Length and Area
4th Grade
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References:

- 2003-04 Columbus Public Schools Science SLC Guide

Benchmarks:

SLC 3: Students will compare the mass, dimensions, and volume of familiar objects in standard and non-standard units.

Objectives:

Students will compare relationships in units of metric measurements between metric measured objects and select the appropriate unit of measurement for the objects.

Materials:

- Rulers with cm and inches
- Measurement worksheets
- 1 cm x 1 cm x 1 cm blocks
- Overhead projector
- Transparency of worksheet (unable to locate)

Initial Demonstration:

Remind students that last time you discussed measuring and used rulers to figure out how long things were. Tell the students that today you are going to use a different method to measure things. Show them the 1 cm³ blocks and then pass them out [it is best if each students has 18 of them]. Have the students measure the cubes to determine their size.

Target Observations:

- The cubes are 1 cm x 1 cm by 1 cm.

Target Model:

- Because we know how long the blocks are, we can use them to measure the length of shapes.
Procedure:

Pass out the worksheet. Have the students measure the length of the lines in the top section and record the lengths on the worksheet.

Go over the various lengths that the students measured. If they measured incorrectly, have them go back and try again. Make the students tell you the units that they used to measure the shape; that is they must say “centimeters” after the number.

Use the transparency on the overhead to do this. This makes it easy for you to show the students how to measure using the blocks and to correct incorrect measures as a whole rather than individually.

Have the students use the blocks to measure the areas of the shapes in the second section of the worksheet. The students will need to use the blocks to fill in the space, and then count the number of blocks required.

Go over the various lengths that the students measured. If they measured incorrectly, have them go back and try again. Add to this description of the measurement the term “squared.” Tell them that the term squared tells you that you describing an area as opposed to a length. The students should be able to grasp this fairly quickly b/c each face of the cube is indeed a square. Make sure that each student includes the term “centimeters squared” as part of their numerical answer.

Use the transparency on the overhead to do this. This makes it easy for you to show the students how to measure using the blocks and to correct incorrect measures as a whole rather than individually.

Target Observations:

- The blocks can be used like a ruler.

Target Revised Model:

- You can also use the blocks to measure area.

Summary:

Students have been introduced to the concepts of length and area. They were able to calculate the area of a shape using 1cmx1cmx1cm blocks. The difference between area and length has been established.