

Units of Measurement

Companion Text: I Lost My Sock, by Lin Jakary & Ryan Olson

Subject Area & Grade Level: Mathematics, 2nd Grade

Materials: Calculators, different-sized socks (students bring from home), rulers

Objectives

After this lesson, students will be able to:

- Define “unit of measurement”
- Explain the difference between standard and non-standard units of measurement
- Convert from a non-standard to standard unit of measurement, with assistance

Activity

As homework the night before this activity, ask each student to bring two socks from home—one child-sized sock, and one adult-sized sock.

Read the story once through without stopping. Then, turn to page 11 and ask students to infer how many “socks high” the door handle is. Define that when we choose an object to measure something, that object is known as the “unit of measurement.” Ask students to take out the socks they brought from home, and to find 3 things to measure in the classroom using their two socks as the units of measurement. They should measure each thing with each of the two socks, so that when they are done, they have six measurements—three with the adult-sized sock, and three with the child-sized sock. Hint: remind students to stretch out the socks to their full length if they are tube socks, or to keep socks bent at the same angle throughout data-gathering if they are socks with a right-angle heel so that their data will be internally consistent.

Reflection

Ask students to share their measurements in a small group with the students around them, giving each student a chance to talk. Ask if there were any students who chose to measure the same thing (this is likely), and ask them to report on their findings. You should see that not all measurements are the same, even though they measured the same thing. If student data does not demonstrate this for you, choose three socks of different sizes from the class and demonstrate how you get three different measurements of the height of the classroom door, or of the length of your desk. Explain that this is because a sock is a “**non-standard**” unit of measurement, that is, not everyone’s socks are the same size, and therefore using them to measure things does not give information that everyone would understand.

Ask students to name any “**standard**” units of measurement for length they can think of, and see how many they can name. Using “inches,” measure the door height or desk length again, and compare it to the measurement you got with the three socks. Ask students to brainstorm reasons why it’s useful to have standard units of measurement in society. Assist students in converting their own non-standard measurements into standard units, using the attached worksheet. Conclude with a discussion based on sharing of student answers to the final worksheet question.



“Socks” and Inches

What three things did you measure?

- 1.
- 2.
- 3.

Circle one of the things you measured, and use its measurements for the rest of this activity.

PART 1:

How many big socks was it? _____ How many inches is your big sock? _____

Using a calculator, multiply the two “big sock” numbers above. Write the number here: _____ inches

PART 2:

How many little socks was it? _____ How many inches is your little sock? _____

Using a calculator, multiply the two “little sock” numbers above. Write the number here: _____ inches

PART 3:

Did you get the same number of inches in Part 1 and Part 2? _____

Go to the thing in the classroom that you measured, and measure it again using the inches on your ruler. Now how many inches did you get? _____ inches.

Why do you think you did or did not get the same number of inches for Parts 1, 2 & 3?

