategy did you use to count forward/backwards?
- Is the number closer to 10 or 20? How do you know?

DIFFERENTIATION

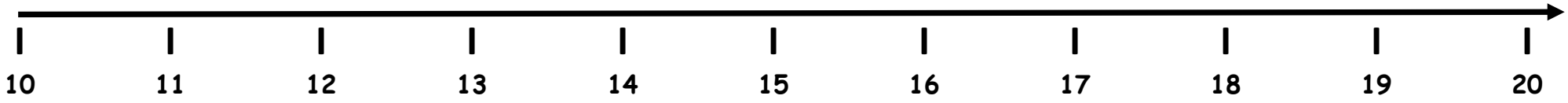
Extension

- 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 a Rekenrek or with a ten-frame.

The Cardinal Cup



Player 1 Scoreboard

Player 2 Scoreboard