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Getting Ready

What You'll Need

Color Tiles, 12 per pair

Large books or boxes to use as barriers

Overhead Color Tiles and/or Color Tile grid paper transparency (optional)

Overview

Children take turns building a secret Color Tile design and try to build their partner's design from clues their partner gives them. In this activity, children have the opportunity to:

◆ identify attributes of geometric shapes

◆ communicate specific information

◆ use spatial vocabulary
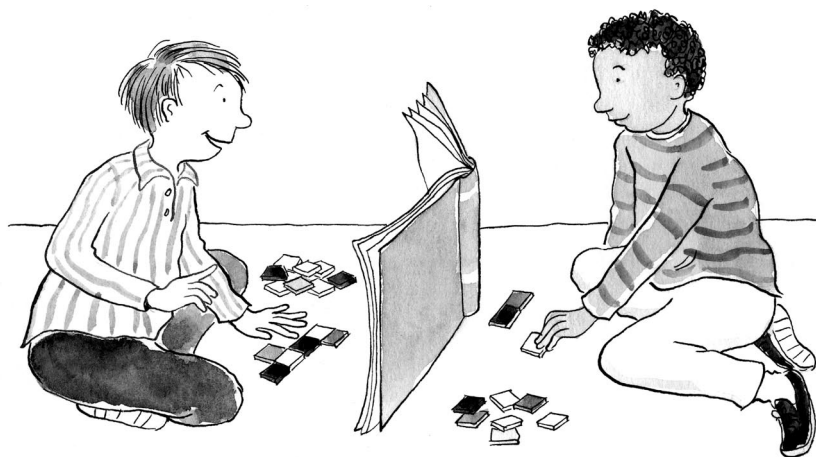
The Activity

Adjust the number of tiles so that your children are suitably challenged.

Introducing

◆ Use Color Tiles to make a design like the one shown and keep it hidden. Tell children you want them to listen to clues about this shape.

B	B
R	Y

◆ Now give one descriptive clue about your design. For example, you might say, "I used four tiles." Then ask children to try to make your design with Color Tiles.

◆ Observe children's work. Remark that you see many designs that follow your clue but none that are exactly like yours. Invite children to speculate about why this might be.

◆ Give another clue, for example, "My tiles form a big square." Allow time for children to rearrange their designs to fit this second clue. Again, move around the room and comment that the second clue seems to have been helpful. Ask what additional information children might need to make your design exactly.

◆ One at a time, give clues such as, "The top two tiles are blue," "The bottom right tile is yellow," and "The bottom left tile is red." Let children change their designs to fit each new clue until their designs match yours. Then reveal your design.

On Their Own

Can you make your partner's Color Tile design without seeing it? Can you help your partner to make a copy of your secret design?

- Working with a partner, put up a big book or box up between you.
- Decide who will be the Designer and who will be the Copier.
- The Designer makes a secret design using 3 to 6 Color Tiles.
- The Designer gives the Copier clues to help him or her make the same design.
- After the Copier thinks there are enough clues, he or she checks to see if the 2 designs are the same.
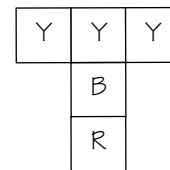- Take turns being the Designer and the Copier.

    Here are some clues for the shape at the right.

    Clue 1 The design makes a letter of the alphabet.

    Clue 2 It has 3 tiles of 1 color in the top row.

    Clue 3 The top tiles are not red, green, or blue.

    Clue 4 It has 2 tiles going down from the middle tile.
    One is blue and 1 is red. Blue is not the bottom tile.

Y	Y	Y
	B	
	R	

The Bigger Picture

Thinking and Sharing

Invite pairs to discuss their experiences both describing designs and following directions. Have some pairs draw their last design on the chalkboard.

Use prompts such as these to promote class discussion:

- What was difficult about this activity? What was easy?
- What are some of the directions you used to describe the way the tiles in your design were placed?
- Were some shapes easier to copy than others? Why?
- What kinds of clues were the most helpful?
- How could you describe how the tiles in the designs drawn on the chalkboard are arranged?

Extending the Activity

1. Have children make and copy more complex designs.
2. Present children with the same challenge using Snap™ Cubes or Pattern Blocks.

Where's the Mathematics?

Communicating mathematically is an important skill in building mathematical understanding. This activity provides young children with practice in using precise language to build geometric shapes. Creating a good set of directions requires spatial terms such as *left*, *right*, *under*, *above*, *horizontal*, *vertical*, and *diagonal*; numerical terms such as *first*, *third*, and *ten*; and descriptive words, such as *red*, *blue*, *green*, and *yellow*. Doing an activity that demands this kind of vocabulary helps children to make words such as these a natural part of their language. This is not a competitive game. Children should recognize that the goal of the Designer is not to try to trick the Copier but rather to provide useful descriptions that enable the Copier to build an exact replica of the design.

The importance of the skills brought to the task by both partners— describing, listening, visualizing, and questioning—becomes more and more evident as children repeat the activity and take turns at the two roles.

When communicating, young children may use body language as well as verbal language. For instance, instead of saying "right," a child might say, "Put two tiles on this side" and wave his or her right hand in the air to indicate what is meant by "this side." (If children are sitting across from each other, rather than side-by-side, this use of body language may actually lead to the Copier putting the two tiles on the left rather than the right because the Copier followed the visual cue, which was a hand waving on the Copier's left side.)

In comparing the design and its copy, children have an opportunity to deepen their understanding of the word *identical*. Children may need to scrutinize their designs carefully to determine whether or not they really match their partner's design in every way. For example, here are two designs that are congruent. However, since the design on the left has to be flipped to look exactly like the design on the right, they are not identical.

	R				R
Y	R			R	Y
B	Y	R	R	Y	B
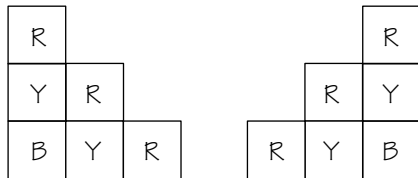
By comparing designs, partners get feedback on how well they were able to communicate with each other. Children should be encouraged to try to figure out which parts of the descriptions may have been misinterpreted and to discuss better ways of explaining or describing those particular attributes of the designs.

Language development is also closely tied to mathematical thinking. Children need to develop skills in both receptive and expressive language. By having the opportunity to give and receive clues, both areas of language development are emphasized. Because these skills are in a constant state of development, you can use this activity over and over again to assess growth in vocabulary and interpreting skills. You can also use it after you have modeled vocabulary to see what progress has been made.