

Fraction Fix

Student Workbook • Pilot Unit • Lessons 1–5

Understand the number. Represent the idea. Explain the reasoning.

How this course works You will meet a problem before a rule. Estimate first, use a model when it helps, and connect every procedure to fraction size and meaning.

Four habits Name the whole. Name the unit. Estimate the answer. Explain why it makes sense.

When I solve a fraction problem, I will...	What that sounds like
Identify the whole	“One whole is the full strip / set / distance.”
Track the unit	“These are eighths, so the pieces must be equal.”
Check magnitude	“The answer must be between 0 and 1.”
Choose a representation	“A number line will show the distance clearly.”
Revise my thinking	“My first idea changed because...”

This workbook belongs to: _____

Lesson 1 | Fraction Sense Diagnostic

Name: _____	Date: _____
-------------	-------------

Today’s Math Show what you understand about fraction meaning, size, equivalence, and operations.

Essential Question What do I already understand, and what should I learn next?

Directions Work independently without a calculator. If you are unsure, show your best thinking. After each item, mark your confidence: S = sure, M = maybe, N = not yet.

Part I | The Whole and the Unit

1. A rectangle is divided into 4 equal parts. Shade $\frac{3}{4}$ of the rectangle. Confidence: S M N

--	--	--	--

2. A class has 12 students. Circle or list a set that represents $\frac{1}{3}$ of the class. Confidence: S M N

3. Mia shaded 3 pieces of a shape and called it $\frac{3}{5}$. What must be true about all five pieces? Confidence: S M N

Part II | Magnitude and Number Lines

4. Draw a number line from 0 to 1. Locate $\frac{3}{5}$ and label it. Confidence: S M N

5. Between which two whole numbers does $\frac{7}{3}$ lie? Explain how you know. Confidence: S M N

Lesson 1 continued | Equivalence and Comparison

6. Write $<$, $>$, or $=$: $\frac{5}{8}$ ___ $\frac{5}{6}$. Explain without using decimals. Confidence: S M N

7. Order from least to greatest: $\frac{2}{3}$, $\frac{3}{4}$, $\frac{5}{8}$. Show a comparison strategy. Confidence: S M N

8. Complete the equation: $\frac{3}{4} = \frac{\quad}{12}$. Explain why the value did not change. Confidence: S M N

9. Is $\frac{6}{8}$ exactly equal to $\frac{3}{4}$? Use a model, equation, or words to justify. Confidence: S M N

Part III | Operations and Meaning

10. Estimate first. Then compute: $\frac{5}{6} + \frac{1}{3}$. Confidence: S M N

11. Estimate first. Then compute: $\frac{3}{4} - \frac{2}{5}$. Confidence: S M N

Lesson 1 continued | Operations and Explanation

12. Before multiplying, decide whether the product is less than or greater than $\frac{2}{3}$. Then compute: $\frac{2}{3} \times \frac{3}{5}$. Confidence: S M N

13. How many $\frac{1}{8}$ -cup servings fit in $\frac{3}{4}$ cup? Write a division equation and explain. Confidence: S M N

14. A student writes $\frac{2}{5} + \frac{1}{3} = \frac{3}{8}$. What is the student thinking? Correct the work and explain the needed idea. Confidence: S M N

15. Find $\frac{3}{4}$ of 20. Use a diagram, equation, or words. Confidence: S M N

Reflection

R1. Which item best shows your fraction strength? Why?

R2. Which item would you most like to revisit?

Lesson 2 | Diagnostic Conference and Course Launch

Name: _____	Date: _____
-------------	-------------

Today’s Math Use evidence from student work to name strengths, misconceptions, and a personal learning goal.

Essential Question How can an error show us what to learn next?

Directions For each response, first identify what makes sense. Then name the exact idea that needs repair. A complete analysis is more useful than “wrong.”

Part I | Read the Thinking

Student response	What the student may understand	What needs repair
A. “ $\frac{3}{8} > \frac{3}{5}$ because $8 > 5$.”		
B. “ $\frac{2}{3} + \frac{1}{4} = \frac{3}{7}$.”		
C. “ $\frac{3}{4} \div \frac{1}{2} = \frac{3}{8}$.”		
D. Places $\frac{4}{3}$ between 0 and 1.		

1. Choose one response. Draw or describe a representation that would help the student reconsider the answer.

Lesson 2 continued | Build a Learning Profile

Directions Use your diagnostic and teacher feedback. Mark one box in every row. “Repair” is a starting point, not a judgment.

Fraction domain	Secure	Practice	Repair	Evidence from my work
Whole and equal parts	☐	☐	☐	
Magnitude and number line	☐	☐	☐	
Equivalence and comparison	☐	☐	☐	
Addition and subtraction	☐	☐	☐	
Multiplication and scaling	☐	☐	☐	
Division and interpretation	☐	☐	☐	

Part II | Four Fraction Habits

Habit	Question to ask yourself
Name the whole	What counts as one complete unit here?
Name the unit	What does $1/b$ mean in this problem?
Estimate first	About how large should the answer be?
Represent and explain	What model, equation, or comparison proves the idea?

2. Choose the habit that would have helped most on one diagnostic item. Explain.

Lesson 2 continued | Set a Useful Goal

Part III | My Fraction Goal

3. My current strength is...

4. The most important idea for me to repair or practice is...

5. I will know I am improving when I can...

- ☐ compute accurately
- ☐ estimate the size
- ☐ use two representations
- ☐ solve a new problem
- ☐ explain my reasoning

Part IV | Try the Routine

6. Without calculating exactly, decide whether $\frac{7}{8} + \frac{2}{3}$ is less than or greater than 1. Explain your estimate.

7. Now find the exact sum and compare it with your estimate.

Quick Write | 5 minutes

Why is a believable explanation more useful than a memorized slogan when you forget a procedure?

Exit Ticket

A. Name one fraction habit you will use tomorrow.

B. Describe one misconception from today and the representation that could address it.

Lesson 3 | What Counts as One Whole?

Name: _____	Date: _____
-------------	-------------

Today’s Math Identify the referent whole and explain why the same physical amount can have different fraction names.

Essential Question Why must every fraction refer to a whole?

Retrieval Warm-Up

- 1. Write a fraction equal to $\frac{1}{2}$.

- 2. Which is closer to 1: $\frac{7}{8}$ or $\frac{5}{8}$? Explain briefly.

Part I | Notice and Predict

- 3. A small pizza and a large pizza are each cut into 2 equal pieces. Kai eats one piece from each. Did Kai eat the same amount both times? Did Kai eat the same fraction both times? Explain.

Part II | Build the Idea

- 4. The bar below is $\frac{1}{2}$ of a whole. Draw the complete whole.

Lesson 3 continued | The Fraction Depends on the Whole

5. A 6-inch ribbon is shaded. If the whole ribbon is 12 inches, what fraction is shaded? If the whole ribbon is 18 inches, what fraction is shaded?

6. Six counters are red. In Set A there are 8 counters total. In Set B there are 12 counters total. What fraction is red in each set? What stayed the same? What changed?

7. A student says, “This shaded square is always $\frac{1}{4}$.” Explain why the statement is incomplete.

Part III | Practice and Explain

8. Draw two different wholes so the same rectangle represents $\frac{1}{2}$ in one drawing and $\frac{1}{3}$ in the other.

9. A bottle contains $\frac{3}{4}$ liter. Name a possible whole and describe what the fraction means.

Lesson 3 continued | Check Your Understanding

Part IV | Reason and Prove

10. True or false: If two students each eat $\frac{1}{2}$ of a sandwich, they eat the same amount. Give an example that proves your answer.

11. Nora says 4 blue tiles are $\frac{4}{7}$ of a set. Malik says the same 4 tiles are $\frac{1}{2}$ of a set. Describe two different complete sets that could make both students correct.

Quick Write | 5 minutes

Complete the sentence with a precise example: “A fraction cannot be interpreted until...”

Exit Ticket

A. A 5-inch segment is $\frac{1}{3}$ of a rope. How long is the whole rope?

B. Explain how changing the whole can change a fraction without changing the selected amount.

Lesson 4 | Equal Shares

Name: _____	Date: _____
-------------	-------------

Today’s Math Decide whether partitions are fair and connect equal sharing to unit fractions.

Essential Question Why must fractional parts be equal in size?

Retrieval Warm-Up

1. A 4-inch piece is $\frac{1}{3}$ of a ribbon. Find the whole length.

2. Can 6 counters be both $\frac{1}{2}$ and $\frac{3}{4}$ of different sets? Explain.

Part I | Notice and Predict

3. Three sandwiches are shared equally among four students. Predict each student’s share. Draw a plan before calculating.

Part II | Build the Idea

4. Explain why each student in Problem 3 receives $\frac{3}{4}$ of one sandwich, even if the sandwiches are cut in different ways.

Lesson 4 continued | Fair Parts

5. A rectangle is split into four pieces with equal area but different shapes. May each piece be called $\frac{1}{4}$? Explain.

6. Eight crackers are shared equally among three students. How many crackers does each student receive? Write the answer as a mixed number and an improper fraction.

7. Twelve counters are split into 4 groups containing 2, 3, 3, and 4 counters. Does each group represent $\frac{1}{4}$ of the set? Explain.

Part III | Practice and Explain

8. Draw two different fair partitions of one rectangle into thirds. The pieces may have different shapes, but each must have equal area.

9. Share 5 granola bars equally among 6 hikers. Write each share as a fraction and explain how your diagram matches.

Lesson 4 continued | Check Your Understanding

Part IV | Diagnose the Claim

10. Jalen says, “If a shape has 5 pieces, every piece is $\frac{1}{5}$.” Correct the claim using the words whole, equal, and fifth.

11. Two students partition the same square into fourths in different ways. What evidence would prove that both partitions are valid?

Quick Write | 5 minutes

Why does “four pieces” not always mean “fourths”?

Exit Ticket

A. Seven muffins are shared equally by 4 people. How much does each person receive?

B. A set of 15 objects is separated into 5 groups. What must be true for every group to represent $\frac{1}{5}$?

Lesson 5 | The Size of the Parts

Name: _____	Date: _____
-------------	-------------

Today’s Math Compare unit fractions and explain the inverse relationship between denominator and part size.

Essential Question Why does a larger denominator create smaller unit fractions?

Retrieval Warm-Up

1. Five brownies are shared equally among 8 students. What is each share?

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

Part I | Notice and Predict

3. Without drawing, predict which is larger: $\frac{1}{4}$ or $\frac{1}{7}$. State the condition that makes your comparison valid.

One whole divided into fourths:



The same whole divided into sevenths:



4. Use the bars to explain your prediction.

Lesson 5 continued | Unit Fractions on the Number Line

Part II | Build the Idea

5. Draw one number line from 0 to 1. Place $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, and $\frac{1}{6}$. What pattern do you notice?

6. Write $<$, $>$, or $=$ and explain: $\frac{1}{9}$ ___ $\frac{1}{5}$.

7. Order from least to greatest: $\frac{1}{3}$, $\frac{1}{10}$, $\frac{1}{6}$, $\frac{1}{2}$.

8. Which is closer to 0: $\frac{1}{8}$ or $\frac{1}{12}$? Which is closer to 1? Explain.

Part III | Practice and Explain

9. A student says, “ $\frac{1}{12}$ is larger than $\frac{1}{4}$ because 12 is larger than 4.” Use a sharing story to correct the reasoning.

Lesson 5 continued | Check Your Understanding

10. Two unit fractions differ by $\frac{1}{20}$. One is $\frac{1}{4}$. Find the other unit fraction and prove your answer.

11. Choose a unit fraction between $\frac{1}{5}$ and $\frac{1}{2}$. Explain how you know it is between them.

12. Is the rule “larger denominator means smaller fraction” always safe? State exactly when it works and give a counterexample when it does not.

Quick Write | 5 minutes

Explain the relationship between the number of equal parts and the size of each part. Use the phrase “same whole.”

Exit Ticket

A. Write $<$, $>$, or $=$: $\frac{1}{11}$ ___ $\frac{1}{8}$.

B. Mara says $\frac{1}{6}$ of a large pan is always more food than $\frac{1}{4}$ of a small pan. What information is missing?
