How Many Boxes?

Purpose

Students will estimate area and use a given object to measure the area of objects.

Materials

For the teacher: chalk, chalkboard
For each group of students: empty cereal box, empty cracker box, empty tissue box, copy of Black Line Master (BLM) *How Many Boxes?*
For the class: step-stool for the students to measure the unreachable area of certain objects

Activity

A. Pre-Activity Preparation

Bring in or have the students bring in the empty cereal, cracker, and tissue boxes.

B. Introduction

1. Hold up one of the boxes and ask the students how many boxes they estimate it will take to cover the chalkboard.
2. Represent the data similarly to the representation in the BLM *How Many Boxes?*
3. Write the estimate on the board.
4. Measure the area of the chalkboard with the box.
5. Write the measurement on the board.
6. Write the subtraction sentence that shows the difference between the estimated and the actual area.
7. Explain the activity to the students. Tell them that they will be estimating and measuring the area of each object with three different size boxes.
8. Instruct them to write a subtraction sentence that represents the difference between their estimation and the actual area of each object.
9. Tell them that the BLM guides them through the activity.

(continued)

MEETING INDIVIDUAL NEEDS

Give students having difficulty with this activity several sheets of different sizes of paper to use instead of the boxes. Have them tape the sheets to the objects to find the area.

INCORPORATING TECHNOLOGY

Use a drawing software program to have the students draw a large rectangle and a small rectangle. Have them estimate how many small rectangles would fit inside the large rectangle. Show the students how to copy and paste the small rectangle into the large rectangle to find the actual measure.

Standards Links
2.2.3, 2.4.5

Activity (continued)

C. Partner Activity

1. Divide the students into groups of two.
2. Give each group a copy of the BLM *How Many Boxes?* and the three boxes.
3. Allow the students to move freely around the room to measure the areas outlined on the BLM.

Questions for Review

Basic Concepts and Processes

After the activity, discuss the following questions with your students to gauge their understanding of the Standard Indicator:

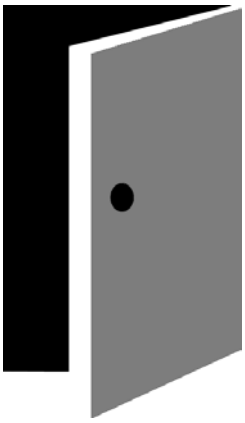
- What is meant by the "area" of an object?
- With your hand, show me the area of the top of your desk.
- How did you use the box to measure the closet door?
- How many estimates did you have that were correct?
- Why do you think you estimated those objects correctly?
- Did your estimates get closer to the actual measurement as you went along?

Name: _____

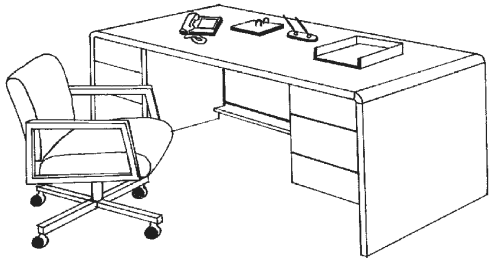
How Many Boxes?

Estimate and measure the area of the objects below. Write a subtraction sentence for each area to find out how close your estimate was to the actual area. Use the side of each box to measure the objects.

Object to measure:
SIDE OF TEACHER'S DESK
Unit of measure:
TISSUE BOX
Estimate: _____
Actual: _____
CRACKER BOX
Estimate: _____
Actual: _____
CEREAL BOX
Estimate: _____
Actual: _____



Object to measure:
CLOSET DOOR
Unit of measure:
TISSUE BOX
Estimate: _____
Actual: _____
CRACKER BOX
Estimate: _____
Actual: _____
CEREAL BOX
Estimate: _____
Actual: _____



Object to measure:
BOOKSHELF
Unit of measure:
TISSUE BOX
Estimate: _____
Actual: _____
CRACKER BOX
Estimate: _____
Actual: _____
CEREAL BOX
Estimate: _____
Actual: _____

Object to measure:
ONE WINDOW
Unit of measure:
TISSUE BOX
Estimate: _____
Actual: _____
CRACKER BOX
Estimate: _____
Actual: _____
CEREAL BOX
Estimate: _____
Actual: _____

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Teacher Directions

Have students write their estimates and actual measures of the areas of the given objects.

Instruct the students to write a subtraction sentence for each object to represent the difference between their estimate and the actual measure.

Answer Key

Answers will vary.