

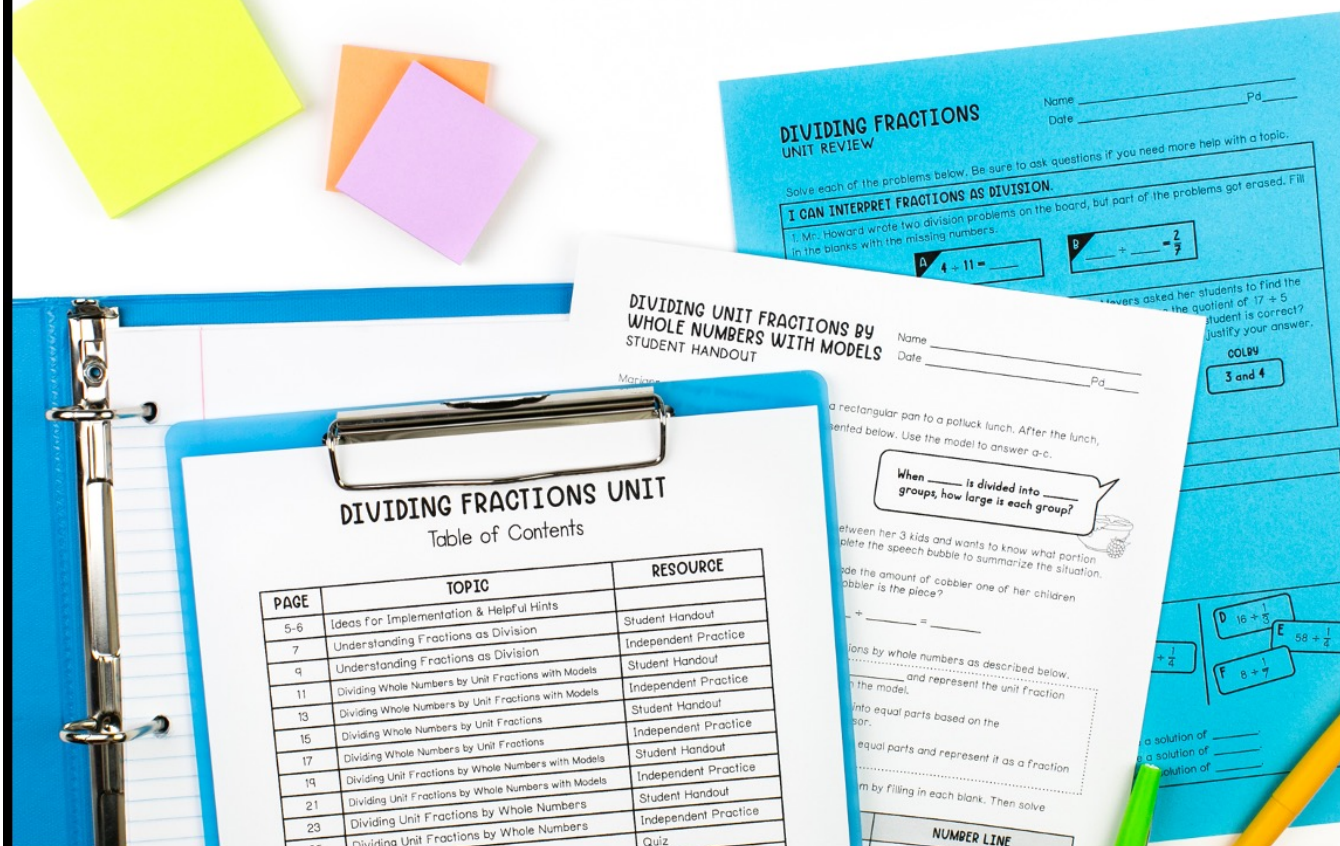
# learning focus:

- ✓ interpret fractions as division
- ✓ divide whole numbers by unit fractions using strategies and models
- ✓ divide unit fractions by whole numbers using strategies and models

# DIVIDING FRACTIONS UNIT

## 9 DAY CCSS-ALIGNED UNIT

**5<sup>th</sup>**  
GRADE



A MANEUVERING THE MIDDLE® RESOURCE

# DIVIDING FRACTIONS



a 9 day CCSS-aligned unit

CCSS: 5.NF.3, 5.NF.7a, 5.NF.7b, 5.NF.7c, 5.MD.2

ready-to-go, scaffolded  
student materials

## DIVIDING FRACTIONS UNIT

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# DIVIDING FRACTIONS



a 9 day CCSS-aligned unit

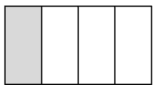
CCSS:5.NF.3, 5.NF.7a, 5.NF.7b, 5.NF.7c, 5.MD.2

## student friendly + real-world application

scaffolded concepts

**DIVIDING UNIT FRACTIONS BY WHOLE NUMBERS WITH MODELS** Name \_\_\_\_\_ Pd \_\_\_\_\_  
STUDENT HANDOUT Date \_\_\_\_\_

Marianne brought blackberry cobbler in a rectangular pan to a potluck lunch. After the lunch, she had  $\frac{1}{4}$  of the pan remaining as represented below. Use the model to answer a-c.



When \_\_\_\_\_ is divided into \_\_\_\_\_ groups, how large is each group?

- Marianne will split the remaining cobbler between her 3 kids and wants to know what portion of the cobbler each child will receive. Complete the speech bubble to summarize the situation.
- Divide the model into 3 equal pieces and shade the amount of cobbler one of her children would receive. What fraction of the entire cobbler is the piece?
- Model the situation with an equation: \_\_\_\_\_  $\div$  \_\_\_\_\_ = \_\_\_\_\_

Models can help us represent division of unit fractions by whole numbers as described below.

**DIVIDING UNIT FRACTIONS BY WHOLE NUMBERS WITH MODELS**

- Draw a model of \_\_\_\_\_ and represent the unit fraction amount, or dividend, on the model.
- Divide the unit fraction into equal parts based on the \_\_\_\_\_ divisor.
- Identify \_\_\_\_\_ of the equal parts and represent it as \_\_\_\_\_ of the whole.

In #1-2 below, restate the meaning of the division problem by filling in each blank. Then using both an area model and a number line.

	AREA MODEL	NUMBER LINE
<p>1 <math>\frac{1}{2} \div 4 = \underline{\hspace{2cm}}</math></p> <p>When _____ is divided into _____ groups, how large is each piece?</p>		
<p>2 <math>\frac{1}{3} \div 3 = \underline{\hspace{2cm}}</math></p> <p>When _____ is divided into _____ groups, how large is each piece?</p>		

self-checking practice

**UNDERSTANDING FRACTIONS AS DIVISION** Name \_\_\_\_\_ Pd \_\_\_\_\_  
INDEPENDENT PRACTICE Date \_\_\_\_\_

Solve each of the questions in the left column. Then draw a line to the solution in the right column. After all the questions have been completed, unscramble the remaining letters to discover the mystery fruit.

1. If 4 boxes of crayons are shared equally among 9 children, how much of a box will each child get?		$3\frac{1}{2}$
2. Three sisters shared a 16-ounce container of ice cream equally. How many ounces of ice cream did they each eat?		$2\frac{1}{4}$
3. Ashlyn had a 7-pound container of cat litter. She put an equal amount of litter into 2 litter boxes. How many pounds of cat litter did she put in each litter box?		$\frac{4}{9}$
4. A 9-ounce bar of chocolate fudge is shared equally among 4 people. How many ounces of fudge does each person get?		$\frac{3}{16}$
5. Rodrigo ran the same number of miles each day for the last 4 days. If he ran a total of 22 miles, how many miles did he run each day?		$5\frac{1}{3}$
6. Jordy made 3 cups of ranch dressing. He put the same amount of dressing on 16 salads. How much dressing did he put on each salad?		$5\frac{1}{2}$

**MYSTERY FRUIT:**

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# DIVIDING FRACTIONS



a 9 day CCSS-aligned unit

CCSS:5.NF.3, 5.NF.7a, 5.NF.7b, 5.NF.7c, 5.MD.2

## unit study guide + assessments

✓ quizzes

✓ editable unit test

**DIVIDING WITH FRACTIONS QUIZ**

Name \_\_\_\_\_  
Date \_\_\_\_\_ Pd \_\_\_\_\_

Answers

1. Find the quotient.  $16 \div \frac{1}{8} =$  \_\_\_\_\_

2. What is the quotient of  $\frac{1}{11} \div 13$ ?

a. 143      b.  $\frac{1}{143}$

3. Fill in the missing value in the expression  $3 \div \frac{1}{2} =$  \_\_\_\_\_

Answer the questions below. Be sure to show your work.

4. A chef has a piece of pasta dough that is  $\frac{1}{5}$  inches wide. He cuts it into pieces that are each  $\frac{1}{5}$  of an inch wide to make fettuccini noodles. How many fettuccini noodles can the chef make from one piece of pasta dough?

a. 20  
b. 200  
c. 45  
d. 800

6. Three students made statements about the fraction  $\frac{5}{9}$ .

**SHANNEN**

The fraction represents the division problem  $9 \div 5$ .

5/9

**DIVIDING FRACTIONS UNIT REVIEW**

Name \_\_\_\_\_  
Date \_\_\_\_\_ Pd \_\_\_\_\_

Solve each of the problems below. Be sure to ask questions if you need more help with a topic.

**I CAN INTERPRET FRACTIONS AS DIVISION.**

1. Mr. Howard wrote two division problems on the board, but part of the problems got erased. Fill in the blanks with the missing numbers.

A  $4 \div 11 =$  \_\_\_\_\_

2. A middle school science department has 20 packages of colored paper to share between 6 teachers. How many packages of colored paper does each teacher get?

**I CAN DIVIDE WHOLE NUMBERS BY UNIT FRACTIONS WITH MODELS**

4. Draw an area model to represent  $4 \div \frac{1}{2}$ .

5. Each of the cards on the left has the same solution as one of the cards on the right. Find the matching expressions to complete the sentence below.

- Card A and Card \_\_\_\_\_
- Card B and Card \_\_\_\_\_
- Card C and Card \_\_\_\_\_

**DIVIDING WHOLE NUMBERS BY UNIT FRACTIONS WITH MODELS STUDENT HANDOUT**

Name **Answer Key** \_\_\_\_\_  
Date \_\_\_\_\_ Pd \_\_\_\_\_

Tim buys 4 pounds of almonds at the grocery store. He wants to divide the almonds into bags that hold either 2 pounds or  $\frac{1}{2}$  pound each and needs to know how many bags he would be able to fill.

**A**  $4 \div 2$

What does  $4 \div 2$  represent in the context of this situation?  
The number of 2-pound bags of almonds that can be filled with 4 pounds of almonds.  
Each model below represents 1 pound. Use the models to solve the division problem.

**B**  $4 \div \frac{1}{2}$

What does  $4 \div \frac{1}{2}$  represent in the context of this situation?  
The number of  $\frac{1}{2}$ -pound bags of almonds that can be filled with 4 pounds of almonds.  
Each model below represents 1 pound. Use the models to solve the division problem.

The division problem  $4 \div \frac{1}{2}$  is an example of a whole number being divided by a unit fraction. A **unit fraction** is any fraction where the numerator is 1, such as  $\frac{1}{3}$  or  $\frac{1}{8}$ . Models can help us represent division of whole numbers by unit fractions by as described below.

**DIVIDING WHOLE NUMBERS BY UNIT FRACTIONS WITH MODELS**

1. Draw a model to represent the **whole number** amount, or the dividend.
2. Divide each whole number into parts based on the **unit fraction** divisor.
3. Determine the number of **groups** of the unit fraction that are in the whole number amount.

In #1-3, restate the meaning of the division problem by filling in each blank. Then draw a model to find the quotient.

1.  $3 \div \frac{1}{4} = \frac{12}{4} = 3$   
How many  $\frac{1}{4}$  are in 3?

2.  $2 \div \frac{1}{5} = \frac{10}{5} = 2$   
How many  $\frac{1}{5}$  are in 2?

3. Trinity has a package containing 6 cups of macaroni noodles. The package states the serving size is  $\frac{1}{3}$  cup. How many servings of noodles are in the package?  
How many  $\frac{1}{3}$  cups are in 6 cups? **18 servings**

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answer keys included