

Objective

Use shape attributes and spatial sense to solve shape riddles.

Common Core State Standards

- **K.G.4** Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).

Geometry

Shape Attributes Riddles

Analyzing characteristics of geometric shapes through hands-on exploration builds a foundation of spatial understanding. By solving riddles involving shape attributes, children will learn to associate abstract concepts of spatial sense with concrete materials like the manipulatives in this lesson.

Try It! Perform the Try It! activity on the next page.

Talk About It

Discuss the Try It! activity.

- **Ask:** *How can we tell what is the same and what is different about Attribute Blocks shapes?* Invite children to list the attributes, such as number of corners and sides, size, thickness, and color.
- Discuss with children how they were able to figure out the riddles for other shapes. Be sure that children are discussing the shapes using the words *side* and *corner*, as well as listing the sizes and colors of the blocks.
- **Ask:** *What is the first shape in the line of shapes I described? How do you know? What is the second shape? The third?* Be sure children are putting the shapes in order from left to right.

Solve It

With children, reread the problem. Then have children find the block that Mrs. Chou was thinking of in the problem. Have children draw the block, write the number of corners and sides (0 and 0), and color the shape to match the block.

More Ideas

For other ways to teach about shape attributes—

- Have children work in pairs. One child closes his or her eyes while the other chooses and hides an Attribute Blocks shape. The other child quizzes the partner about the shape's attributes and tries to guess which shape it is.
- Have children work in pairs. One child sorts Attribute Blocks or Pattern Blocks by a chosen attribute. The other child then guesses which attribute was used to sort the shapes.

Formative Assessment

Have children try the following problem.

Circle the shape that is small, blue, and has three sides and three corners.



Try It! 20 minutes | Groups of 6

Here is a problem about solving shape riddles.

Mrs. Chou asked her class to guess which Attribute Blocks shape she was thinking of. She said it was small, thick, and red. It had no sides and no corners. What shape was Mrs. Chou thinking of?

Introduce the problem. Then have children do the activity to solve the problem.

Distribute blocks to children. Make sure children identify the different numbers of sides and corners and the different sizes, colors, and thicknesses. Tell children that they are going to play guessing games with the blocks.

Materials

- Attribute Blocks (1 set per group)



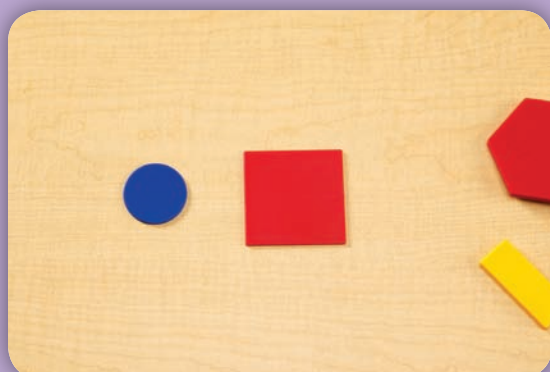
1. Say: *I am a block with three sides and three corners.* **Ask:** *What shape block am I?* Have children narrow down which blocks you might be talking about. They should pick out the triangles from the other blocks.



2. Say: *I am also big, thick, and yellow.* **Ask:** *Which block am I?* Children should hold up the large, thick yellow triangle. Repeat steps 1 and 2 for other shapes, sizes, colors, and thicknesses.

! Look Out!

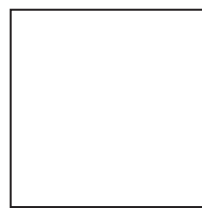
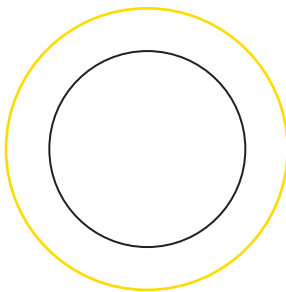
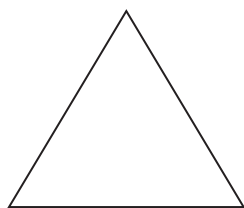
Some children may need a review of ordinal positions before they are able to do step 3 of the activity. To help children remember ordinals, start out by putting three blocks in a line. Using blocks with only one differing attribute will help focus children's attention on the positions of the blocks. Point at the blocks in order, and **say:** *The circle is first in line. The square is second, and so on.*



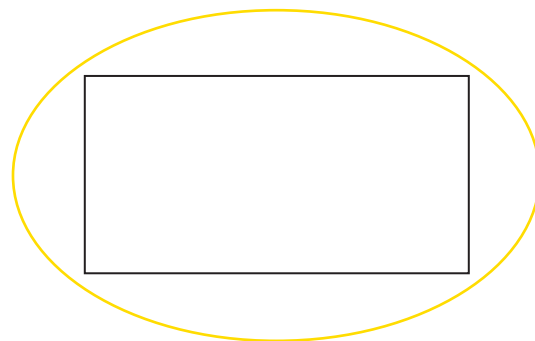
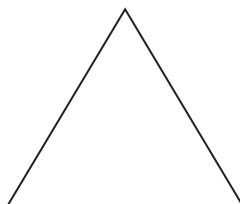
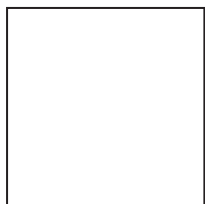
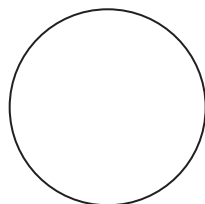
3. Say: *I am thinking of a line of two shapes. The first one is small, thin, and blue. It has no sides or corners. The second one is large, thin, and red. It has four sides and four corners. It is not a rectangle.* Children should line up the small blue circle and large red square. Repeat the activity with different orders of shapes.



1.



2.



Directions

1. Circle the shape that answers this riddle: "I have no sides and no corners." 2. Circle the shape that answers this riddle: "I have 4 sides and 4 corners. Two of my sides are longer than the other two."



Answer Key

Check children's work.

Challenge

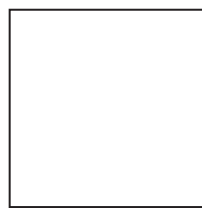
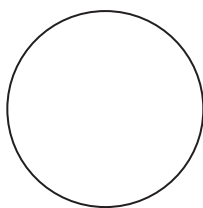
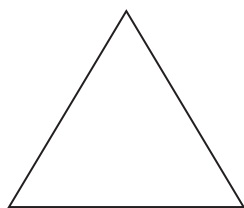
Use Attribute Blocks. Find the shape that answers this riddle: "I have 3 sides and 3 corners. I am often used as the top of a house." Draw a picture that uses this shape. Color this shape in your picture green.

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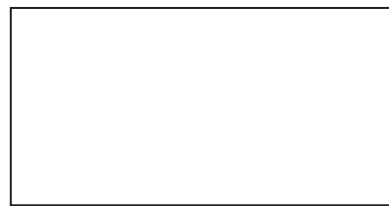
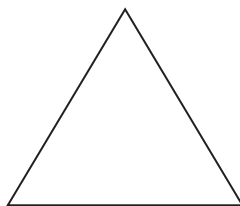
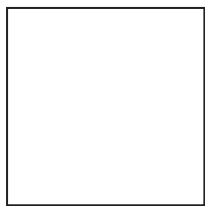
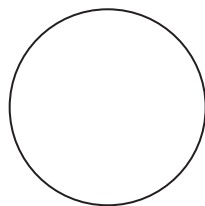


Name _____

1.



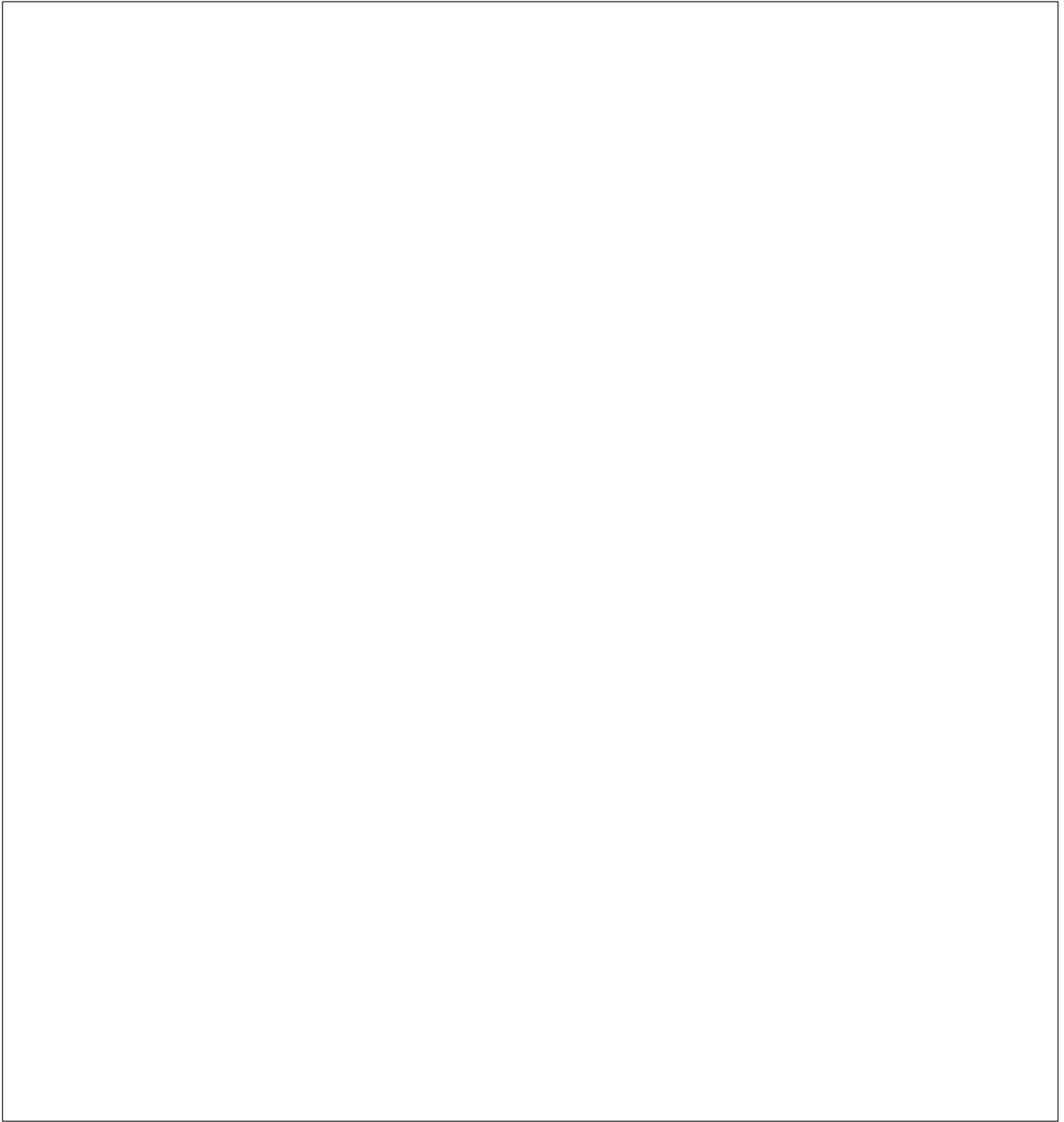
2.



Directions

1. Circle the shape that answers this riddle: "I have no sides and no corners." **2.** Circle the shape that answers this riddle: "I have 4 sides and 4 corners. Two of my sides are longer than the other two."

Name _____



Challenge

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