

Measurement 2nd or 3rd Grade Bret Underwood

Benchmarks:

SLC 3: Students will compare relationships in units of metric measurement between measured objects and select appropriate unit of measure.

Objectives:

In addition to learning about units of metric length measurement, students will learn about units of English length measurement and be able to compare the relationships between the units.

Materials:

- Centimeter ruler
- Inches ruler
- Millimeter ruler
- Meter stick
- Ruler
- Bag of stuff:
- Pencil
- Paper clips
- Staples (pre-stapled)
- Block
- Marble
- Paper triangular prisms

Initial Observation/Demonstration:

Demonstrator shows class the centimeter ruler and millimeter ruler. Demonstrator has student measure the size of something with centimeter ruler and with millimeter ruler. “Ladder technique” (i.e. if the ruler is too short, placing a finger or marking object at the end of the ruler, then shifting the ruler forward) should be emphasized if students do not have knowledge of it already. Write up amounts measured on the board.

Initial Observations:

- There were more millimeters than centimeters when the object was measured
- The millimeter ruler had to be shifted because it was too short.

Initial Model:

-When the length of something is measured it has more millimeters than centimeters.

Procedure:

Break the class into groups of about 4-5 per group. Give each group a centimeter ruler, a millimeter ruler, a measurement sheet, and a “bag of stuff” to measure. Ask the students to measure the objects in their bag and see if it is true that when any thing is measured it has more millimeters than centimeters.

Discussion/Summary:

What did the students find? Are there always more millimeters than centimeters when something is measured? If a student says that they had more centimeters than millimeters then have a student measure it in front of the class to resolve the discrepancy. What do you think that means about the size of a millimeter compared to the size of a centimeter?

Revised Model:

- When the length of something is measured it has more millimeters than centimeters.
- A centimeter is bigger than a millimeter.*

Procedure:

Break students back into their groups and ask them to show that a centimeter is bigger than a millimeter. The students can do this by finding objects that are 1 centimeter and 1 millimeter large, and comparing these objects.

Discussion/Summary:

Do the students agree that a centimeter is bigger than a millimeter? What objects did they find that were a centimeter and a millimeter large?

Demonstration:

Demonstrator shows the class a new object, the inches ruler. Demonstrator asks a student to measure the length of an object using the inches ruler and the centimeter ruler. Write up amounts measured on the board.

Observations:

- There were more centimeters than inches

Revised Model:

- When the length of something is measured it has more millimeters than centimeters.
- A centimeter is bigger than a millimeter.
- When the length of something is measured it has more centimeters than inches.*

Procedure:

Break students into their groups again and ask them to see if it is true that when something is measured it has more centimeters than inches by measuring the objects they have on their table from the previous activity. The students should fill out their measurement sheet.

Discussion/Summary:

Do the students agree that when something is measured that it has more centimeters than inches? Because of this, do you think that the inch is bigger than the centimeter? Should we check it?

Demonstration:

Demonstrator shows the class a meter stick and a ruler.

Observations:

- The meter stick is bigger than the ruler
- Both are bigger than a centimeter, millimeter, or inch

Procedure:

As a class, ask the students to rank the measuring units from biggest to smallest. Have the students check this ranking by either comparing the units directly or by finding an object that is “one meter” or “one ruler”, etc... and comparing their sizes.

Discussion/Summary:

Was the initial ranking correct? What needed to be changed? Are there any other units you can think of that we can rank with these?