

Fraction Fix

Student Workbook • Lessons 6–10

Build every fraction from a unit and place it on the number line.

In this unit You will name unit fractions, iterate them to build any fraction, extend fractions beyond one, connect fractions to division, and use 0 and 1 to establish number-line scale.

Keep using the four habits Name the whole. Name the unit. Estimate the size. Represent and explain.

Lesson	Central idea
6 The Unit Fraction	The denominator names the size of one equal unit.
7 Iterating the Unit	The numerator counts copies of that unit.
8 Fractions Greater Than One	Unit fractions continue past every whole number.
9 Fraction as Division	The fraction bar records equal sharing and division.
10 Zero One and the Number Line	Endpoints establish the scale before partitioning.

This workbook belongs to: _____

Lesson 6 | The Unit Fraction

Name: _____	Date: _____
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Today’s Math Interpret $\frac{1}{b}$ as one equal part of a specified whole in area, length, set, and number-line models.

Essential Question What does the denominator tell us about one fractional unit?

Retrieval Warm-Up

1. Write $<$, $>$, or $=$: $\frac{1}{8}$ ____ $\frac{1}{5}$.

2. What must be true before one part can be called $\frac{1}{6}$?

Part I | Notice and Predict

3. The same whole is partitioned first into thirds and then into sixths. Which unit fraction is larger? Predict before drawing.

One whole divided into thirds:



The same whole divided into sixths:



4. Use the bars to explain why the denominator names the size of one part.

Lesson 6 continued | One Unit in Different Models

Part II | Build the Idea

5. A strip is divided into 5 equal lengths. Shade and label one unit fraction.

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6. A set contains 12 counters and is divided into 4 equal groups. How many counters are in one group? What fraction of the set is that group?

7. Draw a number line from 0 to 1 and partition it so the first interval has length $\frac{1}{4}$. Label every partition point.

Part III | Practice and Explain

8. Match each description to a unit fraction: one of 9 equal parts; one of 3 equal shares; one of 10 equal intervals.

Lesson 6 continued | Check Your Understanding

Part IV | Reason and Prove

9. A student says, “The denominator tells how many parts are shaded.” Correct the statement and give an example.

10. One unit fraction is greater than $\frac{1}{7}$ but less than $\frac{1}{3}$. Give two possible unit fractions and justify both choices.

11. A pictured amount is built from three equal pieces and has value $\frac{3}{8}$. What unit fraction measures each piece? Explain.

Quick Write | 5 minutes

Explain why $\frac{1}{10}$ can be a larger physical piece than $\frac{1}{4}$ even though $\frac{1}{10}$ is the smaller number.

Exit Ticket

A. What unit fraction is needed to measure a length made from five equal pieces totaling $\frac{5}{6}$?

B. Describe the difference between the denominator and the number of selected parts.

Lesson 7 | Iterating the Unit

Name: _____	Date: _____
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Today’s Math Interpret a/b as a copies of $1/b$ and connect repeated addition, multiplication, models, and number lines.

Essential Question How can one unit fraction generate every fraction with that denominator?

Retrieval Warm-Up

- 1. Name the unit fraction in $5/8$.

- 2. Which is larger: $1/6$ or $1/9$? State the condition that makes your answer valid.

Part I | Notice and Predict

- 3. Build $5/6$ by shading one sixth at a time. Record the fraction after each new sixth is added.

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- 4. Write $5/6$ as repeated addition and as a multiplication expression.

Part II | Build the Idea

- 5. Complete the statement: $7/10$ means ____ copies of the unit _____. Explain the role of each number.

Lesson 7 continued | Count by the Unit

6. Draw a number line and count by fourths from 0 through $\frac{6}{4}$. Label every point.

7. Write each as repeated addition and multiplication: $\frac{3}{5}$ and $\frac{8}{5}$.

8. How many copies of $\frac{1}{12}$ make $\frac{3}{4}$? Rename $\frac{3}{4}$ in twelfths and explain.

Part III | Practice and Explain

9. A student builds $\frac{4}{7}$ using four pieces of size $\frac{1}{4}$. Identify the mismatch and correct it.

10. Write the fraction represented by nine copies of $\frac{1}{6}$. Then bound the value between two whole numbers.

Lesson 7 continued | Check Your Understanding

Part IV | Translate and Transfer

Words	Repeated addition	Multiplication	Fraction
five copies of one eighth			
	$\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3}$		
		$7 \times \frac{1}{5}$	

11. Draw two representations of $\frac{7}{5}$. One must be a number line. Label the unit fraction in both.

12. Write one equation connecting your two representations.

Quick Write | 5 minutes

Use the words numerator, denominator, unit, and copies to explain $\frac{a}{b}$.

Exit Ticket

A. Write $\frac{11}{6}$ as repeated addition and multiplication.

B. How does iterating $\frac{1}{6}$ show that $\frac{11}{6}$ is greater than 1?

Lesson 8 | Fractions Greater Than One

Name: _____	Date: _____
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Today’s Math Construct, name, locate, and bound fractions beyond one whole by counting unit fractions.

Essential Question What happens when unit fractions continue past one whole?

Retrieval Warm-Up

1. Write $\frac{6}{5}$ as copies of a unit fraction.

2. How many fifths make exactly one whole?

Part I | Notice and Predict

3. A path is measured with fourth-length units. Mark each fourth until you reach $\frac{9}{4}$. Predict which whole numbers bound $\frac{9}{4}$.

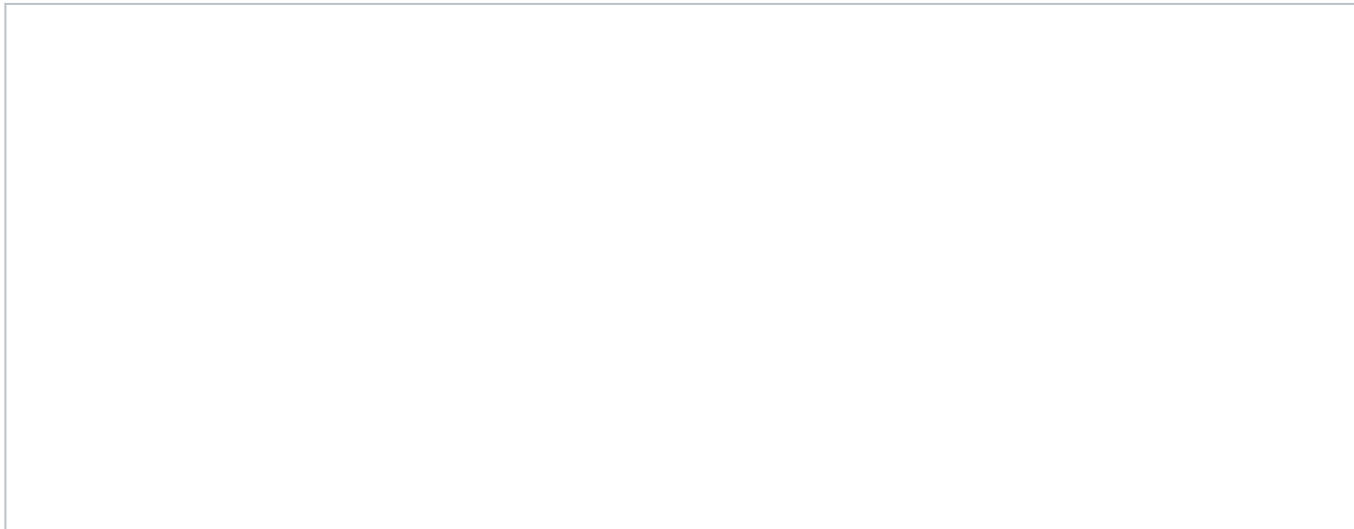
4. Explain why crossing $\frac{4}{4}$ does not require changing the unit.

Part II | Build the Idea

5. Complete: $\frac{9}{4} = \frac{4}{4} + \frac{4}{4} + \frac{\quad}{4}$. What does this decomposition show?

Lesson 8 continued | Beyond One Whole

6. Draw a number line from 0 to 3. Partition every whole into thirds and locate $\frac{7}{3}$.



7. State the two whole numbers that bound each fraction: $\frac{5}{4}$, $\frac{11}{6}$, $\frac{13}{5}$.

8. Write each whole number as a fraction with denominator 7: 1, 2, and 3.

9. Order from least to greatest without converting to decimals: $\frac{8}{5}$, $\frac{6}{5}$, $\frac{11}{5}$, $\frac{5}{5}$.

Part III | Practice and Explain

10. Write two fractions with denominator 4 that lie between 2 and 3.

Lesson 8 continued | Check Your Understanding

Part IV | Diagnose the Claim

11. A student says, “A fraction cannot have a numerator larger than its denominator.” Use a model and a number-line argument to correct the claim.

12. Create a fraction greater than 2 and less than 3 with denominator 8. Prove that it meets both conditions.

13. Which is farther from 2: $\frac{7}{4}$ or $\frac{9}{4}$? Explain using distance on the number line.

Quick Write | 5 minutes

Why is $\frac{7}{3}$ still a fraction even though it is greater than 1?

Exit Ticket

A. Locate $\frac{11}{4}$ between two whole numbers.

B. Decompose $\frac{11}{4}$ into complete wholes and remaining fourths.

Lesson 9 | Fraction as Division

Name: _____	Date: _____
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Today’s Math Connect a/b with a divided by b through equal sharing, diagrams, equations, and stories.

Essential Question Why does a fraction bar mean division?

Retrieval Warm-Up

1. Write $8/3$ as eight copies of a unit fraction.

2. Between which whole numbers does $8/3$ lie?

Part I | Notice and Predict

3. Five identical granola bars are shared equally among three students. Predict each student’s share and draw a sharing plan.

4. Write the sharing situation as division and as a fraction. Explain why both expressions name the same amount.

Lesson 9 continued | Three Ways to Record One Idea

Part II | Build the Idea

Sharing story	Division	Fraction
7 sandwiches shared by 4 students		
	$9 \div 5$	
		$11/6$

5. Complete every blank in the table. For the last two rows, write a matching equal-sharing story.

6. Six muffins are shared equally among 8 people. Write each share in two equivalent fraction forms and explain the equivalence.

7. Explain why $3 \div 5$ is less than 1 while $5 \div 3$ is greater than 1.

Part III | Practice and Explain

8. A student says the fraction bar in $7/4$ only separates two numbers. Correct the statement using an equal-sharing story.

Lesson 9 continued | Check Your Understanding

Part IV | Create and Transfer

9. Write a sharing story whose answer is $\frac{7}{4}$. Draw a diagram and label one person's share.

10. A class shares 10 feet of ribbon equally among 6 groups. Write the share as an improper fraction and a simplified fraction.

11. Create two different sharing stories represented by $\frac{9}{4}$. Explain what stays mathematically the same.

Quick Write | 5 minutes

Explain how the numerator and denominator in $\frac{a}{b}$ describe an equal-sharing situation.

Exit Ticket

A. Write $8 \div 3$ as a fraction and bound the result.

B. Write a sharing story whose answer is $\frac{5}{2}$.

Lesson 10 | Zero One and the Number Line

Name: _____	Date: _____
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Today’s Math Use 0 and 1 to establish scale, partition intervals correctly, and place proper and improper fractions.

Essential Question Why must we locate 0 and 1 before placing a fraction?

Retrieval Warm-Up

1. Write $5 \div 4$ as a fraction.

2. How many one-fourths are in $5/4$?

Part I | Notice and Predict

3. A number line shows 0 and 1 with four interior marks. A student labels the first mark $1/4$. Is the line correct? Predict and explain.

4. Draw the line described above. Count intervals, not marks, and repair the labels.

Part II | Build the Idea

5. Write the rule you used to determine the denominator from the number line.

Lesson 10 continued | Establish the Scale

6. Draw a number line from 0 to 1. Partition it into fifths and place $\frac{3}{5}$. Explain the length of each interval.

7. A second number line is physically twice as long but still runs from 0 to 1. Does $\frac{3}{5}$ have a different value? Explain.

8. Repair this description: “To place $\frac{4}{6}$, draw six marks between 0 and 1 and choose the fourth mark.”

9. Draw a number line from 0 to 2 and locate $\frac{7}{5}$. Label the whole-number benchmark it passes.

Lesson 10 continued | Number Line Fluency Check

Part III | Practice and Explain

10. Place $\frac{2}{3}$, $\frac{5}{6}$, and $\frac{7}{6}$ on one number line from 0 to 2. Label 0, 1, and 2.

11. Which of the three fractions is closest to 1? Use distance, not decimals.

12. A point is halfway between $\frac{1}{2}$ and 1. Name the point and justify your answer with equal intervals.

Part IV | Cumulative Check

13. Express $\frac{9}{4}$ as copies of a unit fraction, as division, and between two whole numbers.

Quick Write | 5 minutes

Explain the difference between partition marks and intervals on a number line.

Exit Ticket

A. Place $\frac{3}{5}$ on a correctly scaled 0-to-1 number line.

B. Describe one check that would reveal a mispartitioned number line.