PRACTICE TASK: Riddle Me This

Approximately 1 day , then repeated (Adapted from VdW Activity 5.6)

STANDARDS FOR MATHEMATICAL CONTENT

MCC1.NBT.1 Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

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

An important variation of the grouping activities is aimed at the equivalent representations of numbers. Students need to be able to think flexibly about numbers. Many students have a difficult time understanding that 10 is actually a unitization of 10 ones. For example: most students will see 21 as a 2 groups of ten and 1 one, which is correct, however they must also begin to see that 21 is also 1 ten and 11 ones. This flexible view of number supports strategy development later.

ESSENTIAL QUESTIONS

- What is an effective way of counting a large quantity of objects?
- How can we represent a number with tens and ones?
- How can we use counting to compare objects in a set?

MATERIALS

- 0-99 Chart
- Base-ten blocks, ben sticks, dot sticks
- Folder (to hide riddle)

GROUPING

Partner, small group, whole group

TASK DESCRIPTION, DEVELOPMENT AND DISCUSSION

Gather students in a common area and present several riddles to them. Allow student access to base ten blocks, ten frames, bean sticks, dot sticks, or any other manipulative that allows them to see numbers and quantities as tens and ones. Create several base ten riddles for students to solve using the manipulatives.

Sample riddles:
- I have 2 tens and 1 one. What number am I?
- I have 6 ones and 3 tens. What number am I?
- I have 3 tens and 11 ones. What number am I?

Have students share how they solved the mystery riddle. Once students are comfortable with the concept, have them work in pairs to solve the riddles.

Once students are familiar with concept and have solved various teacher prepared riddles, have them create a riddle of their own using the base ten blocks, bean sticks, or dot sticks. They can do this with a partner. One partner will create a riddle and hide it from the view of their partner. He or she will then describe what their number looks like (example: I have 3 tens and 4 ones). The other partner tries to solve the mystery riddle. If they are correct, they switch roles.

This task should be continued throughout the unit and revisited throughout the year. To meet the needs of all students, the complexity of the riddles should increase, in addition to the quantity of the mystery number. Examples of how to increase the complexity of riddles:
- I am 32. I have 12 ones. How many tens do I have?
- I have 22 ones. I am between 80 and 90. How many tens do I have?

Student-created riddles can be placed in a center to allow other classmates to solve them.

FORMATIVE ASSESSMENT QUESTIONS

- How many ones make up the mystery number?
- How many groups of ten make up the mystery number?
- What strategy did you use to solve the mystery riddle?

DIFFERENTIATION

Extension
- The complexity of the riddles and how they are presented to students can easily extend this lesson. Allowing students to create riddles that do not list numbers as only tens and ones gives great insight into the student's understanding of numbers and how they can represent numbers in multiple ways.

Intervention
- There is a similar task in the kindergarten frameworks, *Riddle Me This,* during which students create riddles using a number line from 0-20.
- Students can use a 0-99 chart, or the number line from the *Make It Straight* task, to help them solve the riddles.