



Constructing Task: Solving Problems on Number Line

Approximately 1 Days from www.k-5mathteachingresources.com

STANDARDS FOR MATHEMATICAL CONTENT

MCC.2.MD.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

MCC2.MD.5 Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.

MCC2.MD.6 Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.

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

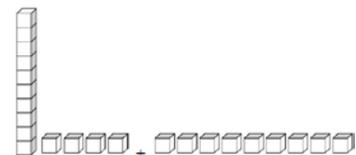
(Information adapted from Mathematics Common Core State Standards and Model Curriculum, Ohio Department of Education Teaching)

This standard applies the concept of length to solve addition and subtraction word problems with numbers within 100. Students should use the same unit in these problems.

Example: In P.E. class, Kate jumped 14 inches. Mary jumped 23 inches. How much farther did Mary jump than Kate? Write an equation and then solve the problem.

Student 1

My equation is $14 + \underline{\quad} = 23$ since I am trying to find out the difference between Kate and Mary's jumps. I used place value blocks and counted out 14. Then I added blocks until I got to 23. I needed to add 9 blocks. Mary jumped 9 more



MATHEMATICS • GRADE 2 • UNIT 3: Understanding Measurement, Length, and Time

Georgia Department of Education

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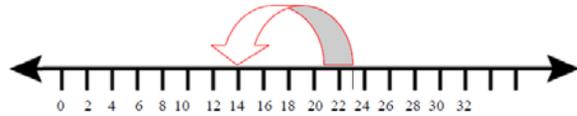
May 2012 • Page 52 of 83

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inches than Kate.

Student 2

My equation is $23 - 14 = \underline{\quad}$. I drew a number line. I started at 23. I moved back to 14 and counted how far I moved. I moved back 9 spots. Mary jumped 9 more inches than Kate.



ESSENTIAL QUESTIONS

- Why is it important for us to know how to measure different objects using different tools of measurement?
- How can using a number line help us when we are solving math problems?

MATERIALS

- Measurement Problems Sheet
- Ruler
- Empty Number Lines
- Websites for Empty Number Lines
 - http://www.helpingwithmath.com/resources/oth_number_lines.htm
 - http://www.helpingwithmath.com/resources/oth_number_lines02.htm
 - <http://www.math-salamanders.com/blank-number-lines.html>

GROUPING

Small Groups

TASK DESCRIPTION, DEVELOPMENT AND DISCUSSION

Using the number line and referencing the ruler as a number line itself, the students should work in groups to solve the math problems. The problems for this task should be cut apart and given to pairs to solve. As the students solve these problems the teacher should be taking note of how the students are solving the problems on the number line and the strategies they use so these can be shared at the closing of the lesson. The students should also write a problem for another group to solve. It should be explained to them that after they write the problem they should also solve their own problem to make sure they know the correct answer. These problems provide the students with some real life examples of problems that use units of measure as their context.

FORMATIVE ASSESSMENT QUESTIONS

- What range of numbers did you use on your number line? Why?

- How do you know you solved the problem correctly? Explain to me how you labeled the number line.

DIFFERENTIATION

Extension

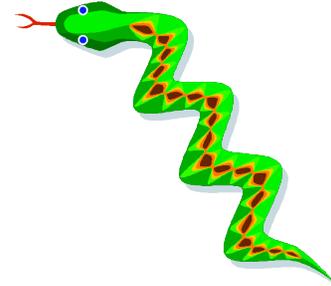
- Students could create their own multistep story problems.

Intervention

- Revisit “Where Am I on the Number Line?” from Unit 1 and “Roll Away” from Unit 2.

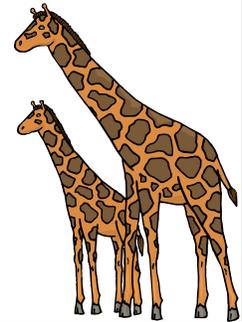
(Information adapted from k-5 Math Teaching Resources, www.k-5mathteachingresources.com)

A snake was 35 inches long. Now it is 57 inches long. How much did the snake grow?



A ribbon was 50 cm long. After I cut some off 37 cm was left. How much did I cut off?

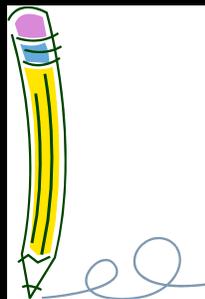
A baby giraffe was 61 inches tall. Another young giraffe was 98 inches tall. How much shorter was the baby giraffe?



A beaver is 15 inches long. It grows 23 inches. How long is the beaver now?



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I have 3 pencils. The pencils are 17 cm, 12 cm, and 9 cm long. What is the total length of all pencils?

Ben is 48 cm tall. Mike is 13 cm taller than Ben. How tall is Mike?



A building is 60 meters tall. A tree near the building is 12 meters tall. How much taller is the building than the tree?



A whale is 78 feet long. A rhinoceros is 13 feet long. What is the difference in length between the whale and the rhinoceros?

