

PRACTICE TASK: Counting Cup

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Approximately one day, but this lesson is designed to be repeated as students become ready for numbers up to 20. So, the first experience with the Counting Cup could have counters up to 12. The second experience with the Counting Cup could have numbers up to 14, etc. (Adapted from K-5 Math Teaching Resources.com)

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.
6. Attend to precision.

STANDARDS FOR MATHEMATICAL CONTENT

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

MGSEK.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).

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)

MGSEK.CC.5 Count to answer “how many?” questions.

- a. Count to answer “how many?” questions about as many as 20 things arranged in a variety of ways (a line, a rectangular array, or a circle), or as many as 10 things in a scattered configuration.
- b. Given a number from 1-20, count out that many objects.

MGSEK.CC.6 Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.

MGSEK.CC.7 Compare two numbers between 1 and 10 presented as written numerals.

MGSEK.MD.3 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.

BACKGROUND KNOWLEDGE

This task focuses on counting and communicating quantities up to 20. Note: Use items that are all the same in the cup (i.e. all counters, all bears, all beans, etc.). After the students are familiar with counting up to 20 objects by ones, have them explore different ways to group the objects that will make counting easier. Have them estimate before they count and group. Discuss their groupings and lead students to conclude that grouping by ten is desirable. *10 ones make 1 ten* makes students wonder how something that means a lot of things can be one thing. They do not see that there are 10 single objects represented on the item for ten in pre-grouped materials, such as the rod in base-ten blocks. Students then attach words to materials and groups without knowing what they represent. Eventually, they need to see the rod as *a ten* that they did not group themselves. Students need to first use materials that can be grouped together to represent numbers 11 to 19 because a group of ten such as a bundle of 10 straws, or a cup of 10 beans, makes more sense than *a ten* in pre-grouped materials.

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

ESSENTIAL QUESTIONS

- How do you know how many objects you have?
- How do you know if you have more or less than your partner?

MATERIALS

- Paper/plastic cups with 10-19 counters in each cup.
- 12 Counters for each child (or items with likeness) with an increase each time the Counting Cup is used.
- *The Counting Cup* recording sheet

GROUPING

Partner

TASK DESCRIPTION, DEVELOPMENT AND DISCUSSION

Place different quantities of objects into cups in a central location of the classroom. There should be at least 1 cup per student but having more is encouraged so that students do not have to wait for their next cup to become available. Label each cup with a different letter of the alphabet. Gather the students together to model how to use the Counting Cups.

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Using one cup, model the task for students by tipping out the objects in the Counting Cup. Once the cup is poured out, have the students make estimations as to how many counters were in the cup. What an estimate is and strategies for how to make appropriate estimations may need to be reviewed. Have the students explain their strategy for estimating that number. Show students where to record their estimate using the recording sheet.

After making an estimate, have the students count the counters as they lie, without moving them. The counters may be touched, but not moved or reorganized for counting purposes. Observe which students are able to count objects in a scattered pattern. After counting the objects as they lie, have students count using various organization strategies such as the Ten Frame, making an array or lining them up in a straight row. (SMP 1,2,3,4,6)

Comment: As students count the number of objects, ask them to count backwards from the total number of counters backwards to 10 or 0.

Once students have estimated, counted, and recorded their cup, have students return cups to the central location or switch cups with another student and repeat the steps.

As the session of *Counting Cups* comes to a close, gather students to the meeting area and have them share and compare the amount of objects counted in each cup. If students have disagreements, have them return to the cup and verify which quantity is correct.

TEACHER REFLECTION QUESTIONS

- Are students able to provide a reasonable estimate?
- Are students able to count objects using one to one correspondence?
- Are students able to count backwards or forwards to the nearest benchmark number?
- Are students using grouping strategies to count objects quicker?
- Are students able to write numerals correctly?

FORMATIVE ASSESSMENT QUESTIONS

- How many objects did you have in your Counting Cup?
- How close was your estimate to the actual number of counters in the cup? How do you know?
- How many more would you need to have 20?
- How many would you need to take away to have only 10?

DIFFERENTIATION

Extension

- Provide students with cups that have more than 20 items. Have students count the items in the cup and observe which students automatically group items into sets of ten.

Intervention

- Provide a double ten frame for the students to organize their counters and/or have students model the number they counted by using a Rekenrek.

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