7•6 Many Names for Fractions

Objective To provide practice identifying equivalent fractions.

1 Teaching the Lesson

materials

- ☐ *Math Journal 2,* pp. 342 and 343
- ☐ Study Link 7•5
- ☐ Fraction Cards (*Math Journal 2,* Activity Sheets 5 and 6)

See **Advance Preparation**

Key Activities

Students use Fraction Cards to help them start a table of equivalent fractions.

Key Concepts and Skills

- Identify fractional parts of regions.
  [Number and Numeration Goal 2]
- Name equivalent fractions.
  [Number and Numeration Goal 5]
- Use patterns in a table to find equivalent fractions.
  [Patterns, Functions, and Algebra Goal 1]

Ongoing Assessment: Informing Instruction See page 599.

2 Ongoing Learning & Practice

materials

- ☐ *Math Journal 2,* p. 200
- ☐ *Student Reference Book,* p. 249
- ☐ Study Link Master (*Math Masters,* p. 218)
- ☐ Game Masters (*Math Masters,* pp. 483–485)

Students play *Grab Bag* to practice calculating the probability of an event.

Students practice and maintain skills through Math Boxes and Study Link activities.

Ongoing Assessment: Recognizing Student Achievement Use journal page 200.
[Measurement and Reference Frames Goal 1]

3 Differentiation Options

materials

- ☐ *Student Reference Book,* p. 243
- ☐ Teaching Masters (*Math Masters,* pp. 219–222)
- ☐ Game Masters (*Math Masters,* pp. 473–476)
- ☐ scissors; glue

See **Advance Preparation**

READINESS

Students find equivalent fractions by matching fractional parts of circles.

ENRICHMENT

Students use a clock face to model equivalencies of fractions with denominators of 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, and 60.

EXTRA PRACTICE

Students play *Fraction Match* to practice identifying equivalent names for fractions.

Additional Information

Advance Preparation If students have not removed Activity Sheets 5 and 6 from the back of the journal and cut the fraction cards apart, have them do so prior to teaching Part 1 of the lesson. Ask students to write their initials on the cards for identification. For the optional Extra Practice activity in Part 3, consider copying *Math Masters,* pages 473–476 on cardstock.

Technology

Assessment Management System
Math Boxes, Problem 4
See the **iTLG.**

Getting Started

Mental Math and Reflexes

Pose fraction addition and subtraction problems. Have students estimate whether the answer is greater than or less than 1 and explain their answers. *Suggestions:*

●○○
- $\frac{1}{3} + \frac{1}{4}$ less
- $\frac{1}{2} + \frac{3}{4}$ greater
- $1\frac{1}{2} - \frac{1}{4}$ greater
- $\frac{3}{3} - \frac{1}{4}$ less

●●○
- $\frac{9}{10} + \frac{7}{8}$ greater
- $\frac{6}{8} + \frac{1}{3}$ greater
- $\frac{3}{2} - \frac{3}{4}$ less
- $1\frac{1}{2} - \frac{1}{16}$ greater

●●●
- $\frac{2}{3} + \frac{6}{9}$ greater
- $\frac{2}{3} + \frac{1}{12}$ less
- $\frac{14}{7} - \frac{9}{8}$ less
- $1\frac{5}{6} - \frac{1}{12}$ greater

Math Message

Take out your Fraction Cards. Write down two things that you notice about the cards.

Study Link 7•5 Follow-Up

Review answers. Consider having students draw and discuss their solutions for Problem 5.

1 Teaching the Lesson

Math Message Follow-Up

WHOLE-CLASS DISCUSSION

(*Math Journal 2,* Activity Sheets 5 and 6)

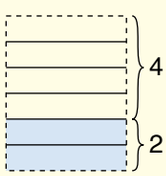
Students share observations.

- One side of each card is divided into equal parts, and some of the parts are shaded.
- A fraction with the numerator or denominator missing appears on the other side of each card.

Ask students to write the missing numerator or denominator in order to name the *fractional part of the card that is shaded*. For example, if the rectangle is divided into 6 equal parts and 2 of them are shaded, the completed fraction on the back should be $\frac{2}{6}$.

Ongoing Assessment: Informing Instruction

Watch for students who make the common error of writing $\frac{2}{4}$ for a Fraction Card such as this:



Remind students that the numerator is the counting number. It tells how many parts are shaded (2 parts). The denominator tells what is being counted. There are 6 parts in all, so sixths are being counted.

Tell students that in this lesson they will use the Fraction Cards as a tool to help them name equivalent fractions.

Student Page

Date Time

Equivalent Names for Fractions

Fraction	Equivalent Fractions	Decimal	Percent
$\frac{0}{2}$		0	0%
$\frac{1}{2}$	$\frac{2}{4}$, $\frac{3}{6}$		
$\frac{2}{2}$		1	100%
$\frac{1}{3}$			
$\frac{2}{3}$			
$\frac{1}{4}$			
$\frac{3}{4}$			
$\frac{1}{5}$			
$\frac{2}{5}$			
$\frac{3}{5}$			
$\frac{4}{5}$			
$\frac{1}{6}$			
$\frac{5}{6}$			
$\frac{1}{8}$			
$\frac{3}{8}$			
$\frac{5}{8}$			
$\frac{7}{8}$			

Math Journal 2, p. 342

Starting a Collection of Fraction Names

PARTNER ACTIVITY

(*Math Journal 2,* pp. 342 and 343)

Have one student in each partnership put his or her Fraction Cards away. Model the following procedure:

1. Ask students to find the card with 1 out of 2 parts shaded and the card with 2 out of 4 parts shaded. Point out that the fractions on the back of the cards ($\frac{1}{2}$ and $\frac{2}{4}$) are not the same, but the same amount is shaded on each of these cards. So $\frac{1}{2}$ and $\frac{2}{4}$ are names for the same fraction.
2. Ask students to find all of the other cards that are half-shaded. $\frac{3}{6}$, $\frac{4}{8}$, $\frac{5}{10}$, $\frac{6}{12}$
3. Have students turn to the Equivalent Names for Fractions table on page 342. Next to the fraction $\frac{1}{2}$ in the table, have them record all the fractions for the cards that are half-shaded. $\frac{2}{4}$, $\frac{3}{6}$, $\frac{4}{8}$, $\frac{5}{10}$, $\frac{6}{12}$

To support English language learners, make the connection between the Equivalent Names for Fractions table and the name-collection boxes completed in prior lessons.

Continuing a Collection of Fraction Names

PARTNER ACTIVITY

(*Math Journal 2,* pp. 342 and 343)

Instruct partners to sort the remaining cards into groups that have the same amount shaded. Then have them record the fractions in each of these groups on the appropriate lines in the Equivalent Names for Fractions table.

Links to the Future

Students begin filling in the column for decimals in Lesson 7-8 and the column for percents in Unit 9.

Student Page

Date Time

Equivalent Names for Fractions *continued*

Fraction	Equivalent Fractions	Decimal	Percent
$\frac{1}{9}$			
$\frac{2}{9}$			
$\frac{4}{9}$			
$\frac{5}{9}$			
$\frac{7}{9}$			
$\frac{8}{9}$			
$\frac{1}{10}$			
$\frac{3}{10}$			
$\frac{7}{10}$			
$\frac{9}{10}$			
$\frac{1}{12}$			
$\frac{5}{12}$			
$\frac{7}{12}$			
$\frac{11}{12}$			

Math Journal 2, p. 343

2 Ongoing Learning & Practice

Playing *Grab Bag*

PARTNER ACTIVITY

(*Student Reference Book,* p. 249; *Math Masters,* pp. 483–485)

Students play *Grab Bag* to practice calculating the probability of an event.

Adjusting the Activity

ELL

Have students draw pictures to model the problems they generate while playing *Grab Bag*.

AUDITORY ◆ KINESTHETIC ◆ TACTILE ◆ VISUAL

Math Boxes 7•6

INDEPENDENT ACTIVITY

(*Math Journal 2*, p. 200)

Mixed Practice Math Boxes in this lesson are paired with Math Boxes in Lesson 7-8. The skill in Problem 6 previews Unit 8 content.

Ongoing Assessment: Recognizing Student Achievement

Math Boxes Problem 4 ★

Use **Math Boxes, Problem 4** to assess students' ability to estimate the measure of an angle. Students are making adequate progress if they are able to identify the angle as obtuse. Some students may be able to measure it with a full- or half-circle protractor to within 3 degrees.

[Measurement and Reference Frames Goal 1]

Study Link 7•6

INDEPENDENT ACTIVITY

(*Math Masters*, p. 218)

Home Connection Students match fractions with pictures of shaded regions and collections of objects.

Student Page

Games

Grab Bag

Materials ☐ 1 deck of *Grab Bag* Cards (*Math Masters*, pp. 483–484)
☐ 1 *Grab Bag* Record Sheet for each player or team (*Math Masters*, p. 485)
☐ 3 six-sided dice

Players 2, or two teams of 2

Skill Variable substitution; calculating probabilities of events

Object of the game To score more points by calculating the probabilities of events.

Directions

1. Shuffle the deck of *Grab Bag* cards and place it problem-side down on the table.
2. Players (or teams) take turns. When it is your turn:
   - Draw a card and place it problem-side up on the table. Two quantities are missing from each card. They are shown with the variables x and y.
   - Roll the 3 dice and substitute the numbers rolled for the variables x and y in the following way:
     Replace x with the number shown on 1 of the dice.
     Replace y with the sum of the numbers on the other 2 dice.
   - Solve the problem and give an answer. The opposing player (or team) checks the answer. Your score for the round is calculated as follows:
     10 points: if the event is unlikely (probability is less than $\frac{1}{2}$).
     30 points: if the event is likely (probability is greater than $\frac{1}{2}$).
     50 points: if the event has a 50–50 chance (probability exactly $\frac{1}{2}$).
3. The player (or team) with the higher score after 5 rounds wins.

Note Use a strategy when replacing x and y by the dice numbers to earn the most points possible for that turn.

Example Paul draws the card shown to the right.

He rolls 6, 1, and 4, and substitutes 1 for x and $6 + 4 = 10$ for y.
Lina's grab bag has 2 red, 2 blue, 1 pink, and 10 green ribbons. The probability of Lina picking a green ribbon is 10 out of 15 or $\frac{10}{15}$ or $\frac{2}{3}$.
Picking a green ribbon is likely (probability is greater than $\frac{1}{2}$).
Paul scores 30 points.

***Student Reference Book*, p. 249**

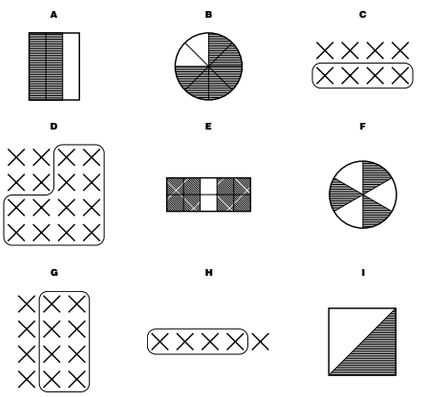
Study Link Master

Name Date Time

STUDY LINK 7•6 **Many Names for Fractions**

Write the letters of the pictures that represent each fraction.

1. $\frac{1}{2}$ C, F, I
2. $\frac{3}{4}$ B, D
3. $\frac{4}{5}$ E, H
4. $\frac{2}{3}$ A, G



Practice

5. $\frac{4}{6}$, or $\frac{2}{3} = \frac{1}{6} + \frac{3}{6}$
6. $\frac{2}{4} + \frac{1}{4} =$ $\frac{3}{4}$
7. $\frac{1}{2} + \frac{2}{6} =$ $\frac{5}{6}$
8. $\frac{5}{6} - \frac{2}{6} =$ $\frac{3}{6}$, or $\frac{1}{2}$
9. $\frac{3}{4} - \frac{1}{4} =$ $\frac{2}{4}$, or $\frac{1}{2}$
10. $\frac{1}{3} - \frac{1}{6} =$ $\frac{1}{6}$

***Math Masters*, p. 218**

Student Page

Date Time

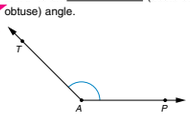
LESSON 7•6 **Math Boxes**

1. Which fraction is another name for $\frac{6}{6}$? Fill in the circle next to the best answer.
   - Ⓐ $\frac{1}{2}$
   - Ⓑ $\frac{3}{4}$
   - Ⓒ $\frac{4}{12}$
   - Ⓓ $\frac{2}{4}$

2. A bag contains
   2 blue blocks,
   3 red blocks,
   5 green blocks, and
   10 black blocks.
   You put your hand in the bag and, without looking, pull out a block. About what fraction of the time would you expect to get a black block?
   $\frac{10}{20}$, or $\frac{1}{2}$

3. Use pattern blocks to help you solve these problems.
   a. $\frac{2}{6} + \frac{2}{6} =$ $\frac{4}{6}$, or $\frac{2}{3}$
   b. $\frac{1}{2} + \frac{1}{3} =$ $\frac{5}{6}$
   c. $\frac{2}{3} - \frac{1}{3} =$ $\frac{1}{3}$
   d. $\frac{2}{3} - \frac{1}{6} =$ $\frac{3}{6}$, or $\frac{1}{2}$

4. $\angle TAP$ is an obtuse (acute or obtuse) angle.



The measure of $\angle TAP$ is 135°.

5. Next month 486 students, teachers, and parents are going on a field trip to the zoo. Each bus holds 35 people. How many buses are needed for the trip?
   14 buses

6. Tell if each of these is closest to 1 inch, 1 foot, or 1 yard.
   a. the length of your smile 1 inch
   b. the length of your journal 1 foot
   c. the distance from your waist to your feet 1 yard
   d. the width of your wrist 1 inch

***Math Journal 2*, p. 200**

Teaching Master

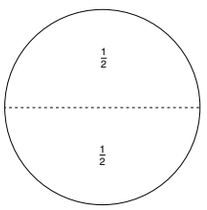
Name Date Time

LESSON 7·6 **Equivalent Fractions**

Follow these steps to find equivalent fractions:

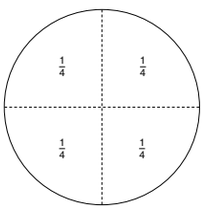
- Cut out each circle on *Math Masters*, page 219.
- Label the parts of each circle with a fraction, and cut them apart along the dashed lines.
- Glue the cutout pieces onto the circles on this page and *Math Masters*, page 221 as directed.
- Fill in the missing numerators to complete the equivalent fractions.

1. Cover $\frac{1}{2}$ of the circle with fourths.



$\frac{1}{2} = \frac{2}{4}$

2. Cover $\frac{1}{4}$ of the circle with eighths.



$\frac{1}{4} = \frac{2}{8}$

Math Masters, p. 220

3 Differentiation Options

READINESS

PARTNER ACTIVITY

15–30 Min

Finding Equivalent Fractions

(*Math Masters*, pp. 219–221)

To explore equivalent names for fractions, have students find equivalent fractions by matching fractional parts of circles.

ENRICHMENT

INDEPENDENT ACTIVITY

5–15 Min

Modeling Fraction Equivalencies

(*Math Masters*, p. 222)

To further explore equivalent fractions, have students use a clock face to model equivalencies of fractions with denominators of 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, and 60. Have students discuss how the clock faces might be used to help them model fraction addition and subtraction.

EXTRA PRACTICE

SMALL-GROUP ACTIVITY

5–15 Min

Playing *Fraction Match*

(*Student Reference Book*, p. 243;
Math Masters, pp. 473–476)

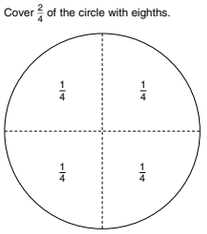
To practice identifying equivalent fractions, have students play *Fraction Match*. See Lesson 7-7 for additional information.

Teaching Master

Name Date Time

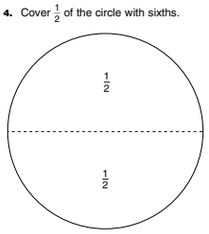
LESSON 7·6 **Equivalent Fractions** *continued*

3. Cover $\frac{2}{4}$ of the circle with eighths.



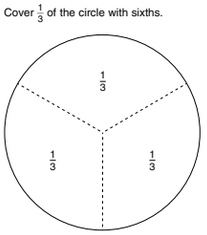
$\frac{2}{4} = \frac{4}{8}$

4. Cover $\frac{1}{2}$ of the circle with sixths.



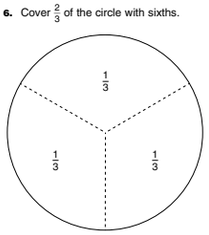
$\frac{1}{2} = \frac{3}{6}$

5. Cover $\frac{1}{3}$ of the circle with sixths.



$\frac{1}{3} = \frac{2}{6}$

6. Cover $\frac{2}{3}$ of the circle with sixths.



$\frac{2}{3} = \frac{4}{6}$

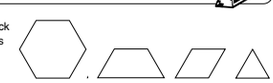
Math Masters, p. 221

Teaching Master

Name Date Time

LESSON 7·6 **Equivalent Clock Fractions**

1. Explain why a hexagon pattern block is useful for modeling equivalencies of fractions with denominators of 2, 3, and 6.



Sample answer: A hexagon is made up of 6 triangles, so each triangle is $\frac{1}{6}$ of a hexagon; each rhombus is made up of 2 triangles, which is $\frac{2}{6}$ or $\frac{1}{3}$ of a hexagon; and each trapezoid is made up of 3 triangles, which is $\frac{3}{6}$ or $\frac{1}{2}$ of a hexagon.

2. Study the clock face. Which denominators can be modeled on the clock face?

60, 30, 20, 15, 12, 10, 6, 5, 4, 3, and 2.

Explain your answer.

Sample answer: These denominators are all factors of 60, and there are 60 marks on the clock face.

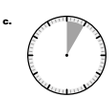
3. Using the denominators from Problem 2, name the fraction represented on each clock face in as many different ways as you can. Sample answers:

a. 

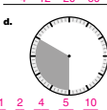
$\frac{1}{4}, \frac{3}{12}, \frac{5}{20}, \frac{15}{60}$

b. 

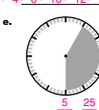
$\frac{1}{2}, \frac{2}{4}, \frac{3}{6}, \frac{5}{10}, \frac{6}{12}, \frac{10}{20}, \frac{15}{30}, \frac{30}{60}$

c. 

$\frac{1}{12}, \frac{5}{60}$

d. 

$\frac{1}{3}, \frac{2}{6}, \frac{4}{12}, \frac{5}{15}, \frac{10}{30}, \frac{20}{60}$

e. 

$\frac{5}{12}, \frac{25}{60}$

f. 

$\frac{3}{4}, \frac{9}{12}, \frac{15}{20}, \frac{45}{60}$

Math Masters, p. 222