STUDENT WORKSHEET | AGES 7–10

Fraction Pathway

From First Fractions to Confident Fraction Thinking

NAME

DATE STARTED

This worksheet is a pathway, not a race. Begin at the start and keep going while the ideas make sense.
When you reach a section that feels unfamiliar, **pause there**. Learn or review that idea, then return later and continue.

The goal: understand what fractions mean, see them in different ways, and build each new idea on ideas that already make sense.

YOUR PATHWAY

A USEFUL RULE

If you are unsure, do not guess your way through the whole worksheet. Put a small star beside the first idea that feels unclear. That is a useful place to learn next.

SECTION 1

What Is a Fraction?

A fraction names equal parts of one whole.

Directions: Look at each model. Write the fraction that is shaded.

A. $\frac{\square}{\square}$ B. $\frac{\square}{\square}$ C. $\frac{\square}{\square}$

Directions: Circle the model that shows $\frac{1}{3}$ of one whole.

D. Equal parts E. Unequal parts

F. Why must the parts of a fraction be equal-sized parts of the whole?

SECTION 2

Numerator and Denominator

The denominator tells the number of equal parts. The numerator tells how many of those parts are chosen.

$$\frac{3}{5}$$

1. Numerator: _____
2. Denominator: _____
3. In $\frac{3}{5}$, the whole is split into _____ equal parts.
4. _____ of those parts are selected.

5. For $\frac{4}{7}$: What does the 7 tell you?

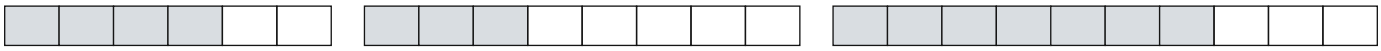
6. For $\frac{4}{7}$: What does the 4 tell you?

SECTION 3

Fractions of Shapes and Sets

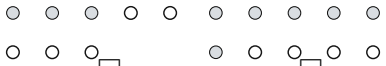
Fractions can describe parts of one shape or parts of a collection.

Directions: Write the fraction represented by each model.



A. $\frac{\square}{\square}$ B. $\frac{\square}{\square}$ C. $\frac{\square}{\square}$

FRACTIONS OF A SET **Directions:** The shaded circles are part of the whole set. Write the fraction shaded.



D. $\frac{\square}{\square}$ E. $\frac{\square}{\square}$

THINK ABOUT THE WHOLE

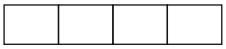
F. There are 12 counters. 5 are red and 7 are blue.

What fraction of the counters are red? $\frac{\square}{\square}$ What fraction are blue? $\frac{\square}{\square}$

G. How do you know the two fractions describe the entire set?

_____

Directions: Shade the requested fraction.

H. Shade $\frac{2}{5}$:  I. Shade $\frac{3}{4}$: 

A fraction always depends on the whole. Ask yourself: **What is the whole here?**

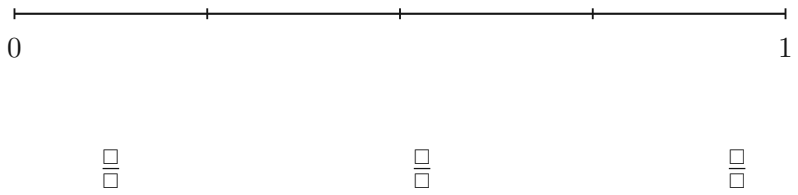
SECTION 4

Fractions on a Number Line

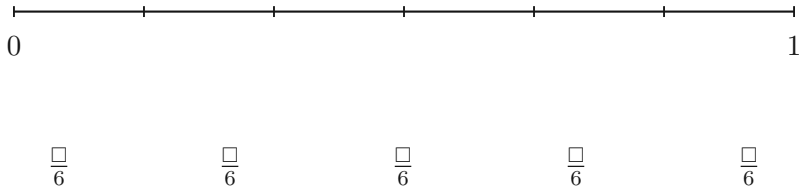
Fractions are numbers. They have locations between whole numbers.

Directions: Label the missing fractions on each number line.

A. FOURTHS FROM 0 TO 1



B. SIXTHS FROM 0 TO 1



Directions: Answer using the number line idea.

1. Which is farther from 0: $\frac{1}{4}$ or $\frac{3}{4}$? _____

2. Which fraction is exactly halfway between 0 and 1? _____

3. Put these in order from least to greatest: $\frac{1}{4}$, $\frac{3}{4}$, $\frac{1}{2}$.

_____

DRAW YOUR OWN

4. Draw a number line from 0 to 1 divided into thirds. Label $\frac{1}{3}$ and $\frac{2}{3}$.

0 1

Ready to move on? ☐ Keep going. ☐ Pause here and review.
If fractions still feel like pictures only, spend more time with number lines before moving on.

SECTION 5

Comparing Fractions With the Same Denominator

When the pieces are the same size, compare how many pieces are selected.

Directions: Write $<$, $>$, or $=$.

1. $\frac{3}{8} \square \frac{5}{8}$
2. $\frac{7}{9} \square \frac{4}{9}$
3. $\frac{6}{10} \square \frac{6}{10}$
4. $\frac{2}{7} \square \frac{5}{7}$
5. $\frac{11}{12} \square \frac{8}{12}$
6. $\frac{1}{5} \square \frac{4}{5}$

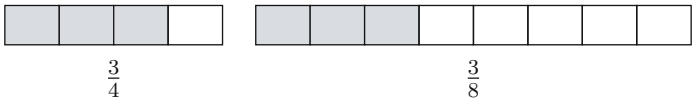
7. Explain why $\frac{7}{8} > \frac{5}{8}$ without using decimal numbers.

SECTION 6

Comparing Fractions With the Same Numerator

When the number of selected pieces is the same, the size of the pieces matters.

Directions: Use the models, then compare.



$\frac{3}{4}$ $\frac{3}{8}$

1. $\frac{3}{4} \square \frac{3}{8}$
2. $\frac{2}{5} \square \frac{2}{9}$
3. $\frac{3}{7} \square \frac{3}{5}$
4. $\frac{4}{10} \square \frac{4}{6}$

5. Complete the idea: When the numerator is the same, the fraction with the _____ denominator has the larger pieces.

6. Why is $\frac{3}{5} > \frac{3}{8}$?

SECTION 7

Equivalent Fractions

Different fraction names can describe the same amount.

Directions: Look at the models. Complete the equivalent fractions.

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

1. $\frac{1}{2} = \frac{\square}{4} = \frac{\square}{6}$

2. $\frac{2}{3} = \frac{\square}{6}$

3. $\frac{3}{4} = \frac{\square}{8}$

4. $\frac{2}{5} = \frac{\square}{10}$

MATCH THE EQUIVALENTS

5. $\frac{1}{2}$
6. $\frac{3}{4}$
7. $\frac{2}{3}$

A. $\frac{6}{8}$
B. $\frac{3}{6}$
C. $\frac{4}{6}$

MISSING NUMBERS

8. $\frac{3}{5} = \frac{9}{\square}$

9. $\frac{\square}{12} = \frac{2}{3}$

10. $\frac{4}{10} = \frac{2}{\square}$

11. Explain what changed from $\frac{1}{2}$ to $\frac{2}{4}$, and what stayed the same.

Equivalent fractions change the number of pieces and the size of the pieces together, while the amount stays the same.

SECTION 8

Simplifying Fractions

A simplified fraction names the same amount using smaller whole-number parts.

Directions: Simplify. Start with an obvious common factor when you see one.

1. $\frac{2}{4} =$ _____
2. $\frac{3}{6} =$ _____
3. $\frac{4}{8} =$ _____
4. $\frac{6}{10} =$ _____
5. $\frac{8}{12} =$ _____
6. $\frac{10}{15} =$ _____
7. $\frac{6}{8} =$ _____
8. $\frac{9}{12} =$ _____
9. $\frac{18}{24} =$ _____

SHOW THE COMMON FACTOR

10. Simplify $\frac{12}{18}$.

A common factor I used: _____

$$\frac{12}{18} = \frac{\square}{\square}$$

11. Simplify $\frac{15}{25}$.

A common factor I used: _____

$$\frac{15}{25} = \frac{\square}{\square}$$

12. Is $\frac{4}{6}$ already simplified? ☐ Yes ☐ No

If not, write its simplest form: _____

Ready to move on? ☐ Keep going. ☐ Pause here and review.

If finding common factors is the hard part, pause here. Strong multiplication and factor knowledge can make simplifying fractions much easier.

SECTION 9

Comparing Fractions With Different Denominators

Use benchmarks first when they help. Use equivalent fractions when you need them.

Directions: Write $<$, $>$, or $=$. Show a reason when asked.

A. USE A BENCHMARK IF YOU CAN 1. $\frac{1}{2} \square \frac{3}{8}$ 2. $\frac{3}{4} \square \frac{2}{3}$ 3. $\frac{5}{8} \square \frac{1}{2}$

4. Which is greater: $\frac{7}{10}$ or $\frac{3}{4}$? Explain your reasoning.

B. USE EQUIVALENT FRACTIONS 5. $\frac{2}{3} \square \frac{3}{4}$

Equivalent fractions: $\frac{2}{3} = \frac{\square}{12}$, $\frac{3}{4} = \frac{\square}{12}$

6. $\frac{3}{5} \square \frac{7}{10}$

Equivalent fractions: $\frac{3}{5} = \frac{\square}{10}$, $\frac{7}{10} = \frac{7}{10}$

7. $\frac{5}{6} \square \frac{7}{9}$

A common denominator: _____

$\frac{5}{6} = \frac{\square}{\square}$ $\frac{7}{9} = \frac{\square}{\square}$

8. Which method would you choose for $\frac{4}{9}$ and $\frac{1}{2}$: benchmark reasoning or common denominators? Why?

SECTION 10

Adding and Subtracting Fractions With the Same Denominator

The size of the parts stays the same, so the denominator stays the same.

Directions: Use the models first. Then solve the symbolic problems.

A. $\frac{3}{8} + \frac{2}{8} = \frac{\square}{8}$

B. $\frac{5}{6} - \frac{2}{6} = \frac{\square}{6}$

1. $\frac{2}{7} + \frac{3}{7} =$ _____

2. $\frac{4}{9} + \frac{2}{9} =$ _____

3. $\frac{11}{12} - \frac{5}{12} =$ _____

4. $\frac{7}{8} - \frac{3}{8} =$ _____

5. $\frac{1}{10} + \frac{6}{10} =$ _____

6. $\frac{9}{11} - \frac{2}{11} =$ _____

7. Why does the denominator stay 8 in $\frac{3}{8} + \frac{2}{8}$?

CREATE ONE

8. Write your own addition problem using two fractions with denominator 6. Solve it.

$\frac{\square}{6} + \frac{\square}{6} = \frac{\square}{6}$

Ready to move on? ☐ Keep going. ☐ Pause here and review.

If you are adding the denominators too, pause here and return to what the denominator represents.

SECTION 11

Adding and Subtracting Fractions With Different Denominators

First rename the fractions so the parts are the same size.

Directions: Find friendly equivalent fractions. Show the common denominator.

1. $\frac{1}{2} + \frac{1}{4}$

$\frac{1}{2} = \frac{\square}{4}$ so $\frac{1}{2} + \frac{1}{4} = \frac{\square}{4} + \frac{1}{4} = \frac{\square}{4}$

2. $\frac{2}{3} + \frac{1}{6}$

$\frac{2}{3} = \frac{\square}{6}$ Answer: _____

3. $\frac{3}{4} - \frac{1}{8}$

$\frac{3}{4} = \frac{\square}{8}$ Answer: _____

4. $\frac{2}{5} + \frac{3}{10}$

$\frac{2}{5} = \frac{\square}{10}$ Answer: _____

BUILD TOWARD LESS FRIENDLY PAIRS 5. $\frac{3}{4} + \frac{2}{3}$

A common denominator: _____

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

Answer: _____

6. $\frac{5}{6} - \frac{1}{4}$

A common denominator: _____

Answer: _____

SECTION 12

Improper Fractions and Mixed Numbers

A fraction can be greater than one whole.

Directions: Convert between forms. Draw a quick model if it helps.

1. $\frac{5}{2} =$ _____ 2. $\frac{7}{4} =$ _____ 3. $\frac{11}{3} =$ _____

4. $1\frac{1}{2} =$ _____ 5. $2\frac{3}{4} =$ _____ 6. $3\frac{1}{3} =$ _____

7. Which is greater: $\frac{9}{4}$ or 2? _____ Explain briefly: _____

SECTION 13

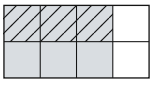
Multiplying Fractions

Think first: a fraction of a fraction.

Directions: Use the idea of "of" first, then multiply.

A. FRACTION OF A FRACTION

Half of $\frac{3}{4}$ is shaded by the overlap below.



1. $\frac{1}{2}$ of $\frac{3}{4} = \frac{\square}{8}$

B. MULTIPLY

2. $\frac{1}{2} \times \frac{2}{5} =$ _____

3. $\frac{2}{3} \times \frac{3}{4} =$ _____

4. $\frac{3}{5} \times \frac{1}{2} =$ _____

5. $\frac{4}{7} \times \frac{3}{4} =$ _____

6. What happens to $\frac{4}{5}$ when you take $\frac{1}{2}$ of it: does the result get larger or smaller? _____

Why? _____

SECTION 14

Dividing Fractions

Begin by asking: how many of this size fit?

Directions: Interpret each division before calculating.

1. How many halves are in 2 wholes? $2 \div \frac{1}{2} =$ _____

2. How many fourths are in $\frac{3}{4}$? $\frac{3}{4} \div \frac{1}{4} =$ _____

3. $\frac{1}{2} \div \frac{1}{4} =$ _____

4. $\frac{2}{3} \div \frac{1}{3} =$ _____

5. Explain what $\frac{3}{4} \div \frac{1}{4}$ is asking. _____

SECTION 15

Fraction Challenge

Use what you know. Show enough work that someone else can follow your thinking.

1. Order from least to greatest: $\frac{2}{3}, \frac{5}{8}, \frac{3}{4}$. _____

2. $\frac{5}{6} - \frac{1}{4} =$ _____

3. $2\frac{1}{2} + \frac{3}{4} =$ _____

4. Maya drank $\frac{3}{8}$ of a bottle of water in the morning and $\frac{1}{4}$ in the afternoon. What fraction did she drink altogether?

Work: _____ Answer: _____

5. Reasoning: Which is greater, $\frac{4}{9}$ or $\frac{5}{12}$? Explain without a calculator.

WHERE DID YOU PAUSE?

I felt comfortable through: _____

The first section I want to review is: _____

Something I understand better now: _____

Stopping partway through is useful information. Return when the next idea is ready to make sense.