

# LESSON 7

## Objective

Determine the sorting rule for sorted groups of objects.

## Common Core State Standards

- **K.MD.3** Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.

## Measurement and Data

# Determine the Sorting Rule

Children need to be familiar with sorting by color, shape, and size in order to determine the sorting rule for a group of objects that has already been sorted. Determining a sorting rule involves becoming aware of a pattern. This can be done by comparing groups and recognizing how the objects are similar and different. Algebraic thinking and logical reasoning are developed as children work to determine a sorting rule. These skills are at the foundation of understanding algebraic functions.

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

## Talk About It

Discuss the Try It! activity.

- **Ask:** When I sorted the Attribute Blocks shapes for you, how did you know how I sorted them? What did you look for first? Did you look for different sizes? Different shapes? Different colors?
- **Ask:** When it was your turn, how did you sort the blocks? Did the rest of the group know how you sorted?
- **Ask:** What is another way you could sort the blocks?

## Solve It

With children, reread the problem. Have children draw a picture to show the books on two rows. Then have children use their pictures to explain how the books were sorted.

## More Ideas

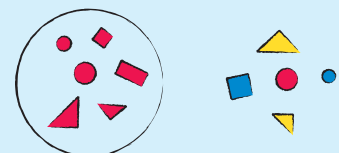
For other ways to teach determining the sorting rule—

- Have children work independently with a variety of manipulatives (one kind for each child) and sort their sets into at least two groups based on at least one attribute. Have each child keep their sorted objects at their desks. Then have children take turns going around the room, stopping at each set of sorted objects, and determining the sorting rule.
- Give each pair of children a set of objects that is sorted into two or three groups, such as two or three colors of 1" Color Cubes, two or three types of Frog Counters, or two or three sizes of Three Bear Family® Counters. Then give each pair an unsorted pile of the same objects. Have children determine the sorting rule and follow the same rule to sort the new pile of objects.

## Formative Assessment

Have children try the following problem.

Draw a circle around the shape on the right that matches the shapes in the Sorting Circle.



**Try It!** 30 minutes | Groups of 3

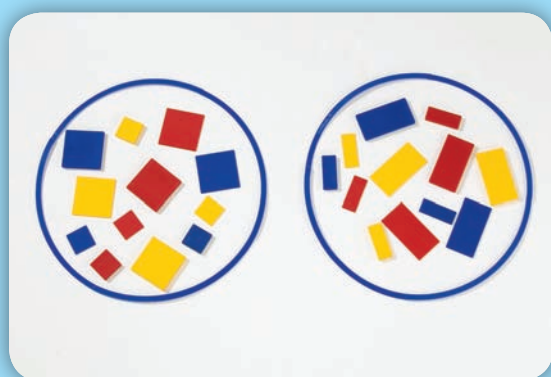
Here is a problem about determining a sorting rule.

*Sam's teacher put the books in the reading area on two shelves. The colors and sizes are all mixed up, but Sam sees that the books on the first shelf are square and the books on the second shelf are rectangular. How did Sam's teacher sort the books?*

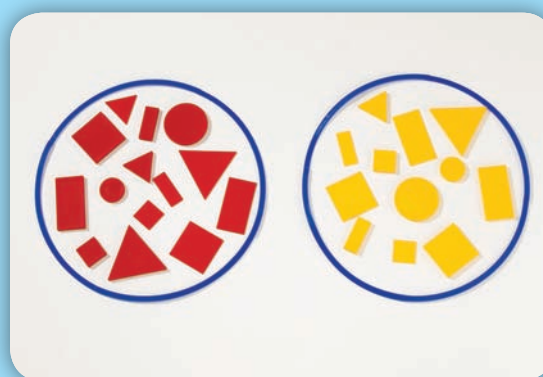
Introduce the problem. Then have children do the activity to solve the problem. Distribute Attribute Blocks and Sorting Circles to each group.

**Materials**

- Attribute Blocks (an assortment of sizes, shapes, and colors for each group)
- Attribute Sorting Circles (2 per group)



**1.** Set up two Sorting Circles that demonstrate sorting by shape for each group of children. Encourage children to work together to find that the two groups of blocks have been sorted by shape. Have children finish this sentence: The blocks have been sorted by [shape].



**2.** Repeat Step 1 with two new shapes. Then repeat to show two groups sorted by color and two groups sorted by size. Have children finish this sentence after determining each sorting rule: The blocks have been sorted by [attribute].

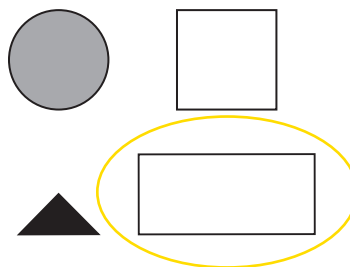
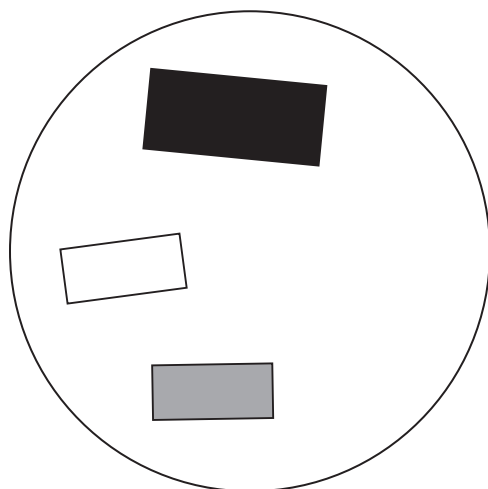


**3.** After children have determined the sorting rules for the blocks that you have sorted, have them take turns sorting the blocks and determining the sorting rule.

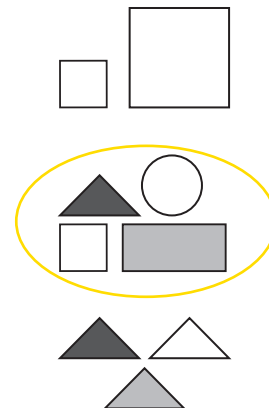
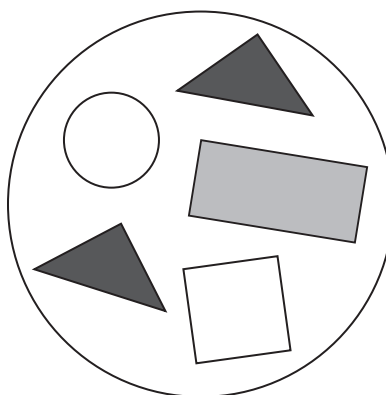
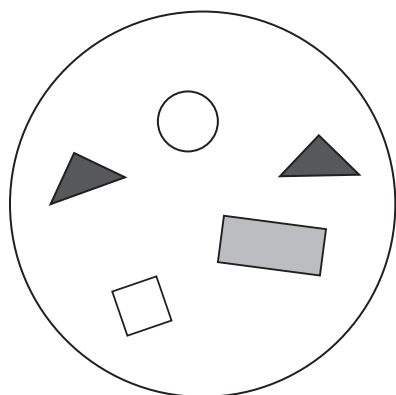
**! Look Out!**

Watch out for children who incorrectly determine the sorting rule. Have these children practice sorting a group of blocks by shape, color, or size. Then try the activity again by giving children a presorted group and having them determine the rule.

1.



2.



### Directions

1. Circle the shape that belongs inside the Sorting Circle. 2. Circle the attribute that completes the rule: The blocks have been sorted by size, shape, or color.

## Answer Key

Check children's work.

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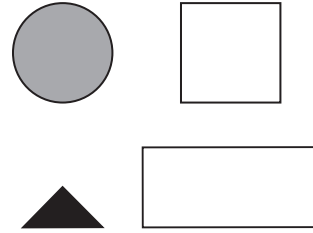
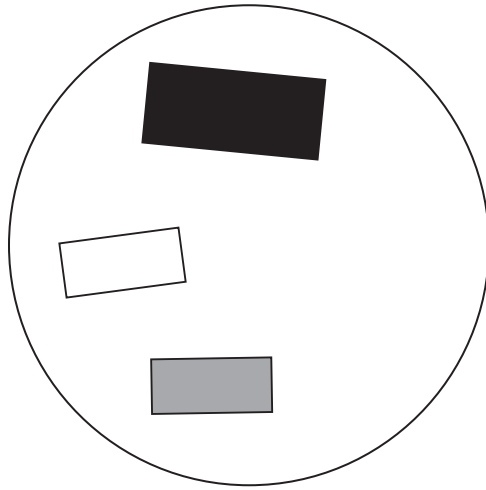
### Challenge

Use Attribute Blocks. Sort the blocks into two groups using the rule you choose. Draw two large circles on your paper. Draw and color the blocks you sorted. Write or draw your sorting rule.

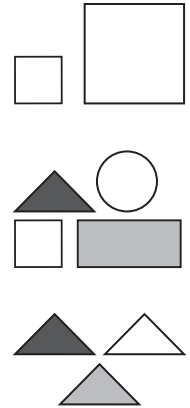
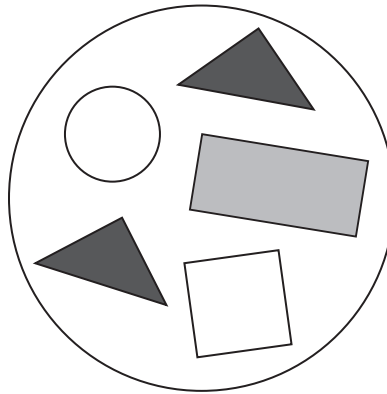
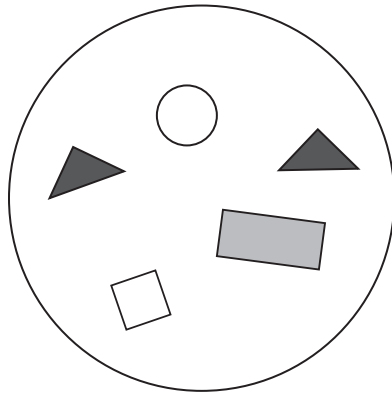
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1.



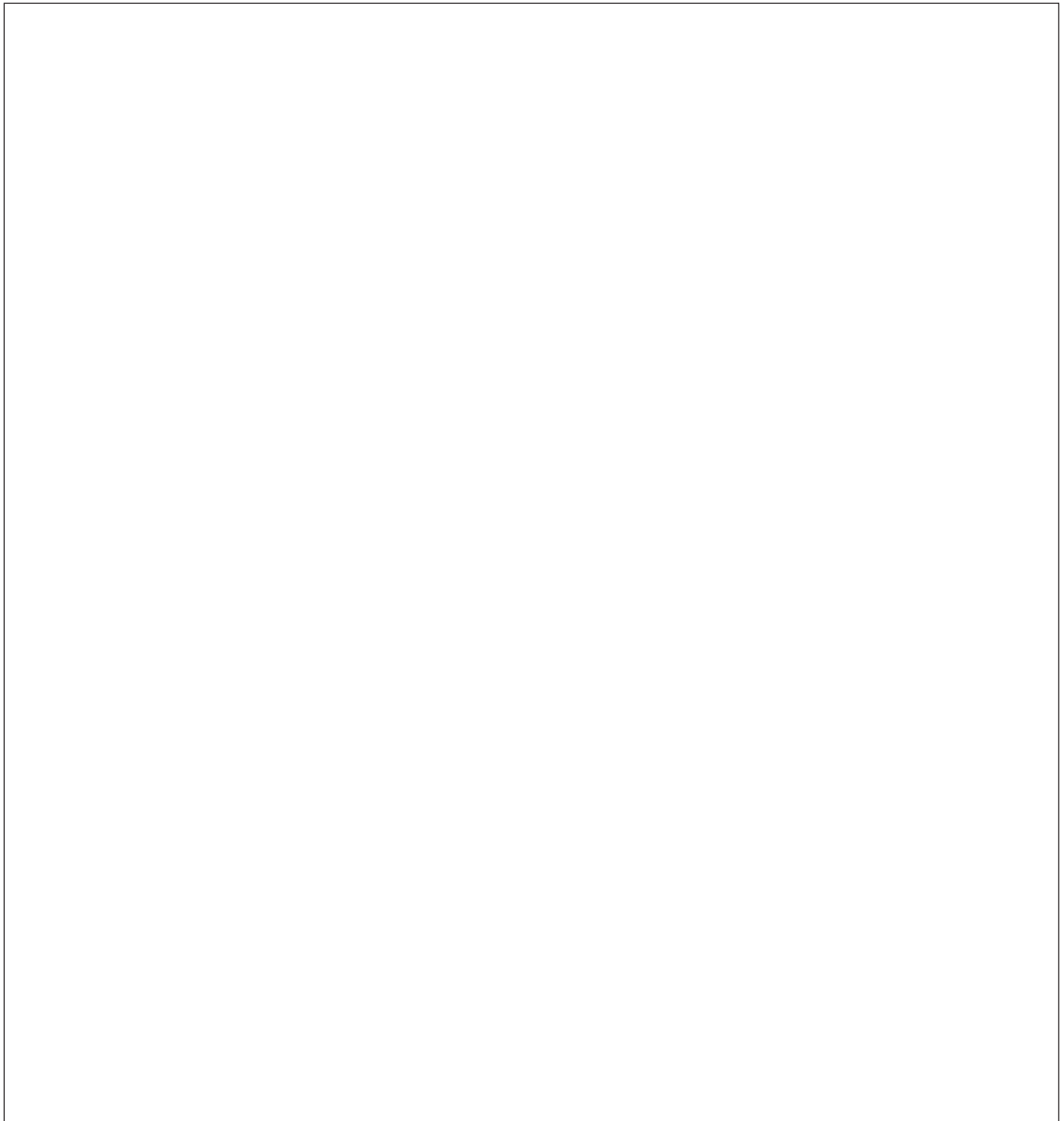
2.



### Directions

1. Circle the shape that belongs inside the Sorting Circle.
2. Circle the attribute that completes the rule: The blocks have been sorted by size, shape, or color.

Name \_\_\_\_\_



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### Challenge

Use Attribute Blocks. Sort the blocks into two groups using the rule you choose. Draw two large circles on your paper. Draw and color the blocks you sorted. Write or draw your sorting rule.