BRIDGES IN MATHEMATICS K

KINDERGARTEN SUPPLEMENT

Set D4 Measurement: Area

Includes

Skills & Concepts

★ compare rectangles and squares according to area

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Bridges in Mathematics Kindergarten Supplement
Set D4 Measurement: Area

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Bridges in Mathematics is a standards-based K–5 curriculum that provides a unique blend of concept development and skills practice in the context of problem solving. It incorporates the Number Corner, a collection of daily skill-building activities for students.

The Math Learning Center is a nonprofit organization serving the education community. Our mission is to inspire and enable individuals to discover and develop their mathematical confidence and ability. We offer innovative and standards-based professional development, curriculum, materials, and resources to support learning and teaching. To find out more, visit us at www.mathlearningcenter.org.

Set D4 ★ Activity 1

ACTIVITY

Play Areas

Overview

Students compare the areas of various paper rectangles.

Skills & Concepts

★ compare rectangles and squares according to area

You'll need

★ construction paper (see Advance Preparation)

★ large manila envelope

★ 9 index cards or 3" × 5" pieces of light-colored construction paper

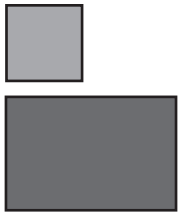
★ wide-tipped felt marker

★ several small plastic toy figures of children

Advance Preparation Cut construction paper rectangles in the following colors and sizes: 4" × 4" red, 4" × 4" yellow, 5" × 5" orange, 5" × 6" black, 5" × 7" brown, 6" × 9" green, 6" × 9" blue, 9" × 10" purple, 9" × 11" white. Put all except the 4" × 4" red, the 4" × 4" yellow, and the 6" × 9" blue pieces in the manila envelope.

Instructions for Play Areas

1. Gather children to your discussion circle. Place the 4" × 4" red and the 6" × 9" blue rectangles in the middle of the circle. Ask students to talk with one another about the two shapes. What do they notice? After a minute, invite volunteers to share their observations with the class. (You might take the opportunity to remind students that the square is a special kind of rectangle; one with all 4 sides the same length.)



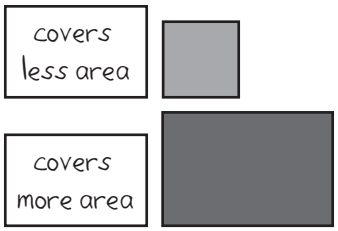
Students *One is red and the other is blue.*
The little one is red. The big one is blue.
The little one is a square, and the other one is a rectangle.
One looks like a box and the other looks like a door.

2. Place one of the plastic figures beside the two rectangles. Explain that this child is looking for the best play area. Which one should she choose? Why? Encourage students to talk about the size of each rectangle, as well as its shape and color.

Activity 1 Play Areas (cont.)

Students *She should pick the red one because it's my favorite color.*
I like the blue better.
I think she should take the blue one because it's bigger.
She's all by herself so maybe she should take the red one. She doesn't need much room.

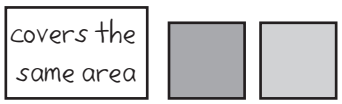
3. Now place 2 or 3 other plastic play figures beside the first one. Explain that her friends have come to join her. Which play area would be best? Why? As students discuss the question, introduce the concept of *area*. The blue rectangle *covers more* area while the red square *covers less*. After some discussion, write a label for each on an index card and have 2 helpers set the labels where they belong.



4. Remove the rectangles, the labels, and the figures from the floor. Then set the red and the yellow 4" × 4" paper squares in the middle of the circle, with a single play figure beside them. Which area should this child choose? Why? Some students may believe that the two squares are the same size, while others may think that one covers more area than the other. How can they tell for sure?

Students *Put them next to each other.*
I know! Put one right on top of the other.
Hold them up together so you can see if they're the same or different.

5. Invite volunteers to try some of the suggestions made by their classmates. When there's general agreement that the two squares cover the same area, write a label on an index card and place it beside the pair of squares.



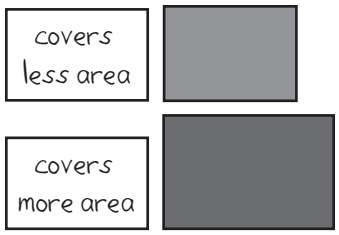
6. Now show students the envelope of other rectangles you've prepared. Invite a helper to pull one from the bag and set it out in the middle of the circle.

7. Ask a different helper to pull a second rectangle from the envelope and hold it up. Have students predict whether it covers more area, less area, or the same area as the one on the rug. How can they find out for sure?

Students *Hold them up together.*
Put them on top of each other.
Put the brown one on top so it doesn't get all covered up!
I can already tell that the green one covers more.
That's the one I'd take for my play area.

Activity 1 Play Areas (cont.)

8. After the 2 rectangles have been compared, write a label for each on an index card and have 2 helpers set the labels where they belong.



9. Repeat steps 6–8 until the class has compared and labeled all the rectangles in the envelope.

Extensions

- Make the envelope of rectangles and the labels available during Work Places so pairs of students can play the game on their own. (You'll want to add another "covers the same area" label to the collection in case students pull out both pairs of rectangles that have equal area.)
- Draw students' attention to various areas around the school. Which covers more area, the playground or the gym floor? Which covers less area, a piece of easel paper or the poster on the wall? How can they find out for sure? Let them invent and test their own ideas for comparing the areas of various flat surfaces.