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Core Focus

- Common fractions: Reviewing equivalent fractions and mixed numbers, and converting improper to mixed and mixed to improper fractions
- Length: Converting between inches and feet and customary units
- Mass and Capacity: Converting customary units

Common fractions

- Students review the relationship between the numerators and denominators of equivalent fractions.

4.1 Common fractions: Reviewing equivalent fractions (related denominators)

Step In Laura's dad has a rectangular garden bed split into equal areas.

The shaded part of this diagram shows how much of the garden has been planted.

What fraction of the garden has been planted?

Laura's dad decides to split the garden bed into a different number of equal parts. The same amount of the garden has been planted.

Look at this diagram. How did he split the garden bed?

Write the fraction of the garden that is planted.

What do you notice about the two fractions you wrote?

In this lesson, students use area models to help compare fractions with different but related denominators.

- Students rewrite **improper fractions** as **mixed numbers**, and mixed numbers as improper fractions.

4.4 Common fractions: Converting improper fractions to mixed numbers

Step In A recipe uses $\frac{3}{4}$ cup of milk to make one batch of eight pancakes.

Manuel wants to make six batches of pancakes, so he will need $6 \times \frac{3}{4}$ or $\frac{18}{4}$ cups of milk.

How many whole cups of milk will he need?

How could you figure it out?

I know that 4 one-fourths makes one whole, and 8 one-fourths makes two wholes. I need to find out how many wholes I can make with 18 one-fourths.

I think there might be a remainder involved.

A **proper fraction** has a numerator that is less than its denominator. An **improper fraction** has a numerator that is equal to or greater than its denominator.

How do you write $\frac{18}{4}$ as a mixed number?

In this lesson, students think about how many unit fractions (fractions with a numerator of one) make one whole to convert between improper fractions and mixed numbers.

Ideas for Home

- Cooking offers a great opportunity to talk about and use equivalent fractions. If a recipe requires $1\frac{1}{2}$ cups of flour, ask your child about different ways to measure it. They might suggest using a one-cup measure and half-cup measure once each, or think $\frac{3}{2}$ instead, using a half-cup measure 3 times.

- Fractions are part of meal time, too. Ask, "The pizza is cut into eighths, what fraction would you like?" or, "How can I give one-half to your brother and one-fourth to you? How many slices would that be? How do you know?"

Glossary

▸ Fractions where the top number (numerator) is greater than the bottom number (denominator), such as $\frac{8}{3}$, are always greater than one, and are known as **improper fractions**.

▸ **Mixed numbers** have a whole number plus a fraction. $2\frac{2}{3}$ is an example of a mixed number that is equivalent to the improper fraction $\frac{8}{3}$.

Helpful videos

View these short one-minute videos to see these ideas in action.

www.bit.ly/OI_17
www.bit.ly/OI_19

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Length

• Students gain a general sense of each customary unit of length, as well as learn the formal relationships among them (for example, that there are 12 inches in 1 foot).

• Students convert lengths that involve fractions. For example, 18 inches is equivalent to $1\frac{1}{2}$ feet. This language matches how measurement is often used in real-world situations.

4.8 Length: Converting customary units

Step In Two friends play a game of golf. At the first hole, Maka's ball stops 4 yards from the hole. Ruth's ball stops 15 feet from the hole.

Whose ball is closer to the hole? How do you know?

I know there are 3 feet in 1 yard.

Maka misses his first putt.

His ball is now $2\frac{1}{3}$ yards from the hole.

How could you say this distance in feet?

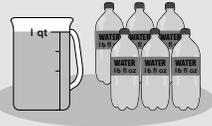In this lesson, students convert feet to yards and yards to feet.

Capacity

• Students review fluid ounces, quarts, and gallons, and practice converting between the different measures through word problems that encourage them to think of different ways to write equivalent quantities.

4.9 Capacity: Converting customary units

Step In This pitcher holds 1 quart of water.

How many pitchers would you need to fill a 2-gallon container? How do you know?

Imagine this pitcher is used to fill the empty bottles with water.

How many bottles can be filled from one full pitcher?

How many pitchers of water are needed to fill six of these bottles?

There are 32 fl oz in 1 quart.

In this lesson, students convert quarts to fluid ounces (big to small) and fluid ounces to quarts (small to big).

Mass

• Students convert between ounces and pounds presented in whole number, fraction, or decimal format (e.g. 20 ounces is equivalent to 1.25 pounds, and $1\frac{1}{2}$ pounds is equivalent to 24 ounces).

4.10 Mass: Converting customary units

Step In What is the mass of each package?

How could you calculate the difference in mass between these two packages?

How could you calculate the number of ounces in one-half of a pound?

Complete these statements.

12 oz

$2\frac{1}{2}$ lb

There are 16 oz in 1 pound.

In this lesson, students convert pounds to ounces (heavy to light) and ounces to pounds (light to heavy).

Ideas for Home

• Talk about which unit of measure would be most appropriate for different situations (e.g. measuring a piece of paper, a length of cloth, the length and width of a room, or the distance from home to school).

• At the grocery store, ask your child to find items other than beverages that are labeled with fluid ounces, like liquid laundry detergent.

• Shopping for produce is a great opportunity for comparing ounces and pounds. Have your child use the scale to weigh different items and tell you the mass in both pounds and ounces: "The apples weigh 36 ounces, which is $2\frac{1}{4}$ pounds."

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