CONSTRUCTING TASK: Our Number Riddles

Approximately 3-4 Days

STANDARDS FOR MATHEMATICAL CONTENT

MCC.2.OA.1 Use **addition** and **subtraction** within 100 to solve one- and two-step word problems involving situations of **adding to**, **taking from, putting together, taking apart,** and **comparing,** with **unknowns** in all positions, e.g., by using drawings and **equations** with a symbol for the **unknown** number to represent the problem.

MCC.2.OA.2 Fluently **add** and **subtract** within 20 using mental strategies. By end of Grade 2, know from memory all **sums** of two one-digit numbers.

MCC.2.NBT.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

STANDARDS FOR MATHMATICAL 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.

*****Mathematical Practices 1 and 6 should be evident in EVERY lesson. *****

BACKGROUND KNOWLEDGE

Students may revert to counting one by one as a strategy and ignore the efficient strategies they have learned when they are writing and completing/figuring out riddles. Providing a list/chart of facts and strategies your students have come up with for solving different facts is a helpful resource for them to refer to while creating their riddles. It is important in this task to make sure students are explaining why they are selecting the clues for their riddle.

These riddles will address many different standards and involve listening and problem solving strategies. This task builds on work in previous tasks – Different Paths, Same Destination and Number Destinations. Please make sure to review these tasks if you have not already completed them with your students.

When assessing student work, keep in mind that the focus should be on the clues that correctly describe the number. Arrangement of the clues from general to specific is ideal but not expected.

This arrangement of clues is ideal, "I am odd. I am a 2-digit number. The sum of my digits is 10. I am one less than 74." However, any arrangement should be accepted as mastery.

ESSENTIAL QUESTIONS

- How can different combinations of numbers and operations be used to represent the same quantity?
- How can we use skip counting to help us solve problems?
- How does using ten as a benchmark number help us add or subtract?

MATERIALS

- 99 chart per partner set for reference
- Sticky notes
- "Number Riddles" student task sheet
- "Make Your Own Number Riddles" student task sheet

GROUPING

Large Group, Partners

TASK DESCRIPTION, DEVELOPMENT, AND DISCUSSION

Part I
Provide a copy of the 99 chart for each student. The teacher thinks of a two-digit number less than 20. (Example – 18). Do not tell the class what it is. Instead, write it on a Post-it note that cannot be seen by the students. Then have students record their guess of what number is written on the post it note. Have students place their sticky note on their palm and come stand in a circle in the meeting area. Begin saying clues about your number, one at a time. "My number is an even 2 digit number." Students who have an even number on their sticky note will raise their hands. Anyone without their hand raised sits down in the circle. The teacher should verify student responses and ask questions if needed. The students with even numbers should remain standing. Continue with the next clue, such as "My number is a 2 digit number." Students who have a two digit number should remain standing and raise their hand. The teacher then verifies their number and others will sit down. The teacher then gives an additional clue, "My number is ten more than 8." If needed, teacher continues with another clue, "My number has an 8 in the ones place." Students who have 8 in the ones place will remain standing and teacher will verify that a student has chosen 18 as their number.

Continue with various examples to develop student's fluency with this game. As students become more comfortable with the game, provide more challenging clues.

Some other examples of number riddles are:

- My number is even/odd.

- My number is a ___digit number.
- My number is 10 less than _____.
- My number is 10 more than _____.
- My number is 1 less than _____.
- My number is 1 more than _____.
- My number is 5 more than _____.
- My number is 5 less than _____.
- My number is 2 less than_____.
- My number is 2 more than_____.

More challenging examples of clues are:

- If you subtract 3 from my number, you get _____.
- If you start at 0 and count by 5's, you will say my number.
- My number has 2 digits, one is even and one is odd.
- My number is the sum of 10 and 12.
- If you add the digits in my number you get_____.
- If you subtract the digits in my number you get_____.
- My number is 10 more than 40 and ten less than 60.
- I am the value of 6 nickels and 3 pennies.

Part II
Students work with a partner to complete the "Number Riddles" task sheet.

After ample time to complete the task sheet, gather students together and share answers from sheet. Then allow partners to share the riddle they created as part of the task sheet.

Part III
Students work with a partner to complete "Make Your Own Number Riddles" task sheet.

After ample time to complete the task sheet, each set of partners will team up with another set of partners and take turns solving each other's riddle.

Part IV
Special Comment- This part of the task is for individual practice

Ask the children to work individually to choose a number and write at least 3 clues about the number they chose. The students should write their secret number on the back of their work and the clues on the front.

Once the students have written their clues, select a few students to share his/her clues and see if the class can determine his/her number. The child that correctly determines the number gets to share their clues next. Listen for the use of benchmark numbers such as 10 as students are reading their clues.

FORMATIVE ASSESSMENT QUESTIONS

- How did you decide what clues to write in your riddle?
- Where did you include skip counting in your clues?
- Is there a clue that talked about the money value of your number? If so how did you figure out the amount? How did you count it?
- Did you include a clue about your number being even or odd?
- How do you know if a number is even or odd?

DIFFERENTIATION

Extension

- Challenge students to create numbers riddles for numbers larger than 100.
- Using the number riddle they have written for numbers larger than 100, have students write successive clues so the next clue is built on from the first clue. They will have to hold on to first clue when next one is added.

Intervention

- Limit the numbers students work with to less than 20.
- Provide 99 chart, manipulatives and numberline for students.
- Students complete Number Riddles Version #2 task sheet.

Name_____

Number Riddles

	Clues	Secret Number
1	I am 10 more than 60? What number am I?	
2	I am 1 less than 32. What number am I?	
3	I am the sum of 3 groups of 10. What number am I?	
4	I am an even number. If you have 5 groups of me, you have 10. What number am I?	
5	I am the value of 5 dimes. What number am I?	
6	I am 10 more than 80 and 10 less than 100. What number am I?	
7	I am an odd number. I have 7 tens and 5 ones. You can also discover me by having three quarters. What number am I?	
8	I am the sum of 4 and 5. What number am I?	
9	I am greater than 20. I am less than 22. I am an odd number. What number am I?	
10	Create your own number riddle with your partner.	

Name_____

Make Your Own Number Riddles

Clues	Secret number
I am 10 more than _____? What number am I?	
I am one less than _____. What number am I?	
I am the sum of _____ groups of 10. What number am I?	
I am a/an _____number. If you have _____groups of me, you have _____. What number am I?	
I have _____ tens, and _____ ones. I am a/an _____ number. What number am I?	
I am the value of _____ dimes. What number am I?	
I am 10 more than _____ and 10 less than _____. What number am I?	
I am greater than _____. I am less than _____. I am a/an _____ number.	