

## Another FREE SAMPLE LAB from TOPS LEARNING SYSTEMS!

This TOPS Idea is taken from an original series of black-and-white line masters, adapted to stand alone as an independent mini-lesson. Please purchase our original book to get the whole in-depth program.

### sweet dimensions

...adapted from **METRIC MEASURING #35**  
by TOPS Learning Systems

**1.** Fold two 3"x5" index cards in the middle, and tape them to make 4 walls of a box.

**2.** How many dimensions can you measure using sugar cubes?



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#### OBJECTIVE

To measure a box in 1, 2, and 3 dimensions. To calculate area and volume by multiplying lengths.

#### LAB NOTES

**Introduction:** Ask students to identify each dimension below as YOU act it out. Then call out dimensions for THEM to act out.

**1-dimension = Width, Length, Height or Depth:** Pantomime stretching out invisible string.

**2-dimensions = Area:** Pantomime wiping an invisible, flat surface.

**3-dimensions = Volume:** Move hands in all three directions to occupy 3-D space.

**Step 1.** Fold the cards evenly in half. Match and secure edges with tape. Prop open into a "box."

**Step 3.** All dimensions come out about even. Students can stack sugar cubes to find answers, or multiply the sides to find area and volume.

#### EVALUATION

Trim paper to 25.6 cm by 19.2 cm. Ask your students to find its area. (192 sugar squares). Also find folded areas for  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{8}$ ,  $\frac{1}{16}$ !

#### ANSWERS

- 2.** height or depth = 5 sugar "lengths"  
length or width = 4 sugar "lengths"  
area of any side = 20 sugar "squares"  
area of top or bottom = 16 sugar "squares"  
volume of box = 80 sugar "cubes"

#### EXTENSION

Measure a paper grocery bag in sugar cubes. Round lengths up or down to whole sugar edges.

*Results for a paper bag we measured:*  
length = 19 sugar lengths  
width = 11 sugar edges  
bottom area =  $19 \times 11 = 209$  sugar squares  
height = 27 sugar edges  
side areas =  $19 \times 27 = 513$  sugar squares,  
and  $11 \times 27 = 297$  sugar squares  
volume =  $209 \times 27 = 5,643$  sugar cubes

#### MATERIALS

- Two 3x5 inch index cards and clear tape.
- Sugar cubes (not bricks). Use C&H or equivalent one-teaspoon cubes, measuring  $\frac{5}{8}$  inch (16mm) on each edge. If not available in your area, you can order from TOPS.

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