CONSTRUCTING TASK: I Have a Story, You Have a Story

Approximately 1 Day

STANDARDS FOR MATHEMATICAL CONTENT

MCC2.NBT.6 Add up to four two-digit numbers using strategies based on place value and properties of operations.

MCC2.NBT.7 Add and subtract within 1000, 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. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.

MCC2.NBT.8 Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.

MCC2.NBT.9 Explain why addition and subtraction strategies work, using place value and the properties of operations.

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.

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

BACKGROUND KNOWLEDGE

Students should be familiar with the concept of solving word problems in math and with seeing symbols for unknowns, such as squares or triangles.

Some students will have difficulty with ____ + 8 = 75 simply because they are so accustomed to seeing a number first. Students need to understand that they may subtract the given number from 75 or count up from 8 to 75 to find the value of the missing number. We also want students to

recognize that ___ + 8 yields the same sum as 8 + ___ due to the commutative property of addition.
Students need experiences with many different addition and problem types. See the examples in Strategies for Teaching and Learning section of this Unit. Provide students with opportunities to solve a variety of problems presented in varying contexts. Then allow students to write similar stories providing experiences in both creating and solving many types of problems.

ESSENTIAL QUESTIONS

- How can I use what I understand about addition and subtraction in word problems?
- What is a number sentence and how can I use it to solve word problems?

MATERIALS

- White board, overhead projector, or interactive white board for whole group instruction
- Student Task Sheets for small group or cooperative learning groups

GROUPING

Whole/Small Group/Partner Task

TASK DESCRIPTION, DEVELOPMENT AND DISCUSSION

Students write and solve story problems.

Comments
When students make up their own number stories, teachers gain insight into the students' understanding of the problem solving process. Simplify or extend these situations to help students grasp how to solve addition problems with the use of subtraction. This is also intended to give students practice with adding and subtracting amounts since they form important benchmarks (5s, 10s, 25s, & 50s) that will also be used in multiplication and division.
Before students solve the problems in partners or small groups, model the process of solving and writing a similar story problem with the whole class (or rotating with small groups). Use a missing addend problem similar to those on the student sheet.

Task Description
Students will solve two story problems and write two similar story problems.

Here is my story:

I had 8 dimes in my pocket. I spent 50 cents at a bubble gum machine. When I got home, I found a hole in my pocket and only one dime is left in my pocket. How much money fell through the hole in my pocket? How do you know?

1. Now write a similar story about having dimes in your pocket and later finding a hole in your pocket.
   How much money fell through the hole in your pocket? How do you know?

2. Here is another story:

   I have some dollars in my piggy bank. For my 8th birthday, Jacob gave me 25 dollars now I have 85 dollars. How much money did I have in my piggy bank to begin with? How could you solve this problem?

   Ask students to write number sentences and explain their work. Expect number sentences such as: □ + 15 = 75. If students do not introduce this sentence to the class, use this opportunity to introduce unknowns. This will be very useful to complete this task. Continue questioning the questions such as: What number goes in the box? How do you know?

3. Write a story for this number sentence:
   18 + □ = 61.
   What number goes in the box? How do you know?

FORMATIVE ASSESSMENT QUESTIONS

- How much money was there at the beginning?
- What do you know? What do you need to find out? How can you find it out?
- What is a number sentence and what must it include?
- What information will you give in your story? What information needs to be found?
- What strategies did you use to solve the problem?
- How do you know your answer is correct?

DIFFERENTIATION

Extension

- For the first problem on the student sheet, have students determine the value of the money that fell through the pocket. For the third problem, have students find the value of 85 quarters. Also, the stories students create can be extended in a similar manner.
- Have students create their own subtraction stories where the minuend is unknown. (In the subtraction problem 5 – 3 = 2, 5 is the minuend, 3 is the subtrahend, and 2 is the difference.)

Intervention

- Provide a story frame to assist students in organizing and writing a number story.
- Some students may have difficulty with ____ + 8 = 85 simply because they are accustomed to seeing a number first, rather than an unknown quantity. They may need additional experiences with this format to understand that subtracting an addend

from the sum will give the remaining addend. Students also should understand that ___ + 8 yields the same sum as 8 + ___ due to the commutative property of addition.

TECHNOLOGY CONNECTION

- http://www.cdli.ca/CITE/math_problems.htm Provides teachers with resources for a variety of word problems at different levels

Name _____ Date _____

I Have a Story, You Have a Story

1. Here is my story: I had 8 dimes in my pocket. I spent 50 cents at a soda machine. When I got home, I found a hole in my pocket and only have one dime left in my pocket. How many dimes fell through the hole in my pocket? How do you know?	2. Now write a similar story about having dimes in your pocket and later finding a hole in your pocket. How many coins fell through the hole in your pocket? How do you know?
3. Here is another story: I had some dollars in my piggy bank. For my allowance, my dad gave me $15. Now I have $85. Here is a number sentence for my story. □ + $15 = $75 What number goes in the box? How do you know?	4. Write a story for this number sentence: 18 + □ = 61. What number goes in the box? How do you know?