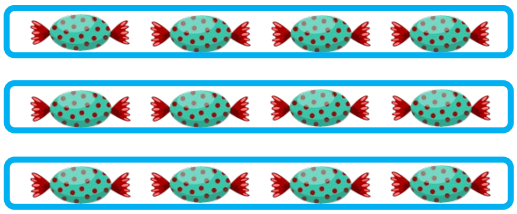
Dividing Fractions

When dividing fractions, we use similar steps as when multiplying fractions. Remember, dividing is the opposite of multiplying!

$$3 \times 4 = 12$$
$$12 \div 4 = 3$$

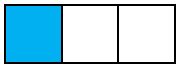
Fact Family

We could organize in 4 groups of three candies to make 12 candies. Or we could divide 12 candies into four groups of three candies in each; They mean the SAME thing!



Dividing is the reverse of multiplying. This concept applies to fractions! Let's say we want to multiply one third by three.

$\frac{1}{3} \times 3$



To visually demonstrate, we divide the rectangle into 3 equal pieces and shade 1. This represents $\frac{1}{3}$

We would start with our one-third and multiply by three, which is adding one-third three times. We could end up three-thirds or one whole.

$\frac{1}{3} \times 3 = \frac{1}{3} + \frac{1}{3} + \frac{1}{3} = 1$

We can reverse this equation using division to show the same thing! If we start with one whole and divide it into three equal sections, each section is one third of the whole.

$1 \div 3 = \frac{1}{3}$

Did you notice that one divided by three is the same as one-third? This is true for all fractions! The fraction symbol can be interpreted as division

$$1 \div 3 = \frac{1}{3}$$

Example 1:

Complete the fact family of the expression: $\frac{2}{3} \times 3$ using division.

First we need to complete the first equation for the fact family.

Change the whole number (3) to a fraction:

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

Multiply to find our equation:

$$\frac{2}{3} \times \frac{3}{1} = \frac{6}{3}$$

Simplify the fraction:

$$\frac{6}{3} = \frac{2}{1} = 2$$

So we can say:

$$2 \div 3 = \frac{2}{3}$$

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

This is our fact family.

Example 2:

Write $4 \div 5$ as a fraction.

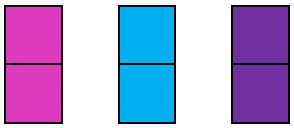
When we divide two whole numbers, we can write it as a fraction with the dividend as the numerator and the divisor as the denominator.

So $4 \div 5 = \frac{4}{5}$

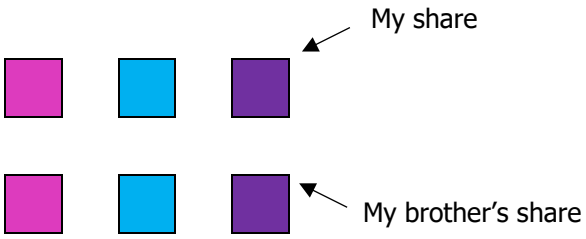
Example 3:

I have three different chocolate bars that I want to share equally with my brother so we can each taste all three chocolate bars. Write a multiplication and division equation that would demonstrate how many pieces of chocolate I have.

The three original chocolate bars



We could start by cutting each chocolate bar in half:



How many pieces of chocolate do I have? I would have 3 half bars.

I have: $\frac{1}{2} + \frac{1}{2} + \frac{1}{2}$ **or** $3 \times \frac{1}{2}$

We could demonstrate this equation with division:

$3 \div 2 = \frac{3}{2}$ → We read this as three halves

So, we can say that 3 chocolate bars divided between two people means that each person receives three halves.