Constructing Task: Moving a Cup of 10

STANDARDS FOR MATHEMATICAL CONTENT

MCCK.NBT.1 Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., 18 = 10 + 8); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

MCCK.CC.3 Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).

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

b. 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.

MCCK.CC.5 Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.

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

This task focuses on the set of ten and leftovers. Students begin to understand that numbers 11 to 19 are composed of ten ones and one, two, three, four, five, six, seven, eight or nine ones. Kindergarteners need to understand the idea of a ten so they can develop the strategy of adding onto 10 to add within 20 in Grade 1. Manipulatives should be used to model and connect numbers between 11 and 19 to ten ones and some "left over". Such as, thirteen is 10 ones and 3 more. When children are working on counting objects, they should explore different relationships within the number that would make the number easier to count.

ESSENTIAL QUESTIONS

- What is an efficient strategy for counting teen numbers?

MATERIALS

- (1) six sided dice
- Cup
- 20 counters
- *Moving a Cup of 10* task sheet
- *Moving a Cup of 10* recording sheet

GROUPING

Partner task

TASK DESCRIPTION, DEVELOPMENT, AND DISCUSSION

Place cup in the blank circle and roll die 3 times. After EACH roll, player 1 puts the counters in the cup and counts aloud. Try to remember how many counters were in the cup between each roll to continue counting-on.

Once the cup has 10 counters, slide the cup over and place the leftover counters in the circle. If the amount of counters in the cup does not reach 10 it does not slide over. After each roll, player 1 states the total amount of counters. (*I have 7 ones in the cup and that makes 7* OR *I have a cup of ten and 3 more which makes 13).*

Each time the player rolls, they record the last number on the *Moving a Cup of 10* recording sheet. In the column that states *I have…* students should record what they have as it relates to a ten and ones. *(Example: 8 …The students would record "8 ones" or for 12 the students would state " 1 ten and 2 more")*

After player 1 has stated the total amount of counters, player 2 dumps out the cup and counts the total number of counters earned after 3 rolls of the dice. Player 2 verifies that player 1 was correct in determining the total.

Comment: THIS IS NOT A LESSON OF PLACE VALUE AND SHOULD NOT BE TAUGHT AS SUCH. Instead this lesson should focus on making a ten, then counting-on, which is part of the foundational understanding to place value.

FORMATIVE ASSESSMENT QUESTIONS

- How many more counters do you need to fill your cup?
- If I took 1 counter out of your cup how many would be in there?

- If I added 1 more how many would be in there?
- What is the least amount of counters you could have in your cup after 3 rolls? Explain?
- Is the number closer to 10 or 20? How do you know?
- What is the greatest amount of counters you could have in your cup after 3 rolls? Explain?

DIFFERENTIATION

Extension

- Have students play without the recording sheet to work on number retention. Each time the student rolls the dice s/he must mentally retain the number at which they are, and continue the counting sequence, which improves a student's counting on abilities.

Intervention

- Have students place the counters next to the cup before making a cup of ten to reinforce counting and cardinality. Some students will struggle with remembering the amount of counters in the cup and with how to start counting from a number other than 1.
- Allow students to model using a number line or double ten-frame to keep track of the amount of counters used. In addition, the number of rolls used could be limited to 2.

Moving A Cup of 10

Place cup in the blank circle and roll 3 times. After EACH roll, player 1 puts the counters in the cup and counts aloud. Try to remember how many counters were in the cup between each roll to continue counting on.

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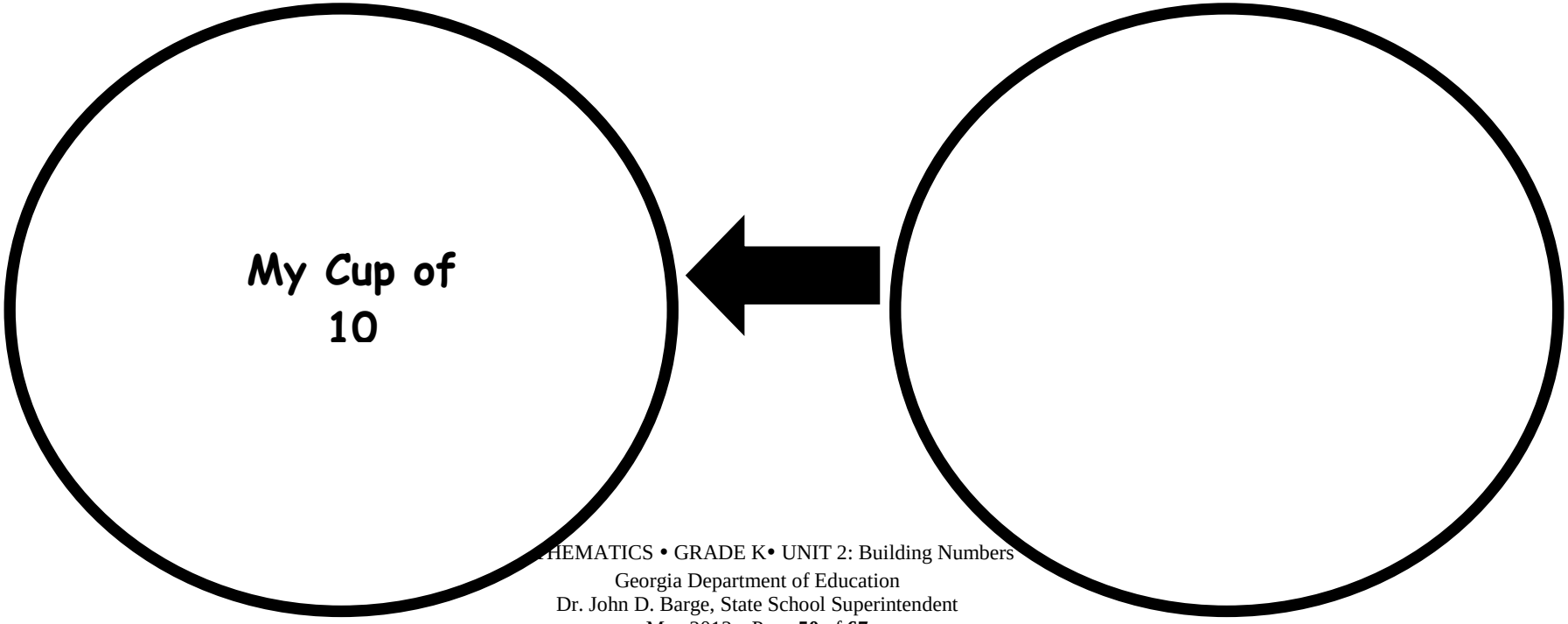

Moving a Cup of 10

1st Roll	2nd Roll	3rd Roll	I have….