FAMILY MATH

Multiplication as Multiplicative Comparison

Dear Family,

Key Term

times as many

In previous grades, your student learned to compare numbers and use addition or subtraction to describe *how many more* or *how many less*. Now, your student uses their prior knowledge of multiplication and division to compare numbers and describe their relationship as *times as many*. Your student explores a variety of patterns and models such as blocks, tape diagrams, and money, to explain what it means to say *times as many*. They find an unknown quantity when two quantities are compared by writing multiplication and division equations.

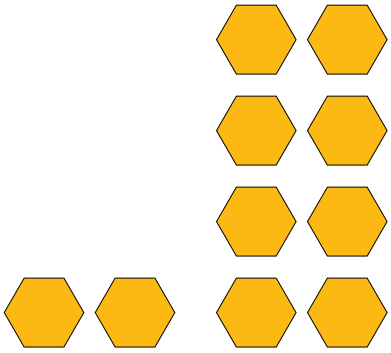
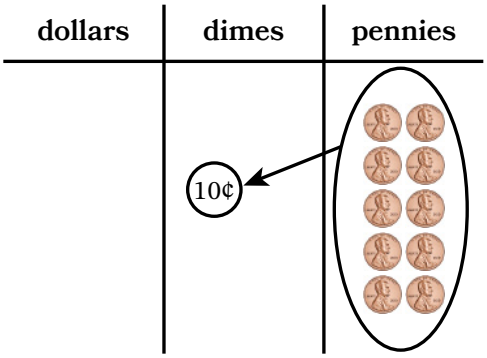
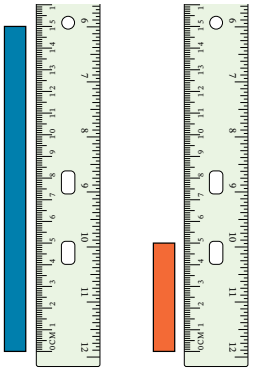


Figure E Figure F

There are 4 *times as many hexagons in figure F as there are in figure E.*



There are 10 *times as many cents in a dime as there are in* 1 *penny.*



Amy's tower is 3 *times as tall as Gabe's tower.*

$15 = 3 \times 5$

Measurement	Comparison
weight	times as heavy
liquid volume	times as much
capacity	times as much
height	times as tall
length	times as long
width	times as wide
distance	times as far

The comparison phrase times as many *can be adjusted to match different contexts.*

At-Home Activity

Use Comparison Language

Help your student practice describing multiplication and division equations by using *times as many* language. You may find it useful to use the comparison language provided in the chart of measurements.

- Use two different-size containers that can hold water, such as a small measuring cup and a large water glass. Have your student fill the larger container by using water from the smaller container. Discuss the amount of liquid each container holds. Help your student by asking a question such as, "What can we say about how much more liquid the larger container holds?" Then say, "We can say that the larger container holds about _____ times as much liquid as the smaller container." Repeat with other different-size containers like a pot and a bowl, or a pitcher and a cup.
- Get two dry spaghetti noodles. Break off a small piece, about 1 inch, of the first noodle. Leave the second noodle whole. Use the piece of noodle to measure the whole noodle from one end to the other by moving the piece along the whole noodle with no gaps or overlaps. Then compare the length of the piece to the whole noodle by using *times as long* language. Use a comparison statement such as, "The whole noodle is about _____ *times as long* as the piece of noodle." Encourage your student to describe about how many times as long one noodle is than the other.
- Consider starting conversations with your student such as, "I noticed it took you 2 minutes to brush your teeth and 10 minutes to eat your breakfast. How many times as long did it take you to eat your breakfast than it did to brush your teeth?"

FAMILY MATH

Place Value and Comparison within 1,000,000

Dear Family,

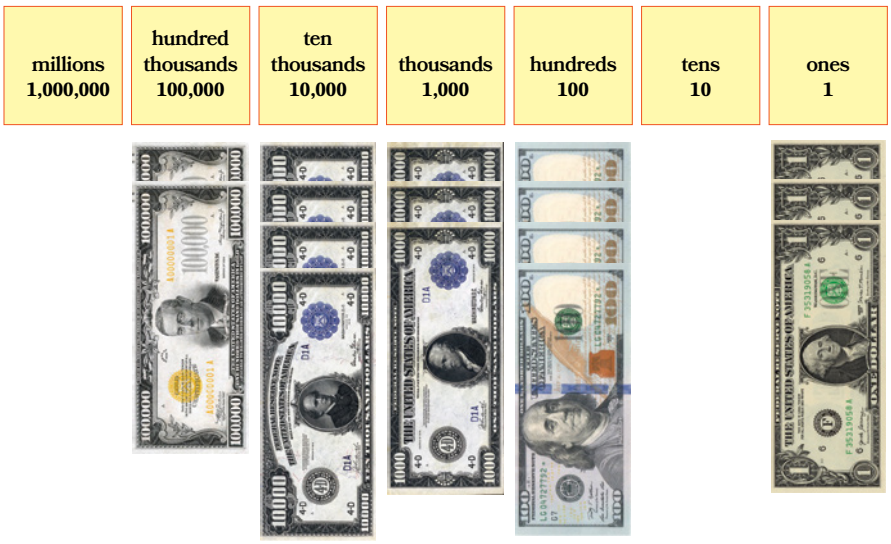
In previous grades, your student learned about place value for numbers up to 10,000. Using that knowledge, your student explores counting with large sums of money as a context for understanding large numbers. They learn to read, write, and compare numbers up to 1,000,000. They also connect recent learning about *times as much* to realize that a digit represents 10 times the value of the same digit in the place to its right. A strong sense of place value understanding helps your student add, subtract, multiply, and divide with large numbers later this year.

Key Terms

hundred thousand

million

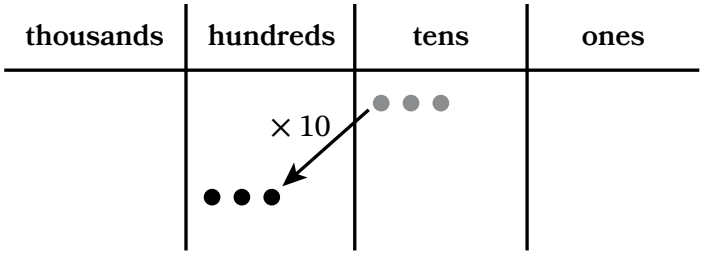
10 times as much



A place value chart organizes numbers and shows the relationships between place value units.

56,348
50,000 + 6,000 + 300 + 40 + 8
fifty-six thousand, three hundred forty-eight
56 thousands 3 hundreds 4 tens 8 ones

Writing numbers in various forms, such as in standard form, expanded form, word form, and unit form, enables flexible thinking.



10 *times as much as* 3 *tens is* 3 *hundreds.*
$10 \times 30 = 300$
3 *hundreds is* 10 *times as much as* 3 *tens.*
$300 = 10 \times 30$

At-Home Activities

Comparing Money

Encourage your student to practice multiplying and dividing by 10 by using pennies, dimes, and dollars. Ask your student how many cents are in a penny (1¢), a dime (10¢), and a dollar (100¢). Talk about how many pennies equal the value of a dime and how many dimes equal the value of a dollar. Ask your student to say a multiplication sentence for each relationship such as, "10 times 1 cent is 10 cents, and 10 times 10 cents is 100 cents." Then ask questions about larger amounts.

- "How many cents is 7 dimes worth?" (70 cents)
- "What is 10 times as much as 7 dimes?" (7 dollars or 70 dimes)
- "70 cents is 10 times as much as how many cents?" (7 cents)
- "7 dollars is worth 700 cents. How many cents is 10 times as much as 7 dollars?" (7,000 cents)

Comparing Large Numbers

Write two large numbers, such as 38,720 and 36,954. Ask your student to say which number is greater and which number is less and explain how they know. Encourage your student to draw a place value chart to help them. For an added challenge, ask your student to write a number greater than one of the numbers, write a number less than the other number, and write a number whose value is between both numbers.

FAMILY MATH

Rounding Multi-Digit Whole Numbers

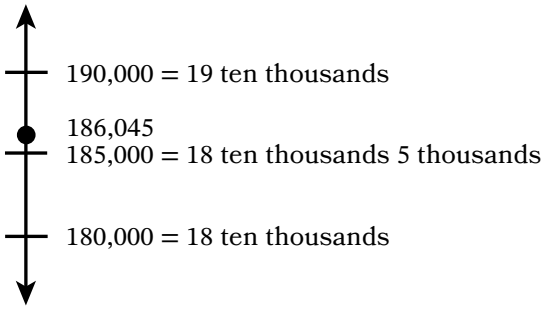
Dear Family,

Your student is learning to round numbers to the nearest thousand, ten thousand, and hundred thousand. First, they name numbers in unit form based on the place value to which they are rounding. Then they use the vertical number line to show their understanding. Labeling the number line with two benchmark numbers and the number that is halfway between the two benchmark numbers can help your student to identify the closest benchmark. Your student also decides when it may be helpful to round to the *nearest* or *next* benchmark. They understand that some situations require an estimate greater than the actual amount, such as when estimating a cost.

thousands	hundreds	tens	ones
6	2	7	5

6 thousands 2 hundreds 7 tens 5 ones
62 hundreds 7 tens 5 ones
627 tens 5 ones
6,275 ones

6,275 *written in different ways.*



186,045 ≈ 190,000

186,045 *rounded to the nearest ten thousand on the vertical number line.*

Liz has $70. She wants to buy a book bag that costs $34, a book that costs $19, and a calculator that costs $24.

Liz rounds to the *nearest ten.*	Liz rounds to the *next ten.*
30 + 20 + 20 = 70	40 + 20 + 30 = 90

To make sure she has enough money, Liz decides to use the estimate that rounds to the next *ten instead of the* nearest *ten.*

At-Home Activities

Rounding Numbers

Get six pieces of paper. Label the first piece with the first digit from your phone number, the second piece with the second digit from your phone number, and so on until all pieces of paper have been used. Mix up the papers and place facedown in a row. Then have your student turn over all 6 pieces of paper to form a 6-digit number. Invite your student to help you round the number to the nearest thousand, ten thousand, and hundred thousand. Have them explain their reasoning as they round. Repeat with a different 6-digit number.

Estimate Costs

Practice using estimation by planning an imaginary shopping trip. Let your student choose the reason for the trip and the items to purchase. For example, your student may decide they are shopping for a party or a gift. Use a store flyer or a store's online website and ask your student to help you think about how much money is needed to buy some items. Decide on a budget, such as $\$100$. Make a shopping list and label items with whole-dollar amounts. Begin with 2 items, rounding to the nearest ten dollars. Ask questions to discuss the estimates.

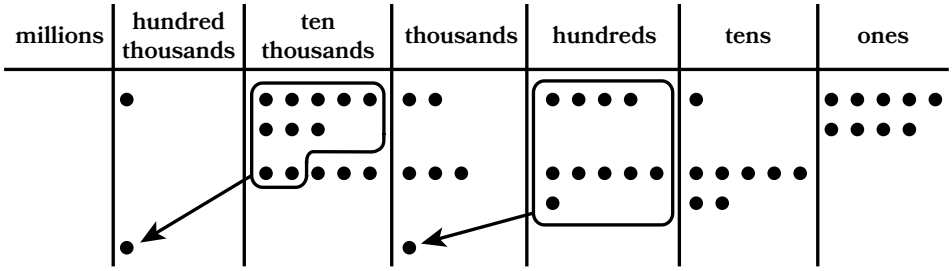
- "What is the total cost when we estimate by rounding each price to the nearest ten dollars?"
- "Do we have enough money to buy the items if we use that estimate?"
- "Is there another way to estimate the total to make sure we have enough money?"

FAMILY MATH

Multi-Digit Whole Number Addition and Subtraction

Dear Family,

Your student is learning to add and subtract numbers within 1,000,000 by using the standard algorithm. They begin by using concrete place value disks and drawings on the place value chart. The place value chart helps your student make sense of when they must rename units when adding or subtracting. Your student uses rounding to estimate to check whether their answer is reasonable. They also solve word problems by using the Read–Draw–Write process to practice adding and subtracting. They use tape diagrams to represent and make sense of the problems and write equations with a letter for the unknown.

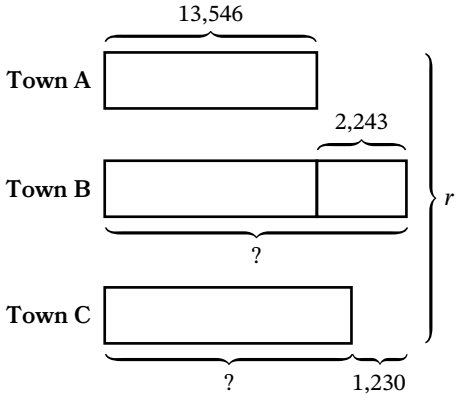


$$\begin{array}{r} 200,000 \\ +\ 50,000 \\ \hline 250,000 \end{array} \qquad \begin{array}{r} 182,419 \\ +\ 53,670 \\ \hline 236,089 \end{array}$$

The place value chart shows renaming 10 *hundreds as* 1 *thousand and* 10 *ten thousands as* 1 *hundred thousand.*

Rounding and estimating before adding shows that the answer of 236,089 *is reasonable.*

Town A has 13,546 *residents.*
Town B has 2,243 *more residents than Town A.*
Town C has 1,230 *fewer residents than Town B.*
What is the total number of residents in all three towns?



Town B	Town C	Total Residents
13,546	15,789	13,546
+ 2,243	− 1,230	+ 14,559
15,789	14,559	43,894

$r = 43{,}894$

The total number of residents is 43,894.

At-Home Activity

Large Number Fun

Explore adding and subtracting with large numbers related to topics that your student finds interesting. Encourage rounding, estimating, determining reasonableness, and checking subtraction problems with addition. Consider using the following example topics.

- Gather information such as the number of average visitors per year at your student's favorite amusement parks or other attractions. You can also create your own information such as Adventure Park had $745{,}691$ visitors this year and Discovery Park had $667{,}345$ visitors. Ask your student questions such as, "How many more people visited Adventure Park than Discovery Park this year?"
- Gather information about the weights of large animals. For example, a crocodile weighs $1{,}098$ pounds, an elephant weighs $10{,}648$ pounds, a shark weighs $2{,}562$ pounds, and a bear weighs $1{,}332$ pounds. Ask your student questions such as, "What is the combined weight of the shark and bear?"

FAMILY MATH

Metric Measurement Conversion Tables

Dear Family,

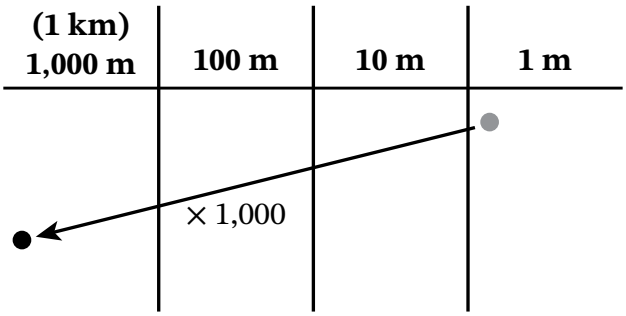
Your student is learning to convert from larger metric units to smaller metric units. They work with units that measure length (centimeters, meters, and kilometers), mass (grams and kilograms), and liquid volume (milliliters and liters). Measurements are sometimes given as mixed units, such as 1 kilometer 300 meters. Mixed units have more than 1 unit. For example, the number 1,300 can be written with mixed units as 1 thousand 3 hundreds. Your student uses what they know about whole number place value units to rename mixed measurement units. Then they add and subtract measurements to solve word problems.

Key Terms

convert

kilometer

mixed units



1 kilometer is 1,000 times as long as 1 meter.

$1 \text{ km} = 1{,}000 \times 1 \text{ m}$

1 kilometer = 1,000 meters

Metric units have a similar relationship to place value units.

Kilometers	Meters
1	1,000
2	2,000
3	3,000
4	4,000

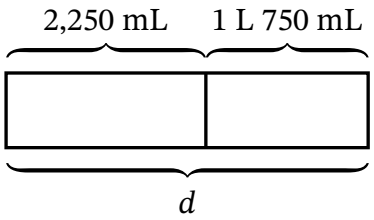
The relationship between 1 kilometer and 1,000 meters is used to convert 2, 3, and 4 kilometers to meters.

2,250 mL + 1 L 750 mL

1 L 750 mL = 1,750 mL

$$\begin{array}{r} 2,250 \\ +\ 1,750 \\ \hline 4,000 \end{array}$$

Mrs. Smith has 4,000 mL.



1 L 750 mL is a mixed measurement unit. Converting to milliliters before adding is one strategy for adding mixed measurement units.

At-Home Activities

Metric Units

Use real-world examples to practice converting metric units. For example, think of a familiar route, such as the distance from home to school. Find the distance of that route in whole number kilometers. If you don't know the distance in kilometers then estimate. 1 kilometer is about the same as $\frac{6}{10}$ miles. Then have your student convert kilometers to meters and centimeters.

How Much Taller?

Help your student practice subtracting mixed units by measuring the heights of members of your family. Use a meter stick or a tape measure with metric units to measure in meters and centimeters. Another option is to use an online conversion tool to convert known heights in feet and inches into meters and centimeters. Then have your student use subtraction to see how much taller one family member is than another.