

# Half of a Half

NCTM Standards 1, 6, 7, 8, 9, 10  
Common Core State Standards 1.G.3

## STUDENT OBJECTIVES

- To partition circles and rectangles into two and four equal shares
- To describe the shares using the words and phrases *halves*, *fourths*, *quarters*, *half of*, *fourth of*, and *quarter of*
- To understand that decomposing into more equal shares creates smaller shares

## Lesson Planner

### 2 Teach and Practice

### MATERIALS

- (A) **Playing a Game: *Half-and-Double Bingo*** (TG p. 522)
- Extended Activity** (B) **Modeling and Writing Fourths** (CCRG pp. CC 7–CC 8)
- (C) **Finding Fourths of Wholes and Sets** (TG p. 524)

## Lesson Notes

Replace the current Teach and Practice Activity B in **Lesson 8.7** with this extended activity.

### About the Activity

The extended Activity B asks children to compare halves and fourths of the same whole to see that decomposing into more equal shares creates smaller shares.

## B Modeling and Writing Fourths

whole class



10  
MIN

**Purpose** To understand and write fourths

**Introduce** Sketch a circle on the board and ask a child to come up and draw a line that would cut the circle in half.

### Talk Math

- What do you know about an object that is cut up this way? Possible answers: Two people can share it; Each person gets two equal pieces; It is cut into halves.

Sketch the circle again divided into halves but do not label the halves. Have another child come up and draw a line that would cut each half in half. Explain that the circle is now cut into four equal parts. Each of these parts is one of four equal parts or one fourth of the whole.

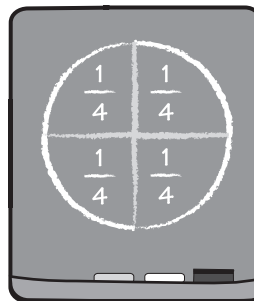
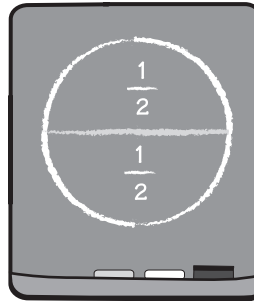
### Talk Math

- What do you know about an object that is cut up this way? Possible answers: Four people can share it; Each person gets one out of four equal pieces; It is cut into quarters.
- When an object is cut up into fourths instead of halves, what can you say about the shares? Possible answer: The shares are smaller.

Explain how to write the fraction that represents one of the four equal pieces of the circle.

- Start with a line to show that you split the circle. –
- Write the number of pieces you made under the line.  $\frac{\quad}{4}$
- Write the number of pieces you are talking about above the line.  $\frac{1}{4}$

Tell children that this number is called either *one fourth* or *one quarter*. Then write  $\frac{1}{4}$  on each part of the circle you drew.



### Materials

- For the teacher:  
4 quarters, demonstration analog clock

NCTM Standards 1, 6, 7, 8, 9, 10  
CCSS 1.G.3

### Concept Alert

It is important to emphasize that in order for an object or a set of objects to be divided into fourths, each part of the object or set must be the same size. It is not enough for the whole to be divided into four parts. It can be helpful for children to think of sharing an object or a set of objects equally among four people.

### Possible Discussion

Discuss the term *quarter* as it relates to money and time.

Children will likely mention the coin and a quarter of an hour, as in "We will leave at a quarter to 3." Have children count by 25s to show that four quarters make 100¢ or \$1.00. Set a demonstration clock to the quarter hour and ask why the term *quarter* is appropriate. It is one quarter or  $\frac{1}{4}$  of the hour.

**Task** Have children model halves and fourths. Distribute a sheet of paper and 12 counters to each pair. First have children work with a partner to fold a sheet of paper into fourths. If children need help getting started, remind them that they divided the circle by dividing it in half and then in half again. You may wish to have children label each fourth. Ask, "How many fourths are there in a whole?"

Then challenge children to find half and then a fourth of a set of objects. Guide children to see that a fourth of a set of objects is a smaller share than half of that set of objects. Begin by giving each child four counters. Have children make equal groups on their papers. Ask, "How many counters make  $\frac{1}{4}$  of the group of 4?" You may wish to repeat the activity with sets of 8, 12, or more counters. Each time, ask children to identify one of the four equal groups, two of the four equal groups, and so on.

