This "Section-level slidedeck" uses the full unit slidedeck as a base. Only the slides aligning with the Section-level planning guide are revealed. The slides are color-coded to match the purple-orange-purple flow of the Section-level planning guides. Make a copy of the slidedeck to customize as you wish!

Fraction Operations

Priority Unit (All Sections): Major Grade-level Work … identified by IM authors

Grade 4: Unit 3

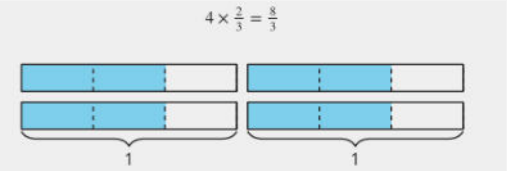
Section-Level Slidedeck

Standards addressed: 4.NF.B.4, 4.NF.B.4.a, 4.NF.B.4.b, 4.NF.B.4.c, 4.NF.B.3, 4.NF.B.3.a, 4.NF.B.3.b, 4.NF.B.3.c, 4.NF.B.3.d, 4.NF.B.4.c, 4.NF.A.1, 4.NF.A.2, 4.NF.B.3.c, 4.NF.B.3.d, 4.NF.B.4, 4.NF.B.4.c, 4.NF.C.5

Unit 3 Progression Overview
Fraction Operations

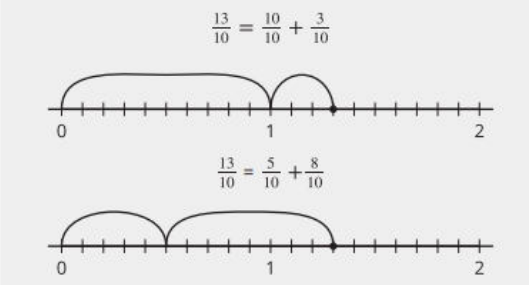
Section A
Lessons 1-6
4.NF.B.4, 4.NF.B.4.a, 4.NF.B.4.b, 4.NF.B.4.c

- Recognize that $n \times \frac{a}{b} = \frac{(n \times a)}{b}$
- Represent and explain that a fraction $\frac{a}{b}$ is a multiple of $\frac{1}{b}$, namely $a \times \frac{1}{b}$.
- Represent and solve problems involving multiplication of a fraction by a whole number.



Section B
Lessons 7-12
4.NF.B.3,, 4.NF.B.4.c

- Represent and solve problems that involve the addition and subtraction of fractions and mixed numbers.
- Use various strategies to add and subtract fractions and mixed numbers with like denominators.



Section C
Lessons 13-18
4.NF.A.1, 4.NF.A.2, 4.NF.B.3., 4.NF.B.4, 4.NF.C.5

- Reason about equivalence to add tenths and hundredths.
- Reason about equivalence to solve problems involving addition and subtraction of fractions and mixed numbers.

Lesson 6	Lesson 12	Lesson 13
$\frac{10}{12} = 5 \times \frac{2}{12}$ $10 \times \frac{10}{12} = 5 \times \frac{2}{12}$ $\frac{24}{4} = 8 \times 3 \times \frac{1}{4}$ $12 \times 2 \times \frac{1}{4} = 8 \times 3 \times \frac{1}{4}$	$3 = 2 + \frac{3}{3}$ $3\frac{4}{6} = 2 + 1\frac{3}{6}$ $4\frac{2}{8} = 3 + \frac{10}{8}$ $\frac{2}{5} + \frac{5}{5} + 2 = 3\frac{3}{5}$	$\frac{3}{4} = \frac{6}{8}$ $\frac{5}{4} = \frac{10}{12}$ $1\frac{1}{4} = \frac{10}{8}$ $\frac{4}{3} = 1\frac{1}{6}$

Adaptation
Lesson 1

Build Fractions from Unit Fractions

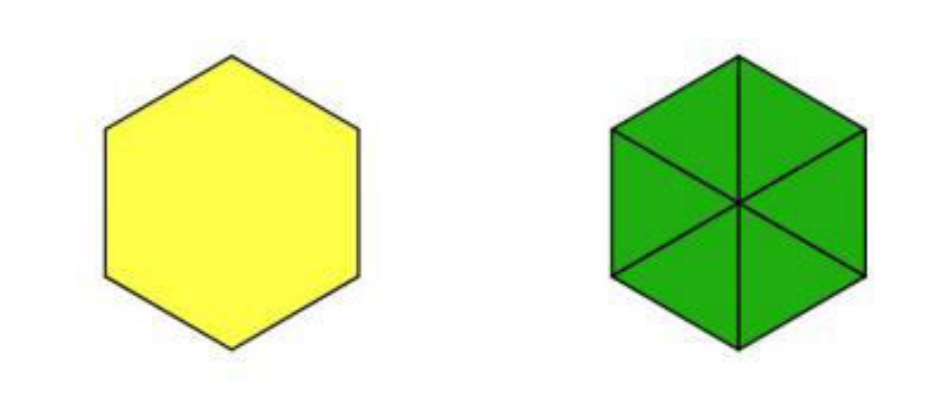
Let's name parts of a whole.

4.NF.B.3, 4.NF.B.4, 4.NF.C.5, 4.NF.A.1, 4.NF.A.2

Warm up

Notice and Wonder: Two Hexagons

What do you notice?



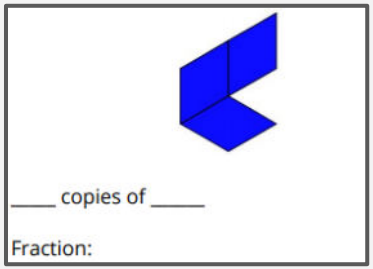
What do you wonder?

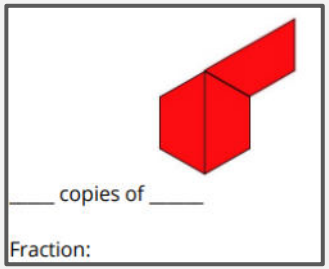
Activity #1

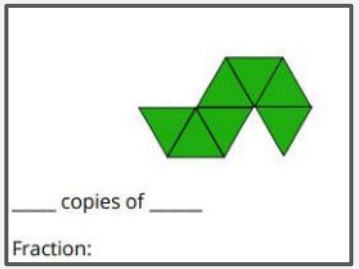
Pattern Block Fraction Puzzles

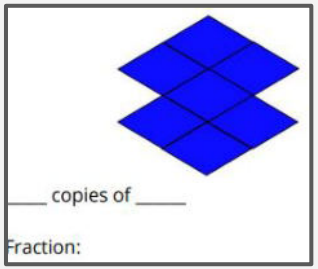
represents 1 whole

1. Here are some shapes built from pattern blocks. What fraction does each composite shape represent?





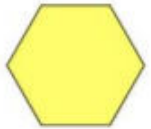




2. Build a shape using only copies of ½ , copies of ⅓ , or copies of ⅙ .
   - Challenge your partner to figure out what fraction you built. (The hexagon is still 1 whole.)

Build Shapes From Units

Activity #2



represents 1 whole

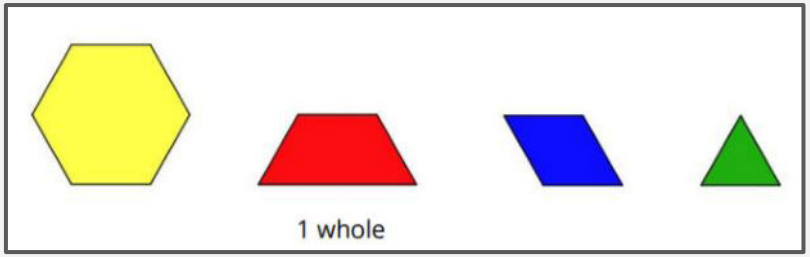
1. Build a shape to represent each fraction. Compare with your partner.
   a. $\frac{2}{3}$
   b. $\frac{4}{3}$
   c. $\frac{6}{3}$
2. In shapes a, b, and c, which ones could be rearranged to make a new hexagon(s)? Why?

3. Use the appropriate pattern block to build the following fractions when the hexagon is 1 whole.
   a. $\frac{3}{6}$
   b. $\frac{8}{6}$
   c. $\frac{5}{2}$
   d. $\frac{8}{2}$
4. In shapes a, b, and c, which one can be rearranged to make a new hexagon(s)? Why?

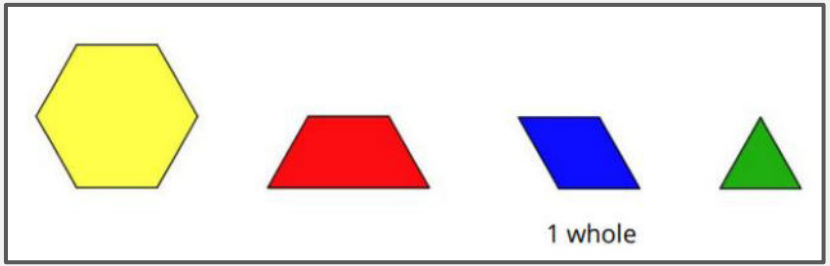
Change the Whole (Optional)

Activity #3

1. The red trapezoid is 1 whole.
   - Label the other blocks with the correct fraction.
   - Be prepared to explain your reasoning.



2. The blue rhombus is 1 whole.
   - Label the other blocks with the correct fraction.
   - Be prepared to explain your reasoning.



Lesson Synthesis

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

Based on our activities today, what do we know is the same about these two fractions? What is different?

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

If the hexagon represents 1 whole, could we build a whole hexagon with the following fractions.

Section A Goals

- Recognize that $n \times \frac{a}{b} = \frac{(n \times a)}{b}$
- Represent and explain that a fraction $\frac{a}{b}$ is a multiple of $\frac{1}{b}$, namely $a \times \frac{1}{b}$
- Represent and solve problems involving multiplication of a fraction by a whole number.

Warm up

How Many Do You See: Oranges

How many do you see?

How do you see them?

Equal Groups of Fractions

Activity #1

1. Lin and Andre brought fruit to share with their class.

- Draw a diagram to represent each situation.

Lin brought 6 bags with 4 oranges in each.

Andre brought 6 bags with $\frac{1}{4}$ orange in each.

2. Describe the groups you see and how you see them.

3. Which parts of each diagram are the same?

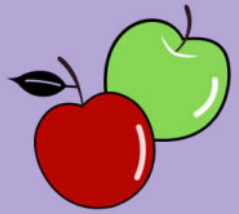
4. Which parts of the diagram are different?

5. What expressions could you write to represent the oranges each situation?

Equal Groups of Fractions

Activity #1

6. Draw a diagram to represent the amount of fruit in each situation.



a. Clare brought 3 bags with 6 strawberries in each.

b. Diego put ½ apple into each of 8 bags.

c. Noah had 7 bags with ⅓ banana in each.

d. Priya packed ⅛ of a watermelon into 5 different bags.

Card Sort: Expressions and Diagrams

Activity #2

Your teacher will give you a set of cards with expressions and diagrams.
1. Match each expression with a diagram that represents the same quantity.
2. Record each expression without a match and draw a diagram that matches it.

$3 \times \frac{1}{4}$

$6 \times \frac{1}{8}$

3×4

5×3

$5 \times \frac{1}{5}$

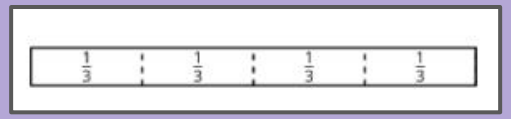
$2 \times \frac{1}{12}$

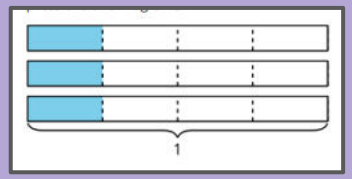
$4 \times \frac{1}{3}$

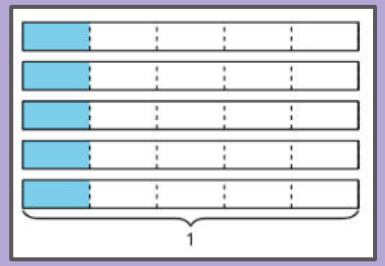
$6 \times \frac{1}{6}$

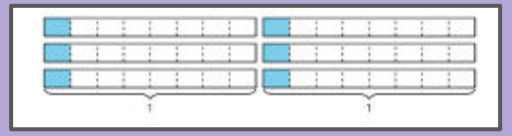
3×12

$8 \times \frac{1}{2}$





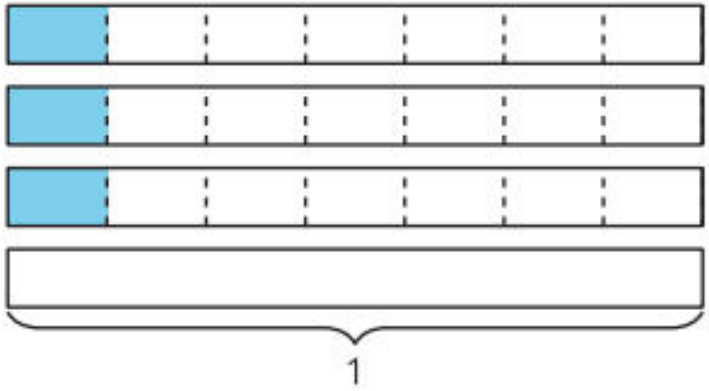




Card Sort: Expressions and Diagrams

Activity #2

3. Han started drawing a diagram to represent $7 \times \frac{1}{8}$ and did not finish. Complete his diagram.



Warm up

Choral Count:

$$\frac{1}{4} \quad and \quad \frac{2}{4}$$

Lesson 3
Activity #1

Describe the Pattern

1. Find the value of each expression. Use a diagram if it is helpful.

Set A:	Set B:
$1 \times \frac{1}{5}$	$2 \times \frac{1}{4}$
$2 \times \frac{2}{5}$	$2 \times \frac{1}{5}$
$3 \times \frac{3}{5}$	$2 \times \frac{1}{6}$
$4 \times \frac{4}{5}$	$2 \times \frac{1}{7}$
$5 \times \frac{5}{5}$	$2 \times \frac{1}{8}$
$6 \times \frac{6}{5}$	$2 \times \frac{1}{9}$

2. Describe the patterns you notice in the values of the expressions in Sets A and B.

3. Complete each equation to make it true.

a. $4 \times \_\_\_\_\_ = \frac{4}{5}$

b. $6 \times \_\_\_\_\_ = \frac{6}{10}$

c. $\_\_\_\_\_ \times \frac{1}{12} = \frac{7}{12}$

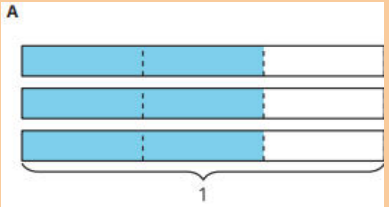
d. $\_\_\_\_\_ \times \frac{1}{4} = \frac{3}{4}$

Diagrams for Groups of Many Fractions

Lesson 4
Activity #1

1. Write a multiplication expression to represent the shaded parts of each diagram. Then, find the value of the expression.

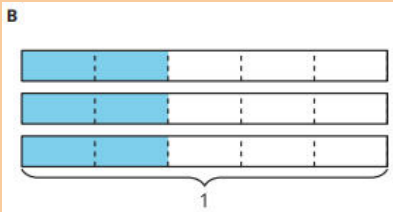
A



Expression:

Value:

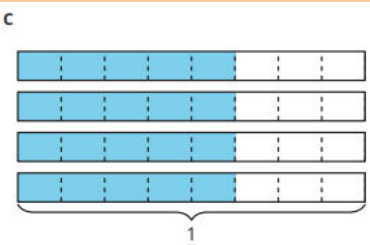
B



Expression:

Value:

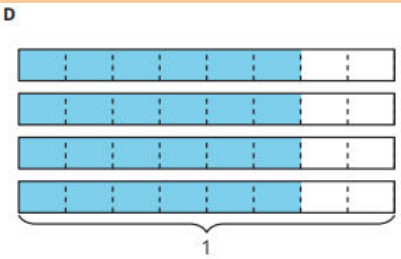
C



Expression:

Value:

D



Expression:

Value:

2. What do you notice about the numbers in the multiplication expression and in the value in each case?

Diagrams for Groups of Many Fractions

Lesson 4
Activity #1

3. Use the pattern to find the value of each expression. Explain your reasoning.

Draw a dia

a. $2 \times \frac{1}{8}$

b. $2 \times \frac{3}{8}$

c. $2 \times \frac{5}{8}$

d. $5 \times \frac{3}{12}$

e. $6 \times \frac{3}{12}$

f. $7 \times \frac{3}{12}$

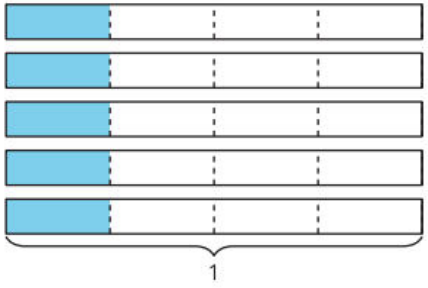
Diagram, Expression, and Value

Lesson 3
Activity #2

1.

a. Write a multiplication expression that represents the shaded parts of the diagram. Then, find the value of the expression.

Diagram:



Expression:

Value:

b. Draw a diagram that the expression 6 x ⅓ could represent. Then, find the value of the expression.

Diagram:

Expression: $6 \times \frac{1}{3}$

Value:

c. Draw a diagram and write an expression that gives the value 7/2.

Diagram:

Expression:

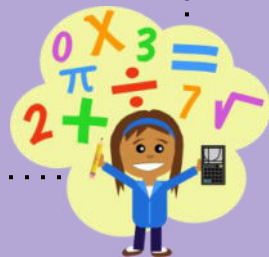
Value: $\frac{7}{2}$

Diagram, Expression, and Value

Lesson 3
Activity #2

2. In your group of 4, complete the following steps. After each step, pass your paper to your right.

- Step 1: Choose a fraction. Write it down.
- Step 2: Write the fraction you received as a multiplication expression using a whole number and a unit fraction.
- Step 3: Find the value of the expression you received.
- Step 4: Draw a diagram to represent the expression.
- Step 5: Discuss what's on each paper and make revisions if needed.



Mai's Big Discovery

Lesson 4
Activity #2

1. Evaluate each expression. Use a diagram if it is helpful.

a. $3 \times \frac{3}{4}$

b. $8 \times \frac{3}{5}$

c. $5 \times \frac{6}{8}$

d. $10 \times \frac{2}{3}$

e. $9 \times \frac{12}{5}$

2. Mai said she can multiply any fraction by a whole number by multiplying the whole number by the numerator and keeping the denominator. Do you agree with Mai? Explain your reasoning.

Card Sort: Equivalent Expressions

Lesson 5
Activity #2

Your teacher will give you and your partner a set of cards that show expressions. Match each card to one of the following fractions. Record your matches.

$\frac{4}{5}$ $\frac{10}{12}$ $\frac{6}{10}$ $\frac{8}{9}$

$6 \times \frac{1}{10}$

$5 \times 2 \times \frac{1}{12}$

$4 \times 4 \times \frac{1}{9}$

$2 \times 2 \times \frac{1}{5}$

$3 \times \frac{2}{10}$

$4 \times \frac{1}{5}$

$2 \times \frac{4}{9}$

$4 \times \frac{1}{12}$

Card Sort: Equivalent Expressions

Lesson 5
Activity #2

Complete each equation to make it true. Draw diagrams if you find them useful.

1. $\frac{4}{5} = \_\_\_\_ \times \_\_\_\_ = \_\_\_\_ \times \_\_\_\_$

2. $\frac{10}{12} = \_\_\_\_ \times \_\_\_\_ = \_\_\_\_ \times \_\_\_\_$

3. $\frac{6}{10} = \_\_\_\_ \times \_\_\_\_ = \_\_\_\_ \times \_\_\_\_$

4. $\frac{8}{9} = \_\_\_\_ \times \_\_\_\_ = \_\_\_\_ \times \_\_\_\_$

Lesson 6
Synthesis

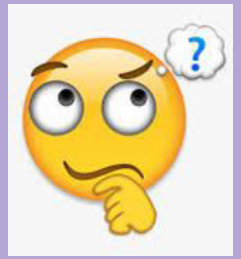
Today we matched expressions to different situations that they represent.
We learned that several expressions can represent the same situation.

Mai, Jada, Andre, and Han each purchased a slice on Thursday and again on Friday. How much banana bread was purchased?

Mai, Jada, Andre, and Han:
$4 \times \frac{2}{10}$ or $4 \times (2 \times \frac{1}{10})$

Did you notice something about the answers to the problems?

Who can explain how each expression matches the problem



Why do you think they are all the same?

Section A Summary

In this section, we learned about multiplying a fraction by a whole number.

In the beginning, we used diagrams and multiplication expressions to represent equal-size groups where the size of each group is a whole number. For instance, we thought of “6 baskets with 4 balls in each” as 6 equal groups of 4, or 6 x 4 .

Later, we used diagrams and expressions to represent equal groups with a fractional amount in each group, such as "6 bags with ½ an apple in each bag" or 6 groups of ½ .

We analyzed patterns and noticed that when we multiply a fraction and a whole number, the whole number is multiplied only by the numerator of the fraction and the denominator stays the same. For example:

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

$$2 \times \frac{4}{5} = \frac{8}{5}$$

Section A Summary

We also learned that:

- Every fraction can be written as a product of a whole number and a unit fraction.
  - For example, 5/4 can be written as $5 \times \frac{1}{4}$.

- A fraction whose denominator is not 1 can be expressed with different multiplication expressions that are equivalent.
  - For example, 8/3 can be expressed as:
    - $8 \times \frac{1}{3}$, $4 \times 2 \times \frac{1}{3}$, $4 \times \frac{2}{3}$, and $2 \times 4/3$

Section B Goals

- Use various strategies to add and subtract fractions and mixed numbers with like denominators.
- Represent and solve problems that involve the addition and subtraction of fractions and mixed numbers.

Lesson 7
Warm up

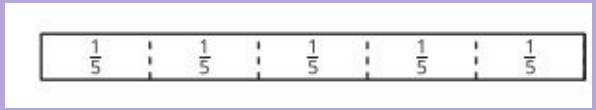
Choral Count:
Three-Fourths at a Time

Count by $\frac{3}{4}$, starting at 0

Sums in Fifths and Thirds

Lesson 7
Activity #2

1. Use different combinations of fifths to make a sum of 9/5.



a. $\frac{9}{5} =$ _____ + _____ + _____ + _____ + _____

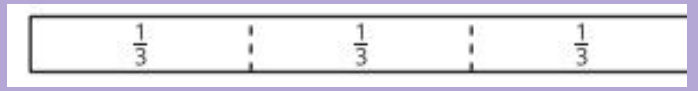
b. $\frac{9}{5} =$ _____ + _____ + _____ + _____

c. $\frac{9}{5} =$ _____ + _____ + _____

d. $\frac{9}{5} =$ _____ + _____

2. Write different ways to use thirds to make a sum of 4/3.

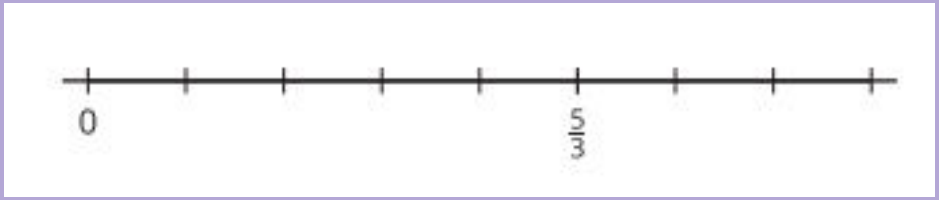
How many can you think of? Write an equation for each combination.



Lesson 8
Warm up

Notice and Wonder:
A Fraction on a Number Line

What do you notice?

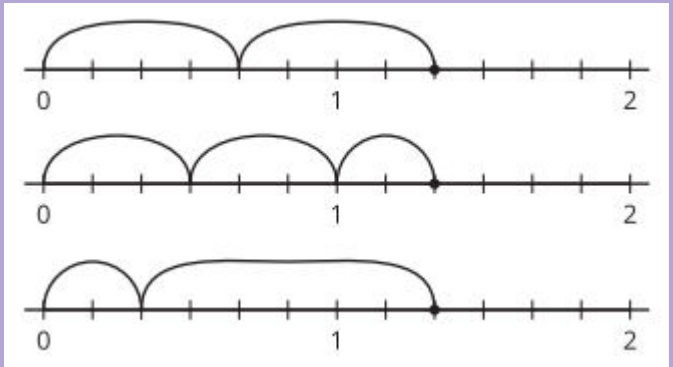


What do you wonder?

Sum of Jumps

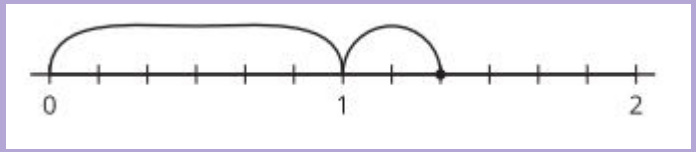
Lesson 8
Activity #1

1. Noah draws number lines with a series of “jumps” to show different ways to use sixths to make a sum of 8/6 . He writes 8/6 = 4/6 + 4/6 for the first diagram.



a. Write an equation for each of the other two diagrams.

b. For the following diagram,
Noah writes: 8/6 = 6/6 + 2/6 and 8/6 = 1 + 2/6.
Which equation is correct? Explain your reasoning.

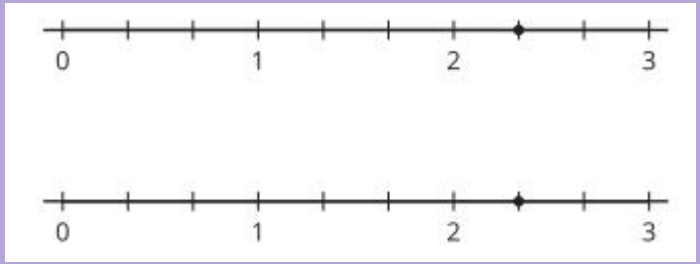


Sum of Jumps

Lesson 8
Activity #1

2.

a. Draw "jumps" on the number lines to show two ways to use thirds to make a sum of 7/3 . Then, represent each combination of jumps as an equation.



b. Write 7/3 as a sum of a whole number and a fraction.

Lesson 9
Warm up

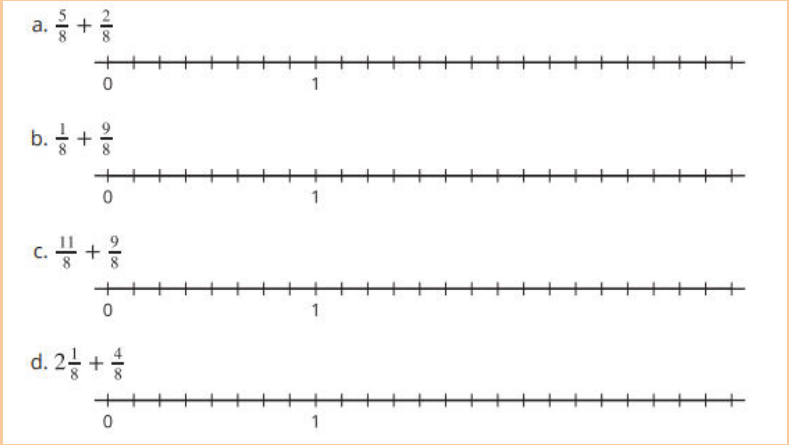
What Do You Know About:

$$\frac{11}{6}$$

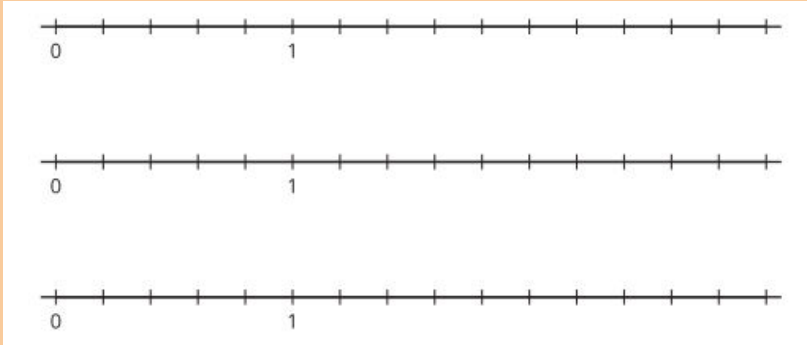
Lesson 8
Activity
#2

What is the Sum?

1. Use a number line to represent each addition expression and to find the sum.



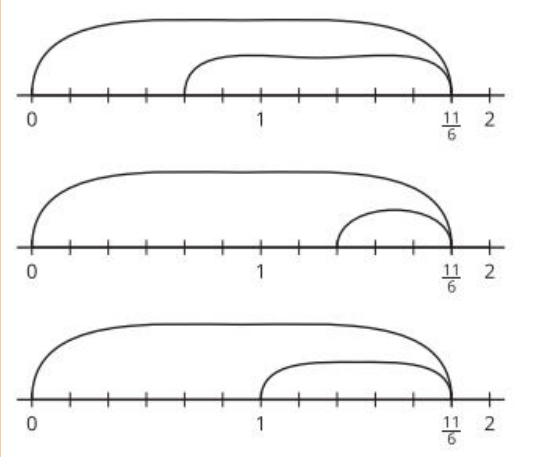
2. Priya says the sum of 1 ⅖ and ⅘ is 1 6/5 . Kiran says the sum is 11/5 . Tyler says it is 2 ⅕ . Do you agree with any of them? Explain or show your reasoning. Use one or more number lines if you find them helpful.



Differences of Jumps

Lesson 9
Activity #1

1. To subtract different fractions from 11/6, Noah draws “jumps” on number lines.



a. The first diagram shows how he finds $\frac{11}{6} - \frac{7}{6}$

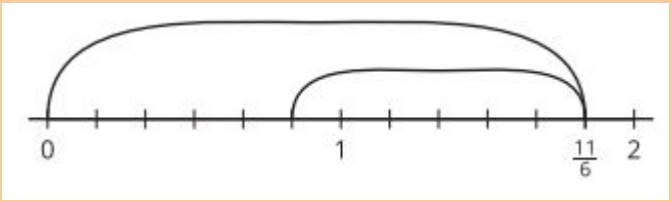
What is the difference (the result of the subtraction)?

b. Write an equation and find the difference for each of Noah’s diagrams.

Differences of Jumps

Lesson 9
Activity #1

2. Here is another diagram Noah draws:



Which equations could the diagram represent? Explain your reasoning.

$$\frac{11}{6} - \frac{6}{6} = \frac{5}{6}$$

$$\frac{11}{6} - 1 = \frac{5}{6}$$

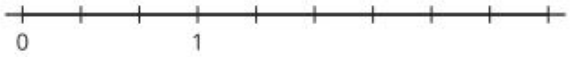
$$1\frac{5}{6} - 1 = \frac{5}{6}$$

3. Use a number line to show how to find each difference.

a. $\frac{8}{3} - \frac{2}{3}$

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

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



What's Left?

Lesson 10
Activity #1

1. A pitcher contains 3 cups of watermelon juice.

How many cups will be left in the pitcher if we pour each of the following amounts from the full amount?

a. $\frac{1}{4}$ cup

b. $\frac{5}{4}$ cups

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

d. $2\frac{2}{4}$ cups

2. A second pitcher contains 4 cups of water.

How many cups will be left in that pitcher if we pour each of the following amounts from the full amount? Explain or show your reasoning. Use diagrams or equations, if they are helpful.

a. $\frac{1}{3}$ cup

b. $\frac{5}{3}$ cups

c. $2\frac{2}{3}$ cups

Card Sort: Twelfths

Lesson 10
Activity #2

1. Sort the cards from your teacher into two groups. Record your sorted expressions. Be prepared to explain why the cards in each group belong together.

A. $1 - \frac{5}{12}$

B. $\frac{12}{12} + \frac{12}{12} - \frac{5}{12}$

C. $\frac{24}{12} - \frac{5}{12}$

D. $\frac{7}{12}$

E. $1\frac{7}{12}$

F. $2 - \frac{5}{12}$

G. $\frac{12}{12} - \frac{5}{12}$

I. $1 + 1 - \frac{5}{12}$

J. $1 + \frac{12}{12} - \frac{5}{12}$

Card Sort: Twelfths

Lesson 10
Activity #2

2. Find each difference. Show your reasoning.

a. $1 - \frac{5}{8}$

b. $2 - \frac{7}{8}$

c. $3 - \frac{9}{8}$

Friendship Bracelets

Lesson 11
Activity #1

Clare, Elena, and Tyler are making macramé friendship bracelets. They'd like their bracelets to be $9\frac{4}{8}$ inches long. For each question, explain or show your reasoning.

1. Clare started her bracelet first and has only ⅞ inch left until she finishes it. How long is her bracelet so far?

2. So far, Elena's bracelet is 5 ⅛ inches long and Andre's is 3 ⅝ inches long. How many more inches do they each need to reach 9 4/8 inches?

3. How much longer is Elena's bracelet than Andre's at the moment?

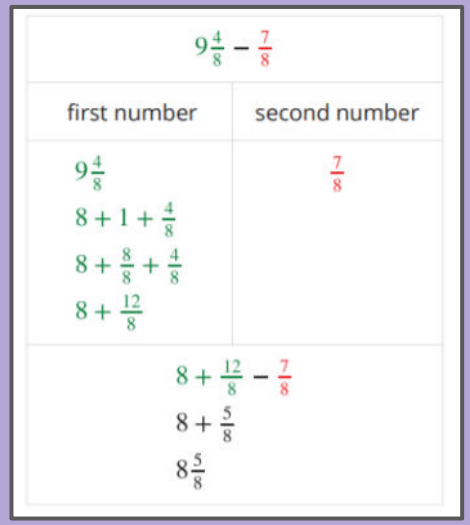
Multiple Ways to Subtract

Lesson 11
Activity #2

Here are four expressions that you may have written about the friendship bracelets.

$9\frac{4}{8} - \frac{7}{8}$ $9\frac{4}{8} - 5\frac{1}{8}$ $9\frac{4}{8} - 3\frac{5}{8}$ $5\frac{1}{8} - 3\frac{5}{8}$

1. Here is one way to find the value of the first expression. Analyze the calculation. Talk to your partner about why is $9\frac{4}{8}$ written as different sums.



Multiple Ways to Subtract

Lesson 11
Activity #2

2. Here are some unfinished calculations. Complete them to find each difference

a. $9\frac{4}{8} - 5\frac{1}{8}$

first number	second number
$9\frac{4}{8}$ $9 + \frac{4}{8}$	$5\frac{1}{8}$ $5 + \frac{1}{8}$

b. $9\frac{4}{8} - 3\frac{5}{8}$

first number	second number
$9\frac{4}{8}$ $8 + 1 + \frac{4}{8}$ $8 + \frac{8}{8} + \frac{4}{8}$ $8 + \frac{12}{8}$	$3\frac{5}{8}$ $3 + \frac{5}{8}$

c. $5\frac{1}{8} - 3\frac{5}{8}$

first number	second number
$5\frac{1}{8}$ $5 + \frac{1}{8}$	$3\frac{5}{8}$ $3 + \frac{5}{8}$

Section C Summary

In this section, we learned to add and subtract fractions with the same denominator, using number lines to help with our reasoning.

In the beginning, we saw that a fraction can be decomposed into a sum of other fractions. For example: 6/10 can be decomposed into 4/10 + 2/10.

If the fraction is greater than 1, it can be decomposed into a whole number and a fraction. For instance: 17/10 can be decomposed into 10/10 + 7/10 . Because 10/10 is equivalent to 1, we can write , 1 + 7/10 or 1 7/10, which we call a mixed number.

Later, we learned to add and subtract all kinds of fractions by writing equivalent fractions and decomposing numbers into sums.

Section C Goals

- Reason about equivalence to solve problems involving addition and subtraction of fractions and mixed numbers.
- Reason about equivalence to add tenths and hundredths.

True or False: Are They Equal?

Lesson 13
Warm up

Decide whether each equation is true or false. Be prepared to explain your reasoning

$$\frac{3}{4} = \frac{6}{8}$$

True or False: Are They Equal?

Lesson 13
Warm up

Decide whether each equation is true or false. Be prepared to explain your reasoning

$$\frac{5}{4} = \frac{10}{12}$$

True or False: Are They Equal?

Lesson 13
Warm up

Decide whether each equation is true or false. Be prepared to explain your reasoning

$$1\frac{1}{4} = \frac{10}{8}$$

True or False: Are They Equal?

Lesson 13
Warm up

Decide whether each equation is true or false. Be prepared to explain your reasoning

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

All the Way to the Top

Lesson 13
Activity #1

Priya, Kiran, and Lin are using large playing bricks to make towers. Here are the heights of their towers so far:

- Priya: $21\frac{1}{4}$ inches
- Kiran: $32\frac{3}{8}$ inches
- Lin : $55\frac{1}{2}$ inches

For each question, show your reasoning.

1. How much taller is Lin's tower compared to:
a. Priya's tower?

b. Kiran's tower?

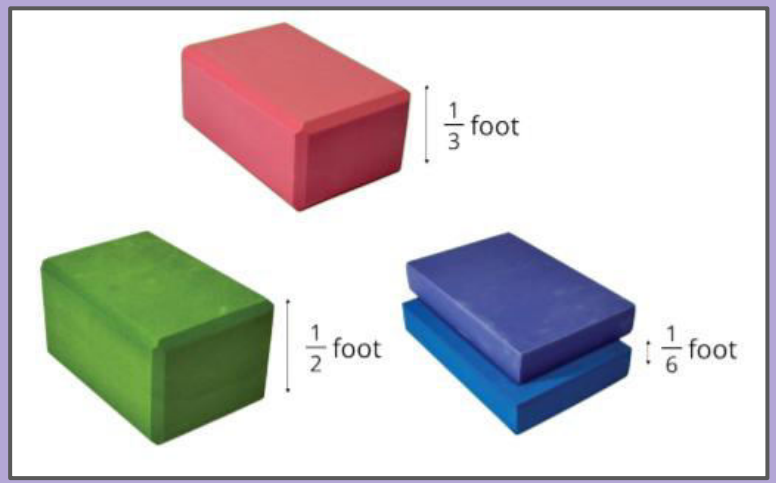
2. They are playing in a room that is 109 inches tall. Priya says that If they combine their towers to make a super tall one, it would be too tall for the room and they'll have to remove one brick.

Do you agree with Priya? Explain your reasoning

Stacks of Blocks

Lesson 13
Activity #2

Andre is building a tower out of foam blocks. The blocks come in three different thicknesses: ½ foot, ⅓ foot, and ⅙ foot.



1. Andre stacks one block of each size. Will that stack be more than 1 foot tall? Explain or show how you know.

2. Can Andre use only the ⅙ -foot and ⅓ -foot blocks to make a stack that is 1 ½ feet tall? If you think so, show one or more ways. If not, explain why not.

3. Can Andre use only the ⅙ -foot and ½ -foot blocks to make a stack that is 1 ⅓ feet tall? If so, show one or more ways. If not, explain why not.

Lesson 15
Warm up

Which One Doesn't Belong: Tenths and Hundredths

A.	B.	C.	D.
$\frac{48}{100}$	$\frac{8}{10}$	$\frac{120}{100}$	$\frac{70}{100}$

Tenths and Hundredths

Lesson 14
Activity #1

1. Complete the table with equivalent fractions in tenths or hundredths. In the last row, write a new pair of equivalent fractions.

	tenths	hundredths
a.	$\frac{1}{10}$	
b.	$\frac{4}{10}$	
c.	$\frac{6}{10}$	
d.		$\frac{50}{100}$
e.		$\frac{90}{100}$
f.	$\frac{12}{10}$	
g.		$\frac{200}{100}$
h.	$2\frac{3}{10}$	
i.		$\frac{140}{100}$
j.		

2. Here are some pairs of sums of fractions. For each pair, decide which sum is greater. Show your reasoning.

a. $\frac{3}{10} + \frac{4}{10}$ or $\frac{3}{100} + \frac{4}{100}$

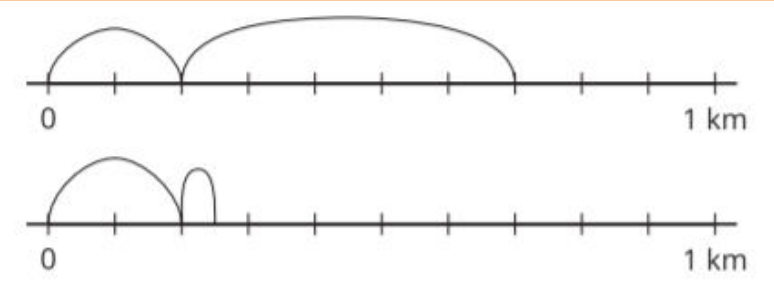
b. $\frac{3}{10} + \frac{4}{10}$ or $\frac{30}{100} + \frac{40}{100}$

c. $\frac{3}{10} + \frac{4}{10}$ or $\frac{3}{100} + \frac{40}{100}$

Walk, Stop, and Sip

Lesson 14
Activity #2

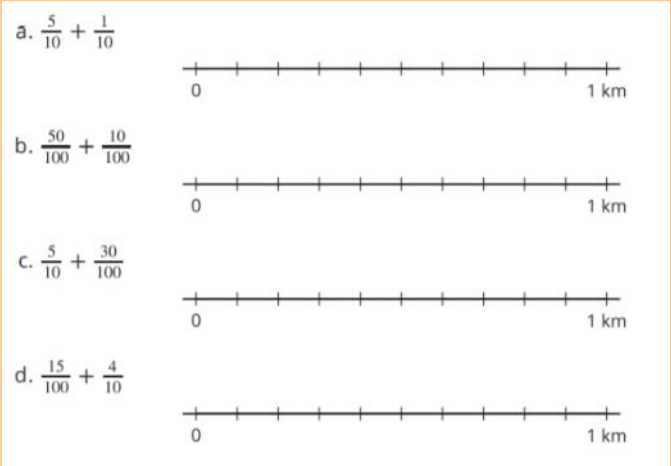
Noah walks 2/10 kilometer (km), stops for a drink of water, 5/100 walks kilometer, and stops for another sip.



The diagram that you didn't choose represents Jada's walk. Write an equation to represent:

a. the total distance Jada has walked
b. the total distance Noah has walked

Find the value of each of the following sums. Show your reasoning. Use number lines if you find them helpful.



What's Missing?

Lesson 15
Activity #2

1. Each equation is missing a fraction in hundredths. Find the missing fraction to make the equation true.

a. $\frac{10}{100} + \_\_\_\_\_ = \frac{30}{100}$

b. $\_\_\_\_\_ + \frac{2}{10} = \frac{80}{100}$

c. $\frac{7}{10} + \_\_\_\_\_ = \frac{94}{100}$

d. $\frac{9}{100} + \_\_\_\_\_ = \frac{8}{10}$

e. $\frac{16}{100} + \frac{4}{10} = \_\_\_\_\_$

f. $\_\_\_\_\_ + \frac{14}{10} = \frac{172}{100}$

2. Each equation is missing a fraction in tenths. Find the missing fraction to make the equation true.

a. $\frac{20}{100} + \_\_\_\_\_ = \frac{28}{100}$

b. $\frac{110}{100} + \_\_\_\_\_ = \frac{15}{10}$

c. $\frac{61}{100} + \frac{3}{10} = \_\_\_\_\_$

d. $\frac{9}{10} + \_\_\_\_\_ = \frac{170}{100}$

e. $\_\_\_\_\_ + \frac{72}{100} = \frac{102}{100}$

f. $\frac{15}{100} + \_\_\_\_\_ = \frac{55}{100}$

More Than Two Fractions

Lesson 16
Activity #2

Find the value of at least 3 of the expressions. Show your reasoning.

1. $\frac{2}{100} + \frac{13}{10} + \frac{1}{10} + \frac{8}{100}$

2. $\frac{50}{10} + \frac{16}{100} + \frac{2}{10}$

3. $\frac{3}{10} + \frac{4}{100} + \frac{7}{10} + \frac{26}{100}$

4. $\frac{4}{100} + 3\frac{2}{10} + 1\frac{5}{10}$

5. $1\frac{1}{10} + 5\frac{2}{100} + \frac{78}{100}$

6. $2\frac{7}{10} + \frac{2}{100} + \frac{8}{10}$

Find a Match

Lesson 17
Activity #2

Your teacher will give you one card with an expression on it.

1. Find the value of the expression.
2. Find a classmate whose card also has the same value. Prove to each other that you're a match.
3. Work with your partner to find at least two features that your expressions share (other than the fact that they have the same value.)
4. Write one more expression that has the same value but uses a different operation.

Section C Summary

In this section, we learned more ways to add fractions and to solve problems that involve adding, subtracting, and multiplying fractions.

We started by adding tenths and hundredths, using what we know about equivalent fractions. For example, to find the sum of 4/10 and 30/100, we can:

- Express $\frac{4}{10}$ as $\frac{40}{100}$, and then find $\frac{40}{100} + \frac{30}{100}$, or
- Express $\frac{30}{100}$ as $\frac{3}{10}$, and then find $\frac{4}{10} + \frac{3}{10}$.

Next, we learned that If there are more than two fractions to add, it may help to rearrange or group them. For instance: 6/100 + 2/10 + 74/100 can be rearranged as 6/100 + 74/100 + 2/10 . Then, the hundredths can be added first, giving 80/100 + 2/10. We can then use equivalent fractions in tenths or in hundredths to find the sum.

Finally, we used multiplication, addition, and subtraction to solve problems about lengths, weights, distances, and more.