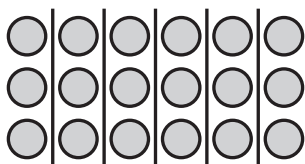


FAMILY MATH

Multiplication of a Whole Number by a Fraction

Dear Family,

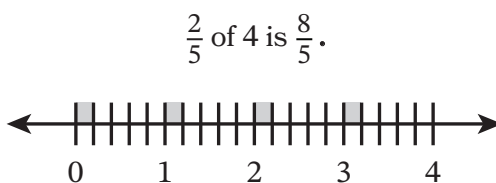
Your student is learning that fractions can represent parts of a set or a number, such as 1 sixth of a group of 18 items. Previously they worked with fractions from parts of a whole such as 1 third of a shape. They discover that knowing the unit fraction of a set can be helpful to find other fractions of the set when the denominator and whole number of the set remain the same. For example, if students know $\frac{1}{5}$ of 10 then finding $\frac{3}{5}$ of 10 is simpler because $\frac{3}{5}$ of 10 is 3 times as much as $\frac{1}{5}$ of 10. Students find fractions of a set and multiply whole numbers by fractions. They use arrays, number lines, and tape diagrams to represent problems. Students realize that when they find a fraction of a whole number, they are multiplying. For example, $\frac{3}{5}$ of 10 has the same value as $\frac{3}{5} \times 10$. They use their understanding of multiplying fractions and whole numbers to convert between customary units such as pounds and ounces.



$\frac{1}{6}$ of 18 is 3.

$\frac{3}{6}$ of 18 is 9.

Students use arrays to represent a whole number, and then partition, or divide, the array into equal groups.

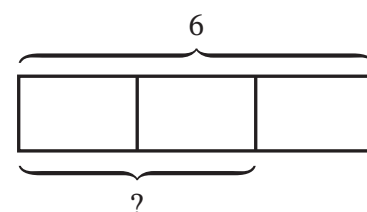


$$\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{4}{5}$$

$\frac{1}{5}$ of 4 is $\frac{4}{5}$.

$$\frac{4}{5} + \frac{4}{5} = \frac{8}{5}$$

Students can use number lines or tape diagrams to represent the problem. They use what they know about finding a unit fraction of a whole number to find other fractions of a whole number. A unit fraction is exactly 1 of a specific fractional unit. For example, $\frac{1}{4}$ is a unit fraction for the fractional unit fourths.



3 units = 6

1 unit = $\frac{6}{3}$

$$2 \text{ units} = 2 \times \frac{6}{3} = 4$$

Students can use multiplication to find a fraction of a whole number.

At-Home Activity

Multiply Fractions

Create a fraction by rolling a number cube twice and using the first number rolled for the numerator and the second number rolled for the denominator. Then roll the number cube again to get a whole number. Ask your student to multiply the fraction by the whole number. If you do not have a number cube, use six index cards or pieces of paper numbered 1–6. Place the cards face down. Invite your student to select two cards to make the fraction. Then return the cards to the pile and select another card to get a whole number.

- When your student rolls a 1 and a 3, the fraction is $\frac{1}{3}$. If they then roll a 5 as the whole number, your student will find $\frac{1}{3} \times 5$. $\left(\frac{1}{3} \times 5 = \frac{5}{3}\right)$
- When your student rolls a 5 and a 4, the fraction is $\frac{5}{4}$. If they then roll a 2 as the whole number, your student will find $\frac{5}{4} \times 2$. $\left(\frac{5}{4} \times 2 = \frac{10}{4}\right)$