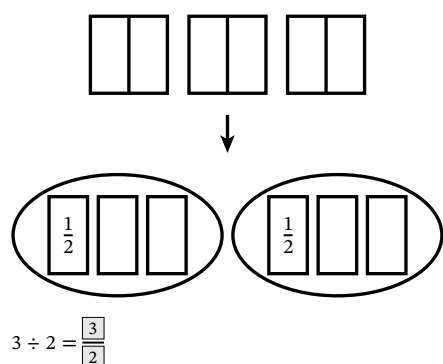


FAMILY MATH

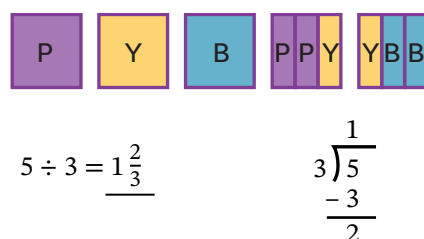
Fractions and Division

Dear Family,

In earlier grades, your student worked to understand a fraction as a number. Now, your student is learning to interpret a fraction as the numerator divided by the denominator. They use equal-sharing models to understand how dividing whole numbers can result in a fraction or mixed number. Building on that understanding, your student writes remainders as fractions. When solving division word problems, your student reasons whether the answer makes more sense when written as a fraction or as a mixed number. Understanding the connection between fractions and division helps your student with fraction concepts that they learn later.

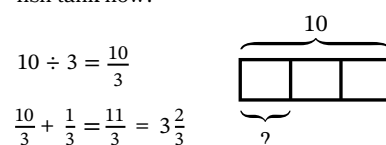


When 3 granola bars are shared equally between 2 people, each person gets $1\frac{1}{2}$ or $\frac{3}{2}$ granola bars.



Dividing 5 by 3 is like sharing 5 brownies among 3 people. Each person gets 1 whole brownie and $\frac{2}{3}$ of another brownie.

Lacy has 10 gallons of water. She pours an equal number of gallons of water into each of 3 fish tanks. Her blue fish tank already had $\frac{1}{3}$ gallon of water in it. How many gallons of water are in the blue fish tank now?



Now there are $3\frac{2}{3}$ gallons of water in the blue fish tank.

The answer to this word problem can be written as a fraction, $\frac{11}{3}$, or as an equivalent mixed number, $3\frac{2}{3}$. For this answer, the mixed number makes more sense when describing how much water is in the fish tank.

At-Home Activity

Mealtime Sharing

Use equal sharing at mealtime to help your student see fractions as division.

- If you have 4 dinner rolls to share equally among 3 people, ask your student how many rolls each person can have ($1\frac{1}{3}$ dinner rolls).
- If you have 10 tortillas to share equally among 4 people, ask your student how many tortillas each person can have ($2\frac{1}{2}$ tortillas).

- If you have 5 different types of cookies to share equally among 3 people, and everyone wants to try each type of cookie, ask your student how many cookies each person can have ($\frac{5}{3}$ or $1\frac{2}{3}$ cookies, when each cookie is cut into thirds and each person can have $\frac{1}{3}$ of each of the 5 cookies).

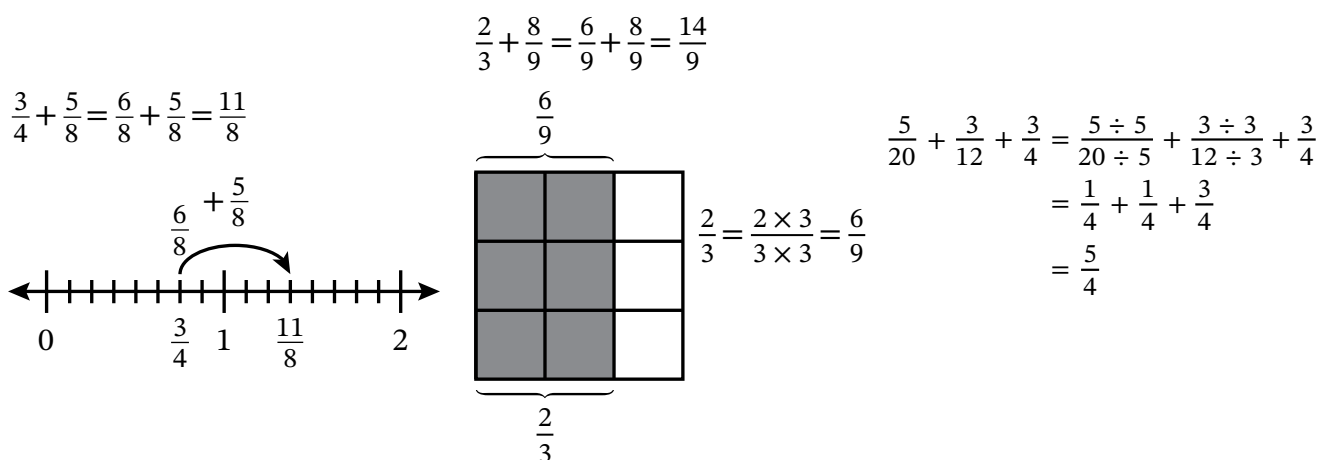
Have your student break up the food into equal shares and explain how they can make sure everyone has an equal amount. Encourage your student to say the fraction or mixed number that represents each share.

FAMILY MATH

Addition and Subtraction of Fractions by Making Like Units

Dear Family,

In grade 4, your student learned to add and subtract fractions with the same units, or same denominators. Now, they extend their understanding to add and subtract fractions with different units, or different denominators such as thirds and fourths. They use models and equations to find a common unit before adding or subtracting. Your student is encouraged to think about equivalent ways to show their answer, such as $\frac{9}{6}$ or $\frac{3}{2}$ or $1\frac{1}{2}$, but they are not expected to provide the answer in a specific way.



Number lines help students represent the sum or difference.

Area models help students find a common unit before adding or subtracting.

Using multiplication or division helps students to rename units before adding or subtracting.

At-Home Activities

Measuring Cup Fractions

Provide your student with a set of measuring cups. Ask questions to help them practice finding a common unit before adding and subtracting fractions. The measuring cups can be used for reference. Your student can also practice measuring with materials, such as flour, dry rice, sugar, or water.

- “How many cups of flour would we have in a bowl if we put in $\frac{1}{2}$ cup of flour and then put in $\frac{1}{3}$ cup of flour?” ($\frac{5}{6}$ cups of flour)
- “Suppose I put $\frac{3}{4}$ cups of water into a bowl and then realized that it is $\frac{1}{3}$ cup too much. How much would be left after I remove the $\frac{1}{3}$ cup of water?” ($\frac{5}{12}$ cups of water)

Fraction Time

Amounts of time can be expressed as fractions of an hour (10 minutes is $\frac{1}{6}$ of an hour, 15 minutes is $\frac{1}{4}$ of an hour, 20 minutes is $\frac{1}{3}$ of an hour, and 30 minutes is $\frac{1}{2}$ of an hour). Use fractions of an hour to help your student think about making like units when adding and subtracting fractions.

- If your student takes $\frac{1}{4}$ of an hour (15 minutes) to take a shower and $\frac{1}{6}$ of an hour (10 minutes) to get dressed, ask them to tell you the total amount of time they spend on the activities as a fraction of an hour. $\frac{1}{4} + \frac{1}{6} = \frac{5}{12}$, so they spend $\frac{5}{12}$ of an hour, or 25 minutes, showering and getting dressed.

Addition and Subtraction of Fractions, Whole Numbers, and Mixed Numbers

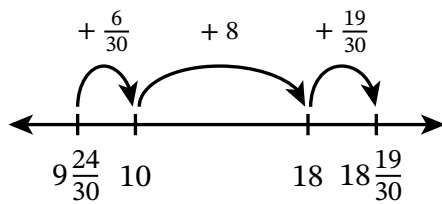
Dear Family,

Recently, your student learned to add and subtract with fractions that are less than 1. Now, your student is learning to add and subtract with fractions, whole numbers, and mixed numbers. They use multiple methods that may include number lines, number bonds, or the arrow way. Your student is encouraged to use a method that makes sense based on the numbers in the problem. They begin to notice that some methods are more efficient than other methods. Your student is also encouraged to use estimation to determine whether the answer makes sense.

Key Terms

minuend

subtrahend



$$4 - \frac{2}{7} = 3 + \frac{5}{7} = 3\frac{5}{7}$$

A number bond diagram showing 4 split into 3 and $\frac{7}{7}$, with $\frac{2}{7}$ subtracted from $\frac{7}{7}$ to leave $\frac{5}{7}$.

$$6\frac{3}{8} \xrightarrow{+\frac{5}{8}} 7 \xrightarrow{+3} 10 \xrightarrow{+5} 15$$

$$6\frac{3}{8} + 8\frac{5}{8} = 15$$

Students are familiar with number lines, number bonds, and the arrow way from whole-number addition and subtraction.

$$4\frac{3}{5} - 2$$

Diagram showing the subtraction problem with arrows pointing to the terms:

- Minuend: $4\frac{3}{5}$
- Subtrahend: 2

In a subtraction problem, the minuend is the total, and the subtrahend is the number being subtracted from the total.

$$5\frac{7}{9} + 3\frac{2}{4} = 5\frac{7 \times 4}{9 \times 4} + 3\frac{2 \times 9}{4 \times 9}$$

$$= 5\frac{28}{36} + 3\frac{18}{36}$$

A number bond diagram showing $3\frac{18}{36}$ split into $\frac{8}{36}$ and $3\frac{10}{36}$.

$$5\frac{28}{36} \xrightarrow{+\frac{8}{36}} 6 \xrightarrow{+3} 9 \xrightarrow{+\frac{10}{36}} 9\frac{10}{36}$$

$$5\frac{7}{9} + 3\frac{2}{4} = 9\frac{10}{36}$$

Students can estimate a sum or difference to see whether their answer is reasonable. In this case, they think of the original problem as being close to $6 + 3$ and reason that the answer is between 9 and 10.

At-Home Activity

Cooking with Fractions

Look for recipes with fractional amounts, such as $1\frac{1}{2}$ cups or $\frac{3}{4}$ tablespoons. Ask your student addition and subtraction questions by using the fractional measurements in the recipe.

- “How many total cups of flour and sugar are used in this recipe?”
- “How many more teaspoons of baking powder are used than teaspoons of vanilla?”
- “How many cups of water would we need for 2 batches of this recipe?”

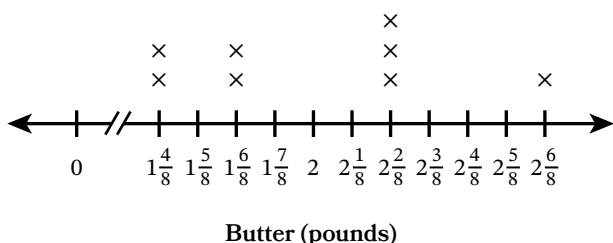
FAMILY MATH

Problem Solving and Line Plots with Fractional Measurements

Dear Family,

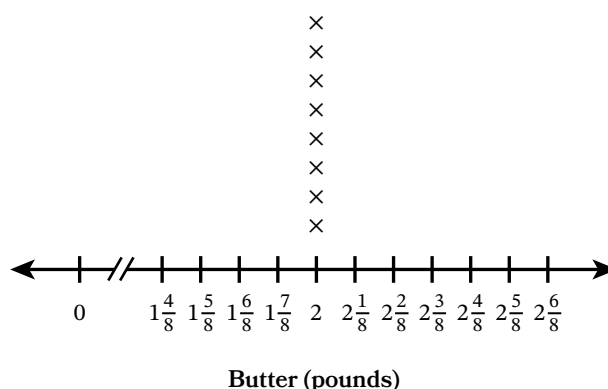
In previous grades, your student learned to create and analyze line plots. Now, your student is using what they have been learning about adding and subtracting fractions to answer more complicated questions about the data shown in a line plot. Your student is starting to think about equally redistributing given data and illustrating the redistribution on a line plot to prepare for analyzing data in later grades.

Measurement Data in a Line Plot
Butter in the Bakery



A baker has 8 different containers of butter in her bakery. The line plot shows the amount of butter in each container.

Redistributed Data
Butter in the Bakery



The baker redistributes the butter so that each container holds the same amount of butter.

At-Home Activities

Hands-On Ecological Data

- Find a place outdoors where you can collect leaves, sticks, or rocks with your student. Bring a notebook, pencil, and a ruler. Gather 10 to 15 of these objects. Invite your student to measure each item to the nearest $\frac{1}{8}$ inch and record the measurements. (You can also trace the objects to measure at home.) Then work with your student to create a line plot that shows the measurements of the objects. Don't forget the labels on the line plots!
- Talk about the line plot with your student, and ask questions such as "What surprises you about the data? What questions can you ask about the data? Do you think that if you gathered more data, the line plot would look similar or different? Why?"

Where's the Water Line?

Pour different amounts of water into 5 to 8 clear cups of the same size. Then invite your student to predict where the water line would be if the water were distributed evenly across the cups. Work with your student to draw a line or place tape on each cup to mark their prediction. Then redistribute the water between the cups as evenly as possible. Discuss whether your student's prediction was correct. Ask your student how redistributing water was similar to or different from redistributing cubes as they did in class.