Family Letter

Dear Family,

In this unit, Multiply Fractions, your child will learn how to use different strategies and representations to multiply whole numbers, mixed numbers, and fractions.

STEM Career Kid for this Unit

Hi, I'm Hannah.

I want to be a welder. I will use math in my job when I determine how much time it will take me to complete a job. I will show students how to multiply fractions in my work.

What math terms will your child use?

Term	Student Understanding
mixed number	a number that has a whole-number part and a fraction part; For example, $3\frac{1}{2}$ is a mixed number.
numerator	the top number in a fraction; It represents the number of equal parts being used.
denominator	the bottom number in a fraction; It represents the number of equal parts in the whole.
unit fraction	a fraction with a numerator of 1

Math @ Home Activity

What can your child do at home?

With your child, create a small poster with the multiplication equation $\frac{a}{b} \times \frac{c}{d} = \frac{a \times c}{b \times d}$. This shows that to multiply two fractions, multiply the numerators and multiply the denominators. This works for any fractions, whether less than 1 or greater than 1. Find some rectangular objects around your home that can be measured, using a fractional part of a foot rather than inches, and multiply the measures to find the area of the object. You can also just write some problems for your child to solve.

What Will Students Learn in This Unit?

Multiplying a Fraction by a Fraction

Your child will learn to multiply fractions without using a representation.

Example: A flower garden has petunias in $\frac{2}{3}$ of the garden. Of the petunias, $\frac{1}{3}$ of them are purple. What fraction of the flower garden is purple petunias?

To solve, find $\frac{2}{3} \times \frac{1}{3}$.

Multiply the numerators. Multiply the denominators.

$\frac{2}{3} \times \frac{1}{3} = \frac{2 \times 1}{3 \times 3} = \frac{2}{9}$

In the flower garden, $\frac{2}{9}$ of the flowers are purple petunias.

Multiplying Mixed Numbers

Your child will learn to multiply mixed numbers by rewriting each mixed number as a fraction greater than 1.

Example: A rectangular photograph is $5\frac{1}{2}$ inches wide and $6\frac{3}{4}$ inches long. What is the area of the photograph?

To solve, find $5\frac{1}{2} \times 6\frac{3}{4}$.

Write each mixed number as a fraction greater than 1.

$5\frac{1}{2} = \frac{11}{2}$ and $6\frac{3}{4} = \frac{27}{4}$

Multiply the fractions and write the answer as a mixed number.

$\frac{11}{2} \times \frac{27}{4} = \frac{297}{8} = 37\frac{1}{8}$

The area of the photograph is $37\frac{1}{8}$ square inches.

Predicting how a Product Compares to One of its Factors

Your child will learn how to predict whether a product will be greater than or less than one of the factors without performing the multiplication.

Example: George is 4 feet tall. Frank is $\frac{2}{3}$ as tall as George. Henry is $1\frac{1}{5}$ times as tall as George. From shortest to tallest, what is the order of the boys?

To solve, compare the heights of the boys.

Frank's height is $4 \times \frac{2}{3}$. Since $\frac{2}{3}$ is less than 1, Frank's height will be less than 4, so Frank is shorter than George.

Henry's height is $4 \times 1\frac{1}{5}$, or $4 \times \frac{6}{5}$. Since $\frac{6}{5}$ is greater than 1, Henry's height will be greater than 4, so Henry is taller than George.

So from shortest to tallest, the order of the boys is Frank, George, Henry.