

### Naming Fraction Circles

Display the whole circle, asking students to find and display the corresponding piece from their sets. Let them describe the circle, leading them to name it as one whole. Then hold up the halves, and arrange the pieces to form a circle. Ask, “What do you notice about these pieces?”

Lead students to recognize that the pieces fit together to form a whole circle, that both pieces are the same size (equal parts), and that each piece is a half. Encourage them to compare and describe the pieces they have named so far. (*Answer:* 1 whole, 2 halves.) Continue guiding and questioning students as they identify thirds, fourths, sixths, and eighths.

### Using the Fraction Symbols

Hold up the halves, asking students to find the corresponding pieces in their sets. Ask, “What part of a circle is each piece?” (*Answer:*  $1/2$ .) Ask them what each number in the fraction might represent. Help them understand that the *denominator* tells the number of parts in the whole, and the *numerator* tells the number of parts counted.

Continue identifying thirds, fourths, sixths, and eighths, as you write the fraction for each.

Write the fraction  $2/3$  on the board. Ask students to use what they know about fractions to show this amount with their pieces. Then have a volunteer draw it on the board. Continue writing other fractions such as  $2/4$ ,  $2/6$ ,  $6/6$ ,  $3/8$ , and  $5/8$ , as students use their pieces to show the amounts. Then make models on the board.

### Exploring Equivalent Fractions

Hold up one half. Ask pairs of students to identify the piece and to find the corresponding piece in their sets. Ask, “Are there other pieces the same size as one-half? How could you find out?” Discuss ways of finding equivalent parts, including placing pieces on top of others to compare. Let students work to find all the parts they can that are equivalent to one-half. (*Answers:*  $2/4$ ,  $3/6$ ,  $4/8$ .) Some students also may choose to show one half as  $1/4 + 2/8$ , or  $1/3 + 1/6$ . To record their findings, students might write the fractions, or cut and paste paper circles on paper. Call the groups together to share results on the board.

Ask students to find equivalent fractions for other amounts such as  $6/8$ ,  $2/6$ , and  $2/3$ .

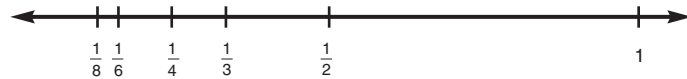
### Comparing and Ordering to Make a Number Line

Write the following on the chalkboard:

$$\frac{1}{2} \quad \frac{1}{3} \quad \frac{1}{4} \quad \frac{1}{6} \quad \frac{1}{8}$$

Give pairs of students a set of fraction circles, and ask them to find the piece that represents each fraction written on the chalkboard. Then arrange these pieces in order from largest to smallest. (Note: For older students, include other fractions such as  $2/3$ ,  $3/4$ ,  $5/6$ , and  $5/8$ .)

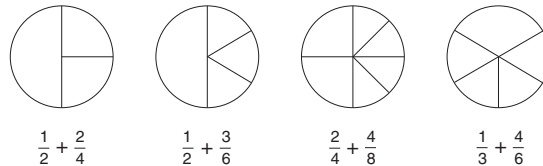
After students have arranged the pieces in order, form a fraction number line together. Ask volunteers to show their arrangements on the board, then describe their ordering. Discuss and reorder the sequence as necessary, until all students agree. Give each student a paper and help them draw and complete a number line, ordering the fractions from smallest to largest. Discuss the number line when it is completed, letting students describe any patterns they notice.



### How Many Ways Can You Make One Whole?

Place all the fraction pieces on a desk. Form two whole circles using the halves and fourths and hold them up. Ask the students to describe what they see, eliciting that each whole circle is formed with the same size pieces (equal parts). Volunteers can form fraction circles with equal parts at a desk, using thirds, sixths, and eighths. Keep a list or draw a picture on chart paper to show each whole circle that students form.

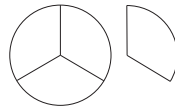
Remove all circles except the halves and fourths. Ask, “We have made whole circles when each circle is made up of equal parts. Who can think of how we might make other whole circles?” Let students use their fraction parts to combine parts until they form a whole circle. Volunteers can model their circles on the board. Add each circle to the list on the chart paper. Possibilities include:



Place a set of fraction circles and the class list in a math center. Students can continue to look for pieces to make whole circles until they are certain all the possibilities have been found.

### Fractions Greater Than One

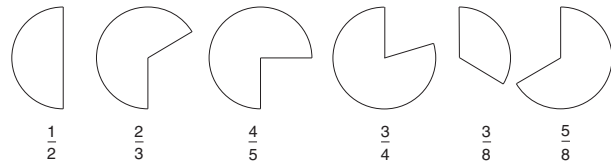
Ask a student to demonstrate the following on the overhead, as the class models at their seats. Work with a partner and combine two sets of fraction circles. Show one-third. Show two-thirds. Show three-thirds. Show four-thirds. Ask, "Is four-thirds more than a whole circle, the same as a whole circle or less than a whole circle?" (*Answer: more.*) "Can you think of a way that we could write four-thirds?" (*Answer: 4/3.*)



"Can you think of another way we could write four thirds?" (*Answer: 1 whole and 1/3.*) Repeat with other mixed numbers. Give students the opportunity to model, write, and read these fractions.

### A Game of Fractions

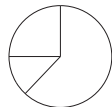
On the chalkboard, draw fractional parts of circles as shown:



Arrange the class in two teams. Cover the figures so only one circle you have drawn can be seen. In turn, players from each team can guess which size piece can be used to cover the fractional part of the circle, then try using the pieces to cover the shape. The team that covers and names a fractional part correctly scores a point. If an attempt is unsuccessful, the other team can try. When all circles have been covered and named, the team with the most points wins.

### Adding and Subtracting Fractions

Arrange one-fourth and one-eighth on the whole circle on the overhead. Ask, "What part of the whole circle do you *estimate* these pieces cover?" (*Answer: 3/8.*) "How could we find out?" Explore the children's suggestions. You may want to lead children to try exchanging pieces so all parts are the same size and can be counted.



Continue adding fractional parts such as  $1/3 + 2/6$ ,  $1/2 + 1/4$ , and  $3/6 + 1/8$ . Younger children can draw pictures to record their responses. Show older children how to record the addition using the symbols.

Next, hold up the  $1/2$  piece. Explain, "I have one-half of a circle. How could I give one-fourth of this circle away?" Explore the children's suggestions, and if necessary, lead them to exchange one-half for two-fourths. Then one-fourth can be removed with one-fourth remaining. Continue with other subtraction situations including  $1/4 - 1/8$ ,  $1/2 - 2/8$ , and  $2/3 - 1/6$ . (Help students recognize that both the third pieces need to be traded for sixths, so the remaining pieces can be counted.)



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 CHOKING HAZARD - Small parts.  
 Not for children under 3 years.



# CONNECTING RAINBOW FRACTION® CIRCLES

## Teaching Guide

This set includes six circles representing halves, thirds, fourths, sixths, eighths, and one whole. This set includes plastic rings which lock the pieces together. This set can be used to provide students with a concrete model as they learn about fractional relationships. For hands-on explorations use the overhead companion set, *Overhead Basic Rainbow Fraction® Circles (LER 0315)*.

Before you begin directed activities with fraction circles, give students time for independent explorations. Encourage them to describe any relationships they discover.