

## Can You Measure Up?

### Purpose

Students will select and use appropriate measuring units, such as centimeters and meters.

### Materials

*For the teacher:* chart paper, markers

*For each group:* meter sticks, rulers with centimeters, yarn or roll of adding machine tape, scissors, copy of Black Line Master (BLM) *Can You Measure Up?*

### Activity

#### A. Pre-Activity Preparation

Write the following on chart paper:

- Brad's shoe is 28.
- The caterpillar we observed was 4 long.
- Karen ran 50.
- Steven's little sister is 1.
- Allison's plant grew 11 tall.
- The scientist used a piece of wire 30 long to connect the device to her equipment.

#### B. Pre-Activity Discussion

1. Post the chart paper.
2. Ask students what information is missing in each sentence. When someone suggests the units of measurement are missing, ask: "Why are these necessary?" [We don't know exactly what the sentence means without them.]
3. Ask students to help you list examples of units of measurement in a two-column chart. In one column on the chalkboard, write the unit of measure (e.g., inch, centimeter, pound, gram, minute, etc.), and have students explain the type of measurement (e.g., length/height, weight, time, etc.) in the second column.

#### C. Meters and Centimeters

1. Tell students that they are going to focus on two specific units of measurement in this activity: meters and centimeters.
2. Divide the class into groups and give each group yarn or adding machine tape, scissors, masking tape, and a marker.

(continued)

#### MEETING INDIVIDUAL



#### NEEDS

For students who are having trouble understanding the relationship between meters and centimeters, you can use centimeter cubes lined up along a meter stick to illustrate the concept in a more concrete way.

#### INCORPORATING

#### TECHNOLOGY



What is the metric system? Students can find more information on the Internet. Have students research other measurements, such as kilometers, and explore the relationship between units.

**Standards Links**  
**3.1.3, 3.2.4**

## Activity (continued)

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3. Instruct each student to cut two pieces of yarn: one that he/she thinks is one meter and one he/she thinks is one centimeter long. Have students use masking tape and markers to label each piece and then compare their estimates with other group members.
4. Give each group a meter stick and demonstrate how it can be read. Allow students to compare their estimates to the actual measurement. Ask students: “How close were you?”
5. Distribute metric rulers and demonstrate how to measure a centimeter. Allow students to compare centimeter estimates.
6. Introduce the relationship between centimeters and meters. Use the analogy of pennies and dollars or years and centuries. Show how these units are abbreviated.
7. Ask students which unit (cm or m) they would use to measure their height, the height of the school building, the length of a pencil, and the length of a basketball court.

### D. Explore Metric Measurement

1. Distribute the BLM *Can You Measure Up?* to each group of students and explain that they will be using centimeters and meters to measure objects around the room.
2. Explain that each group will decide on the objects to measure and discuss the units that should be used, and then each student will conduct his/her own measurement. Tell members of the groups to compare answers and resolve any differences by rechecking, if necessary, and then record their result on the BLM.

### E. Review and Assess

1. Refer back to the sentences discussed at the beginning of the activity and discuss: “What do you think the units might be? Are those reasonable answers? How do you know?” [If Karen ran 50 centimeters, it would only be about two steps!]
2. Have students look at the last example: can we tell for sure if the wire is definitely 30 *meters* or *centimeters*? [No.] Would it make a difference? [Yes!] Why is it important for scientists to carefully record information like the units of measurement? [So others will be able to understand and repeat their experiments if necessary.]

## Questions for Review

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### Basic Concepts and Processes

As a review, ask students:



How many centimeters equal one meter?



Which unit would you use to measure [*insert object*]? Why?



Why is it important to use units when you record your measurements?



# Can You Measure Up?

## Teacher Directions

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Allow students to work in groups. You may wish to designate specific group roles or appoint a “recorder” for each group.

Pass out the BLM *Can You Measure Up?* Have each group select an object to measure, decide as a group on the units that should be used, and then have each group member conduct a measurement. After they resolve any inconsistencies by rechecking, instruct the groups to record their final measurements *in units* on the BLM. Have each group repeat this process until they have completed the BLM.

During the activity, circulate and observe students’ measurement abilities. Observe each group and talk with students to ensure there is cooperation among group members.

## Answer Key

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Answers will vary; check students’ choice of units to make sure they are reasonable in relation to the objects being measured and, if needed, verify the measurement itself. Be sure students use units in recording their measurements.