



**THIRD SPACE
LEARNING**

Math Intervention Pack

Understanding adding and
subtracting fractions with like
denominators

Grade 4

How to use the resources

1. Title Slide

Use this slide to activate prior knowledge needed for lesson. Students should be encouraged to initially attempt the question presented independently.

2. Let's Learn

Use this slide to introduce the concept. Tutors should work with the student to explore the concept together, usually using diagrams to support understanding.

3. Follow Me + Your Turn

The tutor should work through the follow me slide, modeling the process and explaining their thinking out loud.

Students should use the your turn slide as an opportunity to work through a question similar to the follow me questions. They should apply the method modeled by the tutor in the follow me slide. Students should be encouraged to explain their thinking out loud.

4. You Do

Students should work through a range of questions that build in complexity.

Tutors can offer support but students should initially be encouraged to attempt these questions independently.

5. Go Further

Use this slide to allow students to apply their understanding to a more challenging question in an unfamiliar context.

6. Support for Slides

The support slide is used to support students during the lesson. In the tutor notes, there will be guidance as to when to use the support slide.

7. Check Your Understanding

Tutors should use this slide to assess the student's knowledge and whether or not they have mastered the concept within the lesson.

Standard

4.NF.3a: Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.

Key Mathematical Ideas

1. Add fractions with the same denominator
2. Subtract fractions with the same denominator

Overview

Terminology

- **Add:** To combine or join together.
- **Subtract:** To find the difference between two numbers
- **Fraction:** A part of a whole number
- **Equivalent fractions:** Fractions that name the same amount or number but look different (example: $\frac{2}{3}$ and $\frac{6}{9}$)
- **Numerator:** The top number of a fraction which tells the number of equal-sized parts of the whole
- **Denominator:** The bottom number of a fraction which tells the number of equal-sized pieces in the whole
- **Common denominator/Like denominator:** Having the same denominator
- **Like/Unlike:** The same/different

Sentence Stems

- $\frac{a}{b} + \frac{c}{b} = \frac{d}{b}$
- $\frac{a}{b} - \frac{c}{b} = \frac{d}{b}$

Overview

Common Misconceptions

Common Misconceptions	Tutoring Strategies	Checks for Understanding
When students add and subtract fractions with the same denominator, sometimes students will add the denominators or subtract them instead of just the numerators.	Use visual models as needed to show students why we only add/subtract the numerators and keep the denominators the same.	Ask students to check their work using a visual model as needed.

Title Slide

If stuck

- Ask students if we should be adding together the numerators AND the denominators.
- Lead them to the determination that when we add fractions with the same denominator, we add the numerators together and the denominator stays the same

Answers

- When adding fractions with like denominators, the denominators stay the same - you only add the numerators.

Let's Learn

If stuck

- Start with the yellow boxes before trying to solve the equations.
- If students are confused by the wording, replace “one-eighths” with “apples” - “3 apples plus two apples equals 5 apples” Explain how this is the same as adding 3 one-eighths to 2 one-eighths.

Questions

- How does it help to think of $\frac{3}{8}$ as “3 one-eighths”?
- Why don't we add or subtract the denominators?

Watch out for

- Students adding/subtracting the denominators

Answers

- a. $\frac{5}{8}$ 5
- b. $\frac{3}{8}$ 3

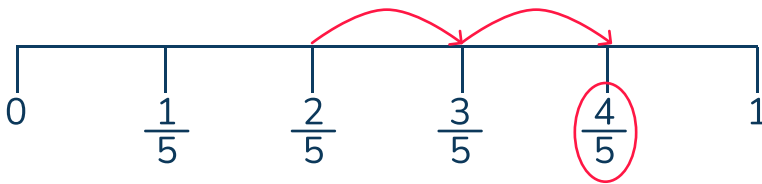
Follow Me

Modeling prompts

- I am going to use a number line to help me visualize adding two fractions with the same denominator.
- Let's find the first fraction, $\frac{2}{5}$, on the number line and make a dot.
- Now we are adding $\frac{2}{5}$ or 2 one-fifths. Since the number line is partitioned into fifths, we will make two jumps.
- I landed on $\frac{4}{5}$ which I will circle.
- $\frac{2}{5} + \frac{2}{5} = \frac{4}{5}$. I noticed that the numerators add together to give me 4 and the denominator of 5 stays the same.
- So, 2 fifths plus 2 fifths equals 4 fifths.

Answers

a.



c. $\frac{4}{5}$

Your Turn

If stuck

- Have students use the “apples” analogy or write out the problem as 4 fifths – 3 fifths = fifths.

Questions

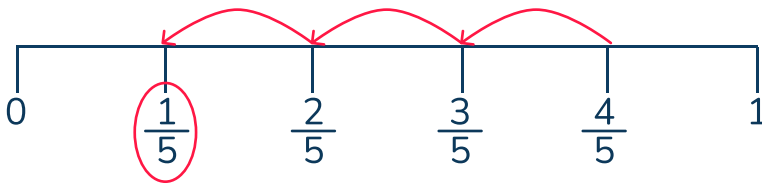
- How does the number line help you visualize subtracting the fractions?

Watch out for

- Students adding/subtracting the denominators

Answers

a.



c. $\frac{1}{5}$

You Do

If stuck

- Students can draw a bar model or number line if needed.

Questions

- What strategy did you use to solve each problem?

Watch out for

- Students adding/subtracting the denominators

Answers

a. $\frac{8}{12}$

b. $\frac{4}{8}$

c. $\frac{9}{9} = 1$

d. $\frac{1}{6}$

Go Further

If stuck

- Show students how to use the image of the liter jug to help them solve the problem.
- Allow students to draw a diagram/number line as needed.

Questions

- What strategy did you use to solve each problem?
- How can the image of the jug help you solve this problem?

Watch out for

- Students adding/subtracting the denominators

Answers

- $\frac{4}{10}$ of a liter
- $\frac{7}{10} - \frac{3}{10} = \frac{4}{10}$

Support for Slide(s)

This slide provides an extra problem with a visual model to help students understand how to subtract fractions with like denominators.

If stuck

- If students are struggling with this concept, this slide provides them with extra practice.
- Walk them through each step using the visual model to help explain the concept of fraction subtraction.

Questions

- How does the visual model help you understand how to subtract fractions with the same denominator?

Answers

a.

$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$
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c. $\frac{4}{8}$

Check Your Understanding

Correct answers

- c. $1 \frac{1}{8}$
- a. Students may choose this answer if they add the numerators and the denominators.
- b. Students may choose this answer if they make a mistake while adding the numerators.
- c. This is the correct answer. $\frac{5}{8} + \frac{4}{8} = \frac{9}{8}$ which equals $1 \frac{1}{8}$
- d. Students may choose this answer if they subtract instead of adding.



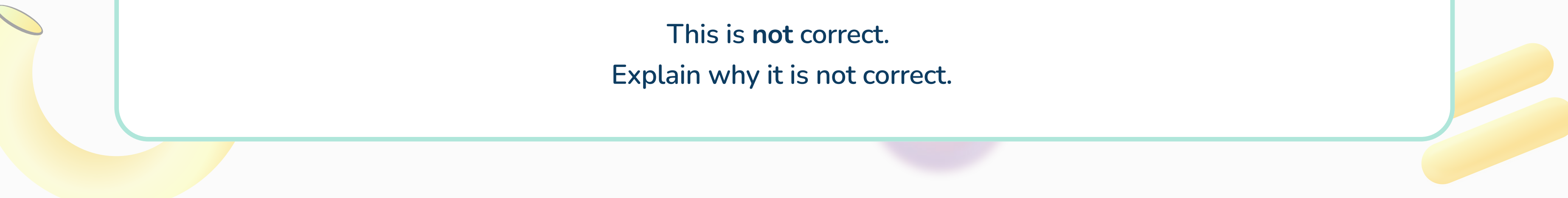
Today you will learn about

Understanding adding and subtracting fractions with like denominators

Warm-up question

Mia writes $\frac{3}{5} + \frac{1}{5} = \frac{4}{10}$

This is **not** correct.
Explain why it is not correct.



Let's learn

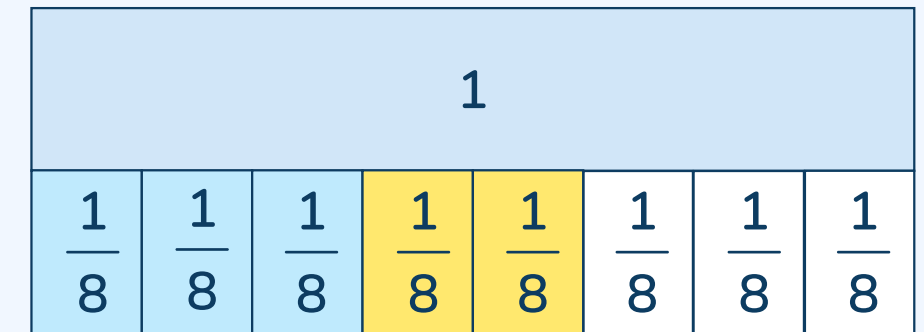
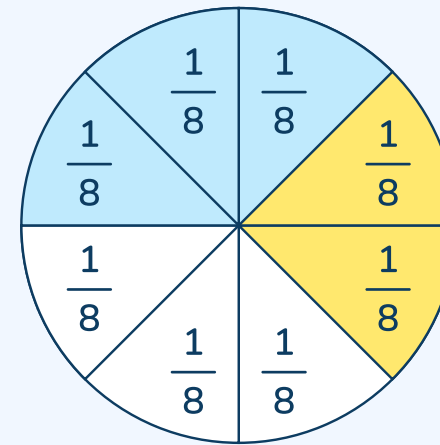
We can add and subtract fractions with the **same denominator** in the same way you learned to add
 “3 tens plus 2 tens is 5 tens.”

Three-eighths is 3 one-eighths

$$\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$$

Two-eighths is 2 one-eighths

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



Let's use the diagrams to help us add and subtract these fractions.

a $\frac{3}{8} + \frac{2}{8} = \frac{\boxed{\dots\dots\dots}}{\boxed{\dots\dots\dots}}$

3 one-eighths **plus** 2 one-eighths
 is equal to $\dots\dots\dots$ one-eighths.

b $\frac{5}{8} - \frac{2}{8} = \frac{\boxed{\dots\dots\dots}}{\boxed{\dots\dots\dots}}$

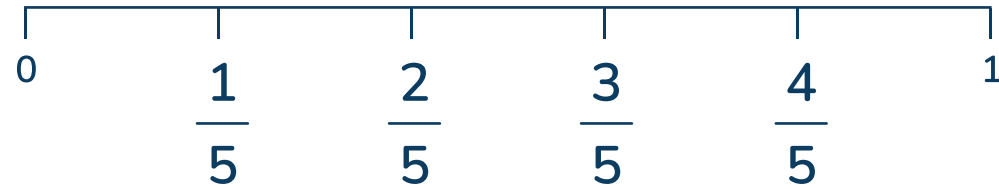
5 one-eighths **minus** 2 one-eighths
 is equal to $\dots\dots\dots$ one-eighths.

Follow me



We can also add and subtract fractions using a number line.

$$\frac{2}{5} + \frac{2}{5}$$



a We start on $\frac{2}{5}$ and count on 2 one-fifths.

b We circle where we land.

c $\frac{2}{5} + \frac{2}{5} = \frac{\boxed{}}{\boxed{}}$

When adding fractions with the **same denominator**, we just add the **numerators**.

Your turn



$$\frac{4}{5} - \frac{3}{5}$$



a Start on $\frac{4}{5}$ and count back 3 one-fifths.

b Circle where you land.

c $\frac{4}{5} - \frac{3}{5} = \frac{\boxed{}}{\boxed{}}$

When subtracting fractions with the **same denominator**, we just subtract the **numerators**.

You do

Solve each equation.

a $\frac{5}{12} + \frac{3}{12} = \frac{\boxed{\dots\dots\dots}}{\boxed{\dots\dots\dots\dots\dots\dots}}$

b $\frac{6}{8} - \frac{2}{8} = \frac{\boxed{\dots\dots\dots}}{\boxed{\dots\dots\dots}}$

c $\frac{5}{9} + \frac{4}{9} = \frac{\boxed{\dots\dots\dots}}{\boxed{\dots\dots\dots}} = \dots\dots\dots$

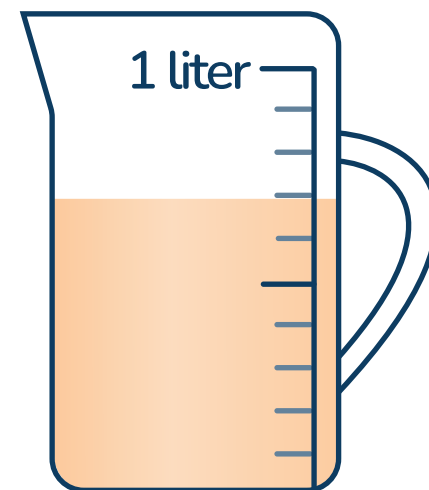
d $\frac{5}{6} - \frac{4}{6} = \frac{\boxed{\dots\dots\dots}}{\boxed{\dots\dots\dots}}$

Go further

Ben has a jug containing $\frac{7}{10}$ of a liter of juice.

He drank $\frac{3}{10}$ of a liter.

How much does he have left?



Let's explore subtracting fractions using fraction strips.

Imagine you have a strip of paper.

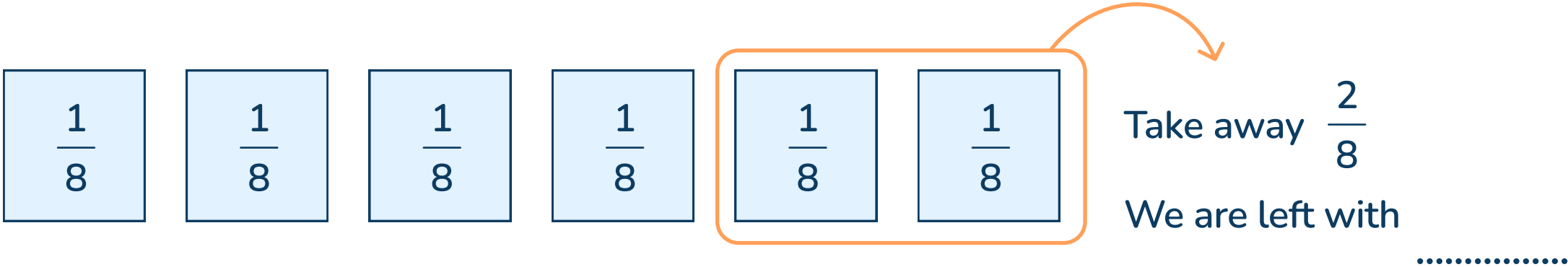
- a How can you divide it equally into 8 pieces using folding?



- b Let's label each part as $\frac{1}{8}$

Imagine we tear along each fold. Each piece will be $\frac{1}{8}$

- c Let's solve $\frac{6}{8} - \frac{2}{8}$ using our torn pieces.



Check your understanding

$$\frac{5}{8} + \frac{4}{8} =$$

a

$$\frac{9}{16}$$

b

$$\frac{8}{8}$$

c

$$1\frac{1}{8}$$

d

$$\frac{1}{8}$$

Why do I need to try this question on my own first?

- To show your tutor what you understand
- To give you more practice
- To show your teacher how you are doing



Do you have a group of students who need a boost in math?

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- ✓ Differentiated instruction for each student
- ✓ Aligned to your state's standards
- ✓ Scaffolded learning to close gaps

“We just had our first session and it went great! The kids really liked it and felt like they were learning! One even said he finally felt like math was making sense.”



Michelle Craig, Instructional Coach,
Sherwood Forest Elementary, Washington

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