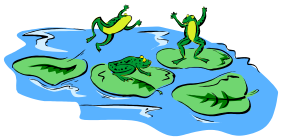
CONSTRUCTING TASK: Hopping Around



Approximately 1-2 days

SANDARDS FOR MATHEMATICAL CONTENT

MCC1.NBT.4 Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.

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

The focus of the task is to develop an understanding of the relationship between addition and subtraction. This task serves as a learning task; however, similar work should continue through various routines. Add these conversations to the meeting time to support continued use of these concepts with these combinations. Be sure to discuss the concept of 0 and what happens when it is added or subtracted. These conversations are important for developing the relationship between addition and subtraction. In order to complete this task, students should have had multiple opportunities to decompose numbers and relate numbers to benchmarks such as five and ten.

ESSENTIAL QUESTIONS

- How can different combinations of numbers and operations be used to represent the same quantity?
- How are the operations of addition and subtraction alike and different?

MATERIALS

- Large number line (using masking tape or other materials)
- *Ready, Set, Hop* , by Stuart Murphy, or similar book
- Blank 0-99 and 100-199 chart for creating a number line
- Set of addition/subtraction flash cards

GROUPING

Large group

TASK DESCRIPTION, DEVELOPMENT, AND DISCUSSION

Part I
Gather students in a common area. Read *Ready Set Hop* , by Stuart Murphy, or similar book. Encourage students to act out the story using an interactive number line. Ask students, "What happens if the frog hops forward? Backwards?" Create a number line from 0 to 30 on the floor using masking tape or something similar. Allow the students to demonstrate addition and subtraction equations that are discussed in the book by hopping forward or backward on the number line. Discuss how the number line helps to keep track of numbers. What strategies can be used when adding and subtracting on the number line?

Next the teacher models addition and subtraction stories using larger numbers. Try several scenarios of frogs jumping, allowing students to move up and down the number line.

You will want to connect your benchmark numbers by solving addition problems such as 28 + 14 = by saying 28 + 10 = 38, 38+4 (more) = 42, and solving subtraction problems such as 34 – 12 by saying 34 – 10 = 24, 24 – 2 (more) = 22.

Sample problems:

- 9 + 6 =
- 8 + 9 =
- 13 + 15=
- 18 – 7 =
- 15 – 6 =

Part II
Students will create a number line of their own using a blank 0-99 chart. The teacher will hand out the blank chart and have students fill in the numbers on their own. Discuss what the "decades" are on a 99 chart. The teacher will ask similar questions, "How can we locate these easily? How do the

decades help us count easily?" The students will color each decade a different color. Cut and tape the edges to create a long number line.

Next students will use a set of addition/subtraction flash cards and practice using the number line with a partner. One partner will hold a flash card, while the other partner models the problem on the number line. It is important for the students to talk about the strategies they are using on a number line. Encourage these conversations between partners. The teachers should walk around and question students while they are working. Ask questions similar to: What happens when we add zero? Or we take zero away? What happens when we add 10? Or we take 10 away? Why is the sum not affected by the order of the numbers? Why is the difference affected by the order of the numbers?

FORMATIVE ASSESSMENT QUESTIONS

- How can a number line help you add or subtract?
- What strategies can you use with larger numbers in addition and subtraction?
- Can you use different combinations of numbers and operations to represent the same quantity? Give an example.
- How are the operations of addition and subtraction alike and different?

DIFFERENTIATION

Extension

- Give students an additional blank chart and extend the activity with a 100-199 chart.

Intervention

- The website http://nlvm.usu.edu/en/nav/frames_asid_156_g_1_t_1.html, gives practice with addition and subtraction. The students may work as a large group or with partners as the number of computers allows. Begin with addition problems, then move to subtraction problems. The students should draw what they think the number lines will look like and discuss their number lines and their answers. Then have the computer show the correct answer. This could even be used as a game or competition with prizes appropriate for your class. The game could be repeated on multiple days to reinforce this concept. This website requires the use of Java.

Blank 0-99 Chart

Blank 100-199 Chart