

FAMILY MATH

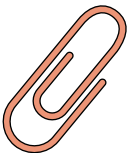
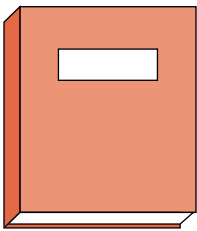
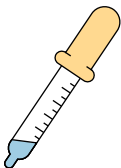
Understanding Place Value Concepts through Metric Measurement

Dear Family,

Your student is learning to estimate and measure weight and liquid volume. They use grams and kilograms for measuring weight, and they use liters and milliliters for measuring liquid volume. Your student is learning that liquid volume is the amount of space a liquid takes up and that capacity is the amount of liquid a container can hold. They engage in hands-on activities to understand the relationships between smaller and larger units. They use what they know about place value and solve word problems that have measurement contexts.

Key Terms

capacity
gram (g)
kilogram (kg)
liquid volume
liter (L)
milliliter (mL)
operation

Weight 1,000 grams = 1 kilogram		Liquid Volume 1,000 milliliters = 1 liter	
Gram	Kilogram	Milliliter	Liter
			
A paper clip weighs about 1 gram.	A dictionary weighs about 1 kilogram.	4 drops of water is about 1 milliliter.	A large water bottle holds about 1 liter.

At-Home Activities

Grams or Kilograms?

Practice choosing the best unit for measuring different objects. Find various household items that your student can hold. Let them decide if it would be better to weigh the items in grams or kilograms. Consider the following examples.

- “Does it make sense to measure the weight of a pen in grams or kilograms? Why? What else do you see that we could measure in the same unit?”
- “Does it make sense to measure the weight of a basket of laundry in grams or kilograms? Why? What else do you see that we could measure in the same unit?”

Which Holds More?

Help your student find two empty containers that hold different amounts of liquid, such as cups, food storage containers, or water bottles. Ask your student to predict which of the two containers can hold less water. Completely fill that container with water. Then pour the water from that container into the other container. Have a towel handy! If the water fits inside the container without spilling over, the second container has a greater capacity than the first. If the water overflows, the first container has a greater capacity. Talk about which container has the greater capacity and why. Find two more different-size containers and try again.

FAMILY MATH

Rounding to the Nearest Ten and Hundred

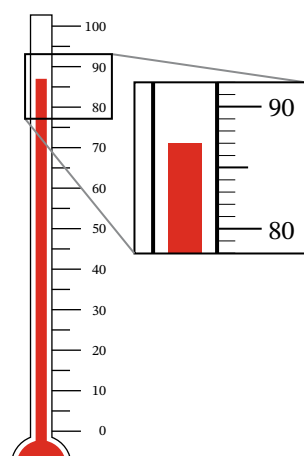
Dear Family,

Your student is learning to round numbers to the nearest ten and nearest hundred on a vertical number line. To prepare, they practice reading temperatures on thermometers that look like vertical number lines. Then, they round by finding the closest numbers that are multiples of 10 or 100 (we call them *benchmark numbers*) and mark them on a vertical number line. Rounding is also helpful for estimating the answer to an addition or subtraction problem.

Key Terms and Symbols

approximately equal sign, $\approx$

round, rounding



8 tens 5 ones (85) is halfway between 8 tens (80) and 9 tens (90). 87 is more than halfway between 80 and 90, so 87 is closer to 90. 87 rounded to the nearest ten is 90.

$$122 + 384$$

$$122 \approx 100$$

$$384 \approx 400$$

$$100 + 400 = 500$$

So $122 + 384$ must be close to 500.

The $\approx$ symbol is used to show that two numbers are about equal to each other.

At-Home Activities

Interactive Number Line

Create a vertical number line outside using sidewalk chalk or inside with masking tape on the carpet. Place labels for 100, 200, 300, 400, 500, 600, 700, 800, 900, and 1,000 along the number line. Say a three-digit number and invite your student to hop to the number along the number line where they think it should go. Ask your student to explain their strategy for placing the number. Ask them to round the number to the nearest hundred. Then repeat with different three-digit numbers.

Roll for Estimations

Practice estimating sums and differences by adding random two-digit numbers. Roll two dice and set them next to each other to make a two-digit number. For example, if you roll a 6 and a 2, your number will be 62. Then roll again to create another two-digit number. Ask your student to estimate the sum or difference of the two sets of dice by rounding each number to the nearest ten before adding or subtracting. Then, find the actual sum or difference and ask why the answer is reasonable. Repeat with three dice and three-digit numbers, if possible.

FAMILY MATH

Simplifying Strategies to Find Sums and Differences

Dear Family,

Your student is using familiar simplifying strategies from earlier grades to add or subtract two-digit and three-digit numbers. Students build their number sense to recognize that some strategies may be more efficient than others depending on the numbers in the problem. They also use addition and subtraction to solve problems with data they represent in scaled bar graphs.

Key Term

scaled bar graph

Simplifying Strategies

Students can break apart numbers by place value and then add or subtract like units.

$$\begin{array}{r} 27 + 22 = 49 \\ \swarrow \quad \searrow \quad \swarrow \quad \searrow \\ 20 \quad 7 \quad 20 \quad 2 \end{array}$$

$$20 + 20 = 40$$

$$7 + 2 = 9$$

$$\begin{array}{r} 76 - 24 = 52 \\ \swarrow \quad \searrow \quad \swarrow \quad \searrow \\ 70 \quad 6 \quad 20 \quad 4 \end{array}$$

$$70 - 20 = 50$$

$$6 - 4 = 2$$

Students can break apart numbers to make or take from a multiple of ten or hundred.

$$\begin{array}{r} 17 + 98 = 15 + 100 = 115 \\ \swarrow \quad \searrow \quad \swarrow \quad \searrow \\ 15 \quad 2 \end{array}$$

$$15 + (2 + 98)$$

$$\begin{array}{r} 50 - 17 = 33 \\ \swarrow \quad \searrow \quad \swarrow \quad \searrow \\ 30 \quad 20 \end{array}$$

$$20 - 17 = 3$$

$$30 + 3 = 33$$

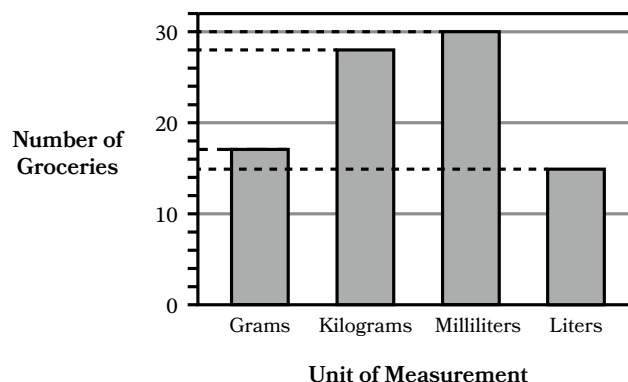
Students can add a benchmark number (such as 50 or 100) and subtract the difference.

$$98 + 56 = 154$$

$$56 \xrightarrow{+100} 156 \xrightarrow{-2} 154$$

Scaled Bar Graph

Unit of Measurement on Grocery Labels



How many grocery labels use the units of measurement grams and kilograms?

$$\begin{array}{r} 28 + 17 = 30 + 15 = 45 \\ \swarrow \quad \searrow \quad \swarrow \quad \searrow \\ 2 \quad 15 \end{array}$$

A scaled bar graph has numbers on one side that skip-count by a number other than 1, such as by 2 or by 5. Students use scaled bar graphs to answer questions such as, “How many altogether?”

At-Home Activity

Authentic Addition and Subtraction

You can find opportunities to add and subtract all around! Consider trying the following examples.

- Gather two or three packages of familiar food items that your student enjoys. Many packages are labeled with a whole-number measurement, sometimes listed in grams. Find the measurements and ask your student questions that encourage adding and subtracting, such as, “Which item weighs more, a package of pasta or a jar of spaghetti sauce? How much more does it weigh? How much do they weigh together?” Ask your student what strategy they used to find the answer.
- Ask your student to find a chapter book. If your student is currently reading the book, ask, “How many pages are left to read in this book?” If not, invite your student to open the book to any page near the middle. Write down the page number. Then ask them to open the book to a different page near the end and write down that page number. Ask your student to practice adding and subtracting the page numbers. You can also ask, “How many pages are between the two pages you chose?” Ask your student what strategy they used to find the answer.

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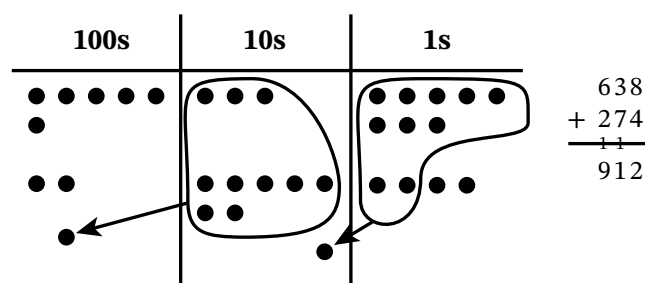
Two- and Three-Digit Measurement Addition and Subtraction

Dear Family,

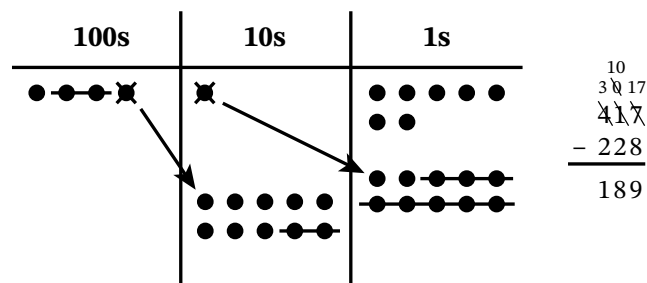
Your student is using familiar place value models to solve addition and subtraction problems. When your student writes problems vertically to add or subtract in each place value, they are using the standard algorithm. Place value models support your student's understanding of how to add and subtract using the standard algorithm. They also help students determine when a simplifying strategy may be a more efficient way to add or subtract. Your student is gradually moving away from using the place value models and is showing their work in written form.

Key Term

standard algorithm



$8 + 4 = 12$, and 12 is recorded in writing as 1 ten 2 ones. The place value model represents the recording by regrouping 10 ones as 1 ten. 12 ones is renamed as 1 ten 2 ones.



To subtract 8 ones, there needs to be more ones in the ones column. A place value model represents how 1 ten is unbundled into 10 ones. Now there are 17 ones to subtract from. In writing, we show how 1 ten is unbundled into 10 ones by crossing off the 1 and writing a 0 in the tens column and crossing off the 7 and writing a 17 in the ones column.

At-Home Activity

Rearranging Numbers

Write each of the digits 0–9 on slips of paper. Ask your student to choose a slip of paper without looking and lay it out on the table. Repeat until six digits have been placed on the table. Look at the digits and talk together about how to arrange them into two three-digit numbers in such a way that the sum is as close to 1,000 as possible. Then ask your student to arrange three-digit numbers in such a way that the difference is as close to 0 as possible. Discuss whether you and your student could get even closer if the digits were rearranged. Consider repeating this activity with other numbers to get close to, such as 225, 500, or 750.