Build Fractions from Unit Fractions

Let's build other fractions from unit fractions.

Warm-up

Number Talk: 3 and Another Factor

Find the value of each expression mentally.

- 3×3
- 7×3
- 10×3
- 3×17

Activity 1

Introduce Secret Fractions—Building Non-unit Fractions

The goal of the game is to be the first to build 3 secret fractions with unit fractions.

1. Make 2 stacks of cards: 1 for secret fractions and 1 for unit fractions. Place all cards face down.
2. Each player:
   - Pick 3 secret-fraction cards without showing your partner. These are the fractions you are trying to make with your unit fractions.
   - Pick 5 unit-fraction cards and hold them in your hands without showing your partner.
3. Partner A, you can either:
   - Ask your partner if they are holding a unit-fraction card that you need.
   - Trade 1 of your secret-fraction cards for the secret-fraction card at the top of the stack. (Place your traded card at the bottom of that stack.)
4. Partner B:
   - If you have the unit-fraction card your partner asked for, give it to your partner. If you have more than 1, only give your partner 1.
   - If you do not have the unit-fraction that was asked for, tell your partner to pick a card from the top of the unit-fraction stack and keep it in their hand.

5. Partner A: If you have enough unit fractions to make 1 of your secret fractions, show the secret-fraction card and explain how you made that fraction with your unit-fractions cards. Then set all your used unit-fraction cards aside.
6. Switch roles and repeat.
7. The first player to make 3 secret fractions wins.

If you run out of unit-fraction cards, mix up the used cards and place them in a stack face down.

Activity 2

Represent Fraction Situations

Here are 4 situations about playing Pilolo (PIH-loh-loh) and 4 diagrams. Each diagram represents the length of a street where the game is played.

Represent each situation on a diagram. Be prepared to explain your reasoning.

1. A student walks $\frac{4}{8}$ of the length of the street and hides a rock.

2. A student walks $\frac{2}{3}$ of the length of the street and hides a penny.

3. A student walks $\frac{3}{4}$ of the length of the street and hides a stick.

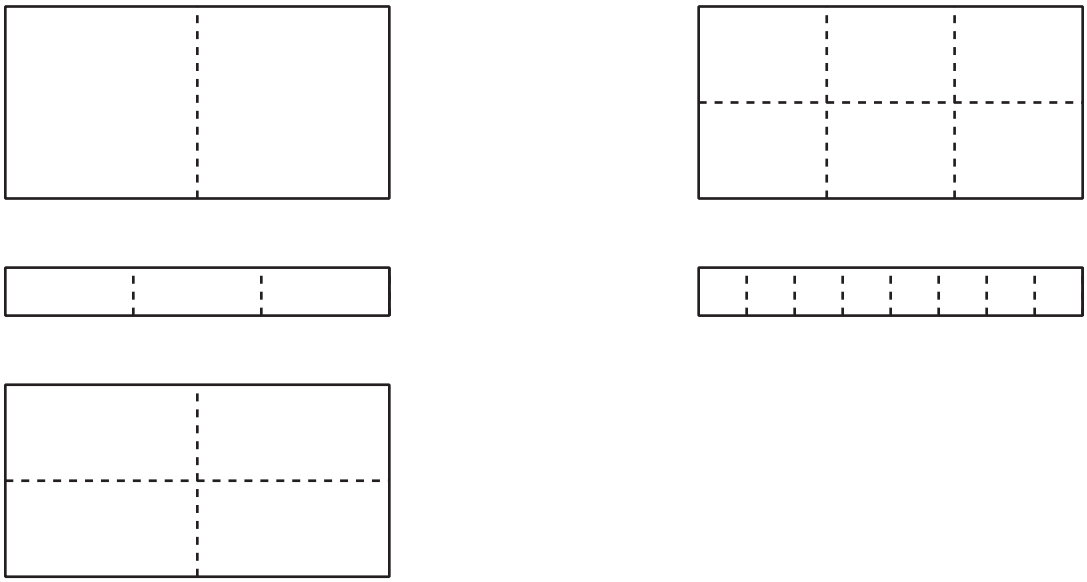
4. A student walks $\frac{5}{6}$ of the length of the street and hides a penny.

5. This diagram represents the location of a hidden stick.

About what fraction of the length of the street did the student walk to hide it? Be prepared to explain your reasoning.

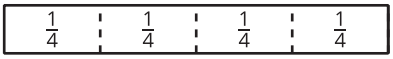
Section A Summary

We learned how to partition shapes into halves, thirds, fourths, sixths, and eighths, and how to describe each of those parts in words and in numbers.



The numbers we use to describe these equal-size parts are **fractions**.

The fraction $\frac{1}{4}$ is read "one-fourth" because it represents 1 of the 4 equal parts in a whole partitioned into fourths.



The fraction $\frac{3}{4}$ is read “three-fourths” because it represents 3 parts that are each one-fourth or $\frac{1}{4}$ in size.

Fractions that refer to only 1 of the equal parts in a whole are called **unit fractions**. Examples of unit fractions: $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{6}$, $\frac{1}{8}$.

We learned that the bottom part of the fraction tells us into how many equal parts we partitioned the whole. The top part of the fraction tells us how many of the equal parts are being described.