

## Making Boxes

### Objective

Understanding how 2-D shapes can be put together to make a 3-D shape

This activity focuses on:

- a. characteristics of a rectangular prism
- b. how faces come together at edges
- c. how opposite sides of the rectangular prism are the same size and shape (congruent)

### Directions

1. Show students a cereal box. Cut the box so that the faces of the box are still connected but the box is flat.
2. Discuss the geometric shapes (rectangles) on the box.
3. Show students a box you have made from index cards.

Suggestions on cut rectangular sizes:

The number in the parenthesis is the number needed to make the box.

(2) 3x5 (2) 2x5 (2) 5x8

Or

(2) 2x3 (2) 2x5 (2) 3x5

4. Explain that partners are going to make a box. Show them what the flat pieces look like. They are going to figure out how to fit the pieces together.
5. The box should have sides, a bottom and a top.
6. Note to the teacher: You may give pairs of students enough cards to make both of the boxes listed in number 3 or you might want to give them the cards for only one box. There is more problem solving involved if they have both sets of cards.
7. Offer some guidelines on taping the edges.  
Demonstrate lining up two cards and placing the masking tape in the middle. Demonstrate peeling the tape off and redoing the taping.
8. One suggestion: Give students strips of masking tape. Place it on the edge of desks. Students tear tape as needed.

## Making Boxes

9. Encourage students to do some planning before they actually tape the edges.
10. More rectangles can be cut (look at the bottom of the page for suggestions) and students can create additional boxes.
11. Students could measure their own rectangles, cut them and make boxes.

### Observing the Students

1. Do students recognize that opposite faces of a rectangular prism are congruent?
2. Do they recognize that adjacent faces have equal lengths?
3. Do they experiment with what works and does not work?

Students can continue to make boxes during other class periods or center time.

Some other box sizes:

(2) 2x5, (2) 5x8, (2) 2x8

(4) 3x5, (2) 3x3

(2) 2x3, (2) 3x8, (2) 2x8

(6) 3x3

(2) 3x3, (4) 3x8

(4) 2x3, (2) 3x3

### Extension:

Students can measure and design their own boxes.