## **Solve Problems Involving Measurement**

Lessons for Grade 2

## **Overview of Lesson**

Students solve word problems using diagrams, variables, and equations. The problems involve linear measurements: feet, inches, centimeters, and miles.

### **Mathematical Goals**

Students will:

- Use addition and subtraction to solve word problems involving same units of measurement.
- Draw diagrams and write equations to solve problems.

### **Materials**

- Meter stick
- 12-inch rulers
- Adding-machine tape

Vocabulary

Centimeters

Inches

Feet

Variable



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## **Teaching Directions**

#### DAY 1

Display this problem on the board.

Vic has a wood board that is 6 feet long.

He cuts off 2 feet of it with a saw.

What is the length of the piece that is left?

Let's think about this problem. About how long is 6 feet? Is there something in this room that you think is about 6 feet? (give students time to look around and then suggest things that might be 6 feet)

Let's see if any of those suggestions are close to six feet.

Hold up a 12-inch ruler and say: This is one foot. I'll place six of them end to end so we can see what 6 feet looks like.

Place 6 rulers end to end in a place that students can see them—perhaps along a board edge or long shelf. *Who do you think named something close to 6 feet?* 

When students suggest an object or distance in the room, measure it with the six rulers. State whether it is close to six feet, less than six feet, or greater than six feet. Next have two students help measure six feet of adding-machine tape. Cut it off from the roll and tape to the wall or board. Label it 6 feet.

In the problem, how much did Vic cut off from the 6 feet? (2 feet)

Measure 2 feet from one end of the 6-foot tape and mark it with a line. Then cut on the line so that there are two pieces of adding-machine tape.

If I throw away the two-foot piece I cut off, how much is left? (4 feet)

Have two students measure the remaining piece with a ruler to verify that it is 4 feet.

Record a diagram and an equation on the board. Explain that when we write an equation to solve a problem we can write a letter to stand for the answer we are looking for. This is called a variable. I'll use *n* for the number of feet left after cutting off 2 feet.









Have students solve four problems on their own or working in pairs. Give them a large sheet of paper. Have them fold it in half and half again so that they have four sections. Give them each a printed copy of the four problems.

#### **PROBLEM 1**

Carla's family is going camping. The campground is 57 miles from home.

They've driven 39 miles already.

How many more miles do they need to drive?

#### PROBLEM 2

Sy has a 63-inch piece of string. He needs a piece that is 24 inches. How much string will be left after he

cuts off the 24-inch piece?

#### PROBLEM 3

Ira is making a paper chain with strips of paper.

Each strip for the chain needs to be 25 centimeters.

The paper he is cutting from is 60 centimeters.

How many centimeters should Ira cut off from the longer paper?

#### PROBLEM 4

Sulay is growing cucumbers.

Last week her longest cucumber was 6 inches.

This week that same cucumber measured 11 inches.

How much longer is the cucumber this week?

You may want to demonstrate or have students estimate what 25 centimeters and 60 centimeters looks like with a meter stick when working on problem 3.

When students have completed their problems, have students explain their solutions. Have them draw on the board or display their own drawings. When you've gone over all four problems, display the students' papers.

