LESSON MAKER PRO

Fraction Division Models

Use pictures to make sense of division with unit fractions.

GRADE 5 · TEKS 5.3.J

5.3.J "represent division of a unit fraction by a whole number and the division of a whole number by a unit fraction such as 1/3 ÷ 7 and 7 ÷ 1/3 using objects and pictorial models, including area models;"

NAME _____ DATE _____

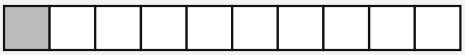
SEE THE FRACTION PIECES

Splitting a unit fraction into two or more equal shares makes each share smaller. Dividing it by 1 leaves it unchanged. Dividing a whole number by a unit fraction tells how many of those fractional pieces fit in the whole number.

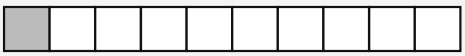
WORKED EXAMPLE

The two bars show the equal shares when 1/5 is split between 2 people. What is 1/5 ÷ 2?

Share A



Share B



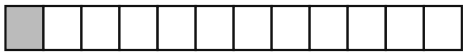
1. Each share has 1 shaded part out of 10 equal parts.
2. One share is 1/10.
3. So 1/5 ÷ 2 = 1/10.

Answer: 1/10

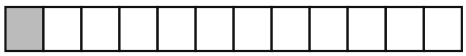
PRACTICE 6 problems

1 Use the model. The shaded pieces are three equal shares of one unit fraction. Write the division sentence and the quotient.

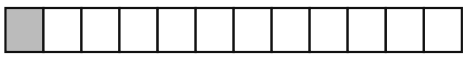
Share 1



Share 2



Share 3



ANSWER _____

2 Each full bar is one whole, and each small part is 1/7. Use the model. Write the division sentence and the quotient.

Whole 1



Whole 2



Whole 3



ANSWER _____

_____

3 Find 1/6 ÷ 8.

ANSWER _____

4 Find 7 ÷ 1/9.

ANSWER _____

5 Find 1/11 ÷ 4.

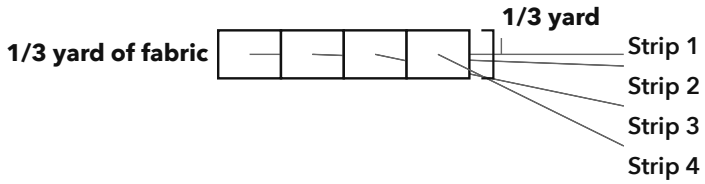
ANSWER _____

6 Find 6 ÷ 1/12.

ANSWER _____

APPLY IT Show your work

1 Jade has 1/3 yard of fabric for team badges. The tape diagram shows the fabric cut into 4 equal strips. How many yards of fabric are in each strip?



ANSWER _____

2 A game club has 6 meters of LED strip. Each controller needs 1/8 meter of strip. How many controllers can get LED strip?

WORK SPACE

ANSWER _____

3 Use teacher-supplied equal paper strips; one full strip is 1 whole. Mark one strip into 3 equal parts and take one third. Fold or mark that third into 2 equal shares and separate them with adult cutting help or precut pieces. Then take 2 full strips and divide each into thirds. Actually count how many third-size pieces fill the 2 wholes. On separate paper draw both actions and write a matching division equation for each.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Compare 1/7 ÷ 3 and 3 ÷ 1/7. Find both quotients. Then explain why one quotient is less than 1 and the other is greater than 1.

WORK SPACE AND ANSWER

ANSWER KEY

Fraction Division Models

GRADE 5 · TEKS 5.3.J

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Use the model. The shaded pieces are three equal shares of one unit fraction. Write the division sentence and the quotient.	**1/4 ÷ 3 = 1/12**
2	Each full bar is one whole, and each small part is 1/7. Use the model. Write the division sentence and the quotient.	**3 ÷ 1/7 = 21**
3	Find 1/6 ÷ 8.	**1/48**
4	Find 7 ÷ 1/9.	**63**
5	Find 1/11 ÷ 4.	**1/44**
6	Find 6 ÷ 1/12.	**72**

PART 2 · APPLY IT

1. **1/12 yard** Divide 1/3 by 4. Each of the 4 equal strips is 1/12 yard.
2. **48 controllers** Find how many eighths are in 6 wholes: 6 ÷ 1/8 = 48.
3. **1/3 ÷ 2 = 1/6; 2 ÷ 1/3 = 6.** Observe two equal sixth-size shares formed from one third and six third-size pieces in two unit strips. Drawings must retain the same whole-unit reference and match each concrete action and equation.

CHALLENGE

1/7 ÷ 3 = 1/21, and 3 ÷ 1/7 = 21. Splitting 1/7 into 3 equal parts makes a smaller fraction, 1/21. Three wholes contain 21 pieces of size 1/7.

Accept equivalent fraction forms when they are correct, such as 2/24 for 1/12. For model items, accept a correct division equation and quotient even if the student explains the model in different words.