learning focus:

✓ review concepts of factors and multiples

✓ add, subtract, multiply and divide fractions

✓ understand and apply fraction operations to real-world situations

FRACTION OPERATIONS UNIT

6th GRADE

11 DAY CCSS-ALIGNED UNIT

Unit: Fraction Operations
Student Handout 3

Name _____
Date _____ Pd____

MULTIPLYING FRACTIONS

The area models below represent two multiplication problems. Use your understanding of example A to complete examples B a...

$$\frac{5}{6} \cdot \frac{1}{4} = $$

C

...d numbers, each number must _____ _____ fraction.

_____ to improper fractions, and _____

...at are less than o...

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FRACTION OPERATIONS UNIT
Table of Contents

FRACTION OPERATIONS ACTIVITY PACING GUIDE

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
Factors and Multiples	Adding and Subtracting Fractions	Multiplying Fractions	Quiz 1	Patterns and Reciprocals
Student Handout 1 Homework 1	Student Handout 2 Homework 2	Student Handout 3 Homework 3		Student Handout 4 Homework 4

DAY 6	DAY 7	DAY 8	DAY 9	
Dividing Fractions I	Dividing Fractions II	Dividing Fractions Application	Quiz 2	
Student Handout 5 Homework 5	Student Handout 6 Homework 6	Student Handout 7 Homework 7		

A MANEUVERING THE MIDDLE ® RESOURCE

FRACTION OPERATIONS

an 11 day CCSS-aligned unit
CCSS: 6.NS.1, 6.NS.4

ready-to-go, scaffolded student materials

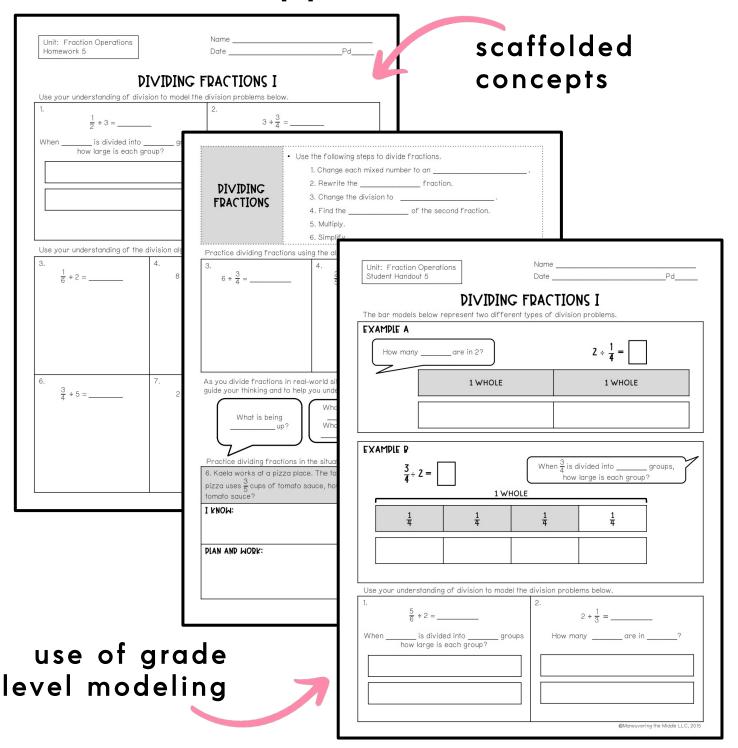## FRACTION OPERATIONS UNIT
Table of Contents

FRACTION OPERATIONS

6th GRADE

an 11 day CCSS-aligned unit
CCSS: 6.NS.1, 6.NS.4

student friendly + real-world application

scaffolded concepts

Unit: Fraction Operations
Homework 5

Name _____
Date _____ Pd _____

DIVIDING FRACTIONS I

Use your understanding of division to model the division problems below.

1. $\frac{1}{2} \div 3 =$ _____	2. $3 \div \frac{3}{4} =$ _____
When _____ is divided into _____ g how large is each group?	

Use your understanding of the division al

3. $\frac{1}{6} \div 2 =$ _____	4. 8
6. $\frac{3}{4} \div 5 =$ _____	7. 2

DIVIDING FRACTIONS

• Use the following steps to divide fractions.

1. Change each mixed number to an _____ .
2. Rewrite the _____ fraction.
3. Change the division to _____ .
4. Find the _____ of the second fraction.
5. Multiply.
6. Simplify

Practice dividing fractions using the al

3. $6 \div \frac{3}{4} =$ _____	4.

As you divide fractions in real-world si
guide your thinking and to help you und

What is being
_____ up?

Who
___
Who

Practice dividing fractions in the situa

6. Kaela works at a pizza place. The to
pizza uses $\frac{3}{5}$ cups of tomato sauce,
tomato sauce?

I KNOW:

PLAN AND WORK:

Unit: Fraction Operations
Student Handout 5

Name _____
Date _____ Pd _____

DIVIDING FRACTIONS I

The bar models below represent two different types of division problems.

EXAMPLE A

How many _____ are in 2?

$2 \div \frac{1}{4} = \square$

1 WHOLE	1 WHOLE

EXAMPLE B

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

When $\frac{3}{4}$ is divided into _____ groups, how large is each group?

1 WHOLE			
$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$

Use your understanding of division to model the division problems below.

1. $\frac{5}{6} \div 2 =$ _____	2. $2 \div \frac{1}{3} =$ _____
When _____ is divided into _____ groups how large is each group?	How many _____ are in _____?

use of grade level modeling

FRACTION OPERATIONS

6th GRADE

streamline your planning process with unit overviews

✓ key vocabulary

✓ vertical alignment

FRACTION OPERATIONS
OVERVIEW

CCSS

STANDARDS

6.NS.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, using visual fraction models and equations to represent the problem.

6.NS.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor.
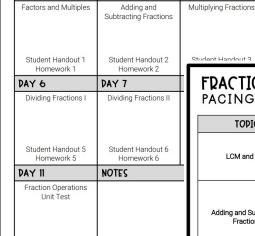
BIG IDEAS

- Fractions can be used to sol
- Fractions display a part-to-w

ESSENTIAL QUESTION

- How is the reciprocal of a fra
- What process can you use to
- How are the least common r

sample pacing calendar

FRACTION OPERATIONS
PACING GUIDE

CCSS

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
Factors and Multiples	Adding and Subtracting Fractions	Multiplying Fractions	Fraction Operations I	Patterns and Reciprocals
Student Handout 1 Homework 1	Student Handout 2 Homework 2	Student Handout 3	Student Handout 4	Student Handout 4
DAY 6	**DAY 7**			
Dividing Fractions I	Dividing Fractions II			
Student Handout 5 Homework 5	Student Handout 6 Homework 6			
DAY 11	**NOTES**			
Fraction Operations Unit Test				
Unit Test				

FRACTION OPERATIONS
PACING GUIDE

CCSS

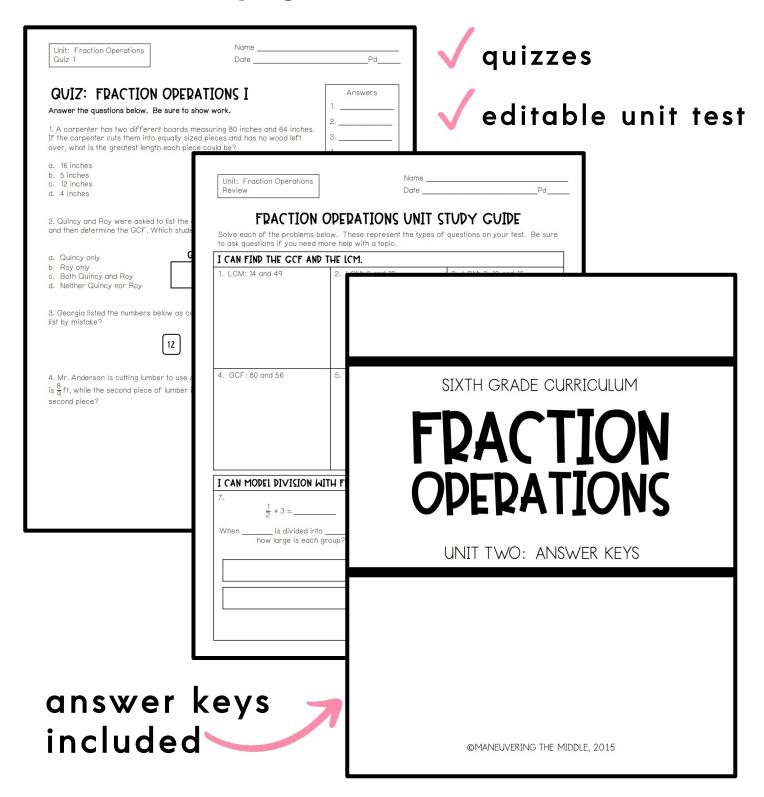| TOPIC	TEACHING TIPS
LCM and GCF	• Students are typically good at finding the least common multiple. Some like to make large lists, while others are able to count in their head. I would suggest that students always begin with the larger number when finding the LCM. • The ladder method, or upside down division, is very handy for finding the GCF. It helps students to organize their work and is more efficient than prime factorization.
Adding and Subtracting Fractions	• This topic should be review from fifth grade. Feel free to exclude the lesson or replace it with an activity. • Students tend to struggle with the initial step of renaming the fractions. Consider using "Mr. 1" to assist. It helps students to keep their work neat and organized, as well as to understand that you are not actually multiplying by a number; rather, you are just renaming the number. $\frac{2}{3} \cdot \mathbf{1}\frac{4}{4} = \frac{8}{12}$
Multiplying Fractions	• Use a set of dice to have students practice multiplying fractions. Two students will work together to roll two dice each. The first student rolls two dice: the first forms the numerator, and the second forms the denominator. The second student does the same. Using whiteboards, have students practice multiplying the fractions together.
Dividing Fractions	• Graham crackers can be messy, but they are excellent for dividing fractions. Have students model the fraction division first from a whole and then from a part. For example, begin with the whole graham cracker and ask them to divide by ¼. They then have 4 pieces. Connect this to the algorithm. Then, begin with the ¼ and ask them to divide it in half and compare it to the ¼ .
Dividing Fractions Application	• Students can struggle to determine which operation is taking place within a real-world problem. Consider having them think about the following questions: 1. What is being spilt? 2. How many times? 3. What is the result?

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teaching ideas

FRACTION OPERATIONS

an 11 day CCSS-aligned unit
CCSS: 6.NS.1, 6.NS.4

unit study guide + assessments

✓ **quizzes**

✓ **editable unit test**

Unit: Fraction Operations
Quiz 1

Name _____
Date _____ Pd_____

QUIZ: FRACTION OPERATIONS I

Answer the questions below. Be sure to show work.

1. A carpenter has two different boards measuring 80 inches and 64 inches. If the carpenter cuts them into equally sized pieces and has no wood left over, what is the greatest length each piece could be?

a. 16 inches
b. 5 inches
c. 12 inches
d. 4 inches

2. Quincy and Roy were asked to list the ____ and then determine the GCF. Which student ____

a. Quincy only
b. Roy only
c. Both Quincy and Roy
d. Neither Quincy nor Roy

3. Georgia listed the numbers below as c____ list by mistake?

12

4. Mr. Anderson is cutting lumber to use ____ is $\frac{8}{9}$ ft, while the second piece of lumber ____ second piece?

Answers

1. _____
2. _____
3. _____
4. _____

Unit: Fraction Operations
Review

Name _____
Date _____ Pd_____

FRACTION OPERATIONS UNIT STUDY GUIDE

Solve each of the problems below. These represent the types of questions on your test. Be sure to ask questions if you need more help with a topic.

I CAN FIND THE GCF AND THE LCM.

1. LCM: 14 and 49	2. LCM: 8 and 12	3. LCM: 6, 10 and 15
4. GCF: 80 and 56	5.	

I CAN MODEL DIVISION WITH F____

7.
$$\frac{1}{2} \div 3 = \underline{\hspace{2cm}}$$

When _____ is divided into _____ how large is each group?

SIXTH GRADE CURRICULUM

FRACTION OPERATIONS

UNIT TWO: ANSWER KEYS

answer keys included