4 Module 9

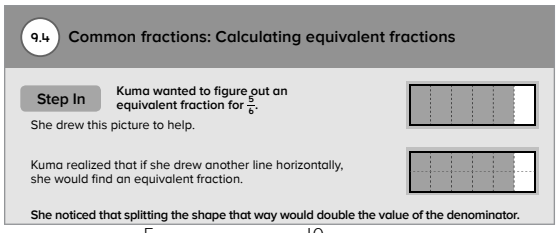
ORIGO STEPPING STONES 2.0

Core Focus

- Common fractions: Making comparisons with different and the same denominators
- Common fractions: Comparing to order and calculating equivalent fractions
- Mass: Pounds and ounces
- Capacity: Gallons, quarts, pints, and fluid ounces

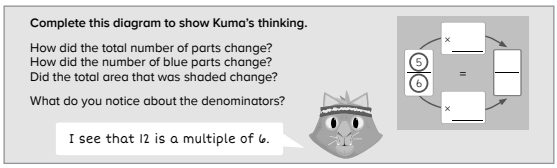
Common fractions

- This module provides students with strategies to understand equivalent fractions using models (area, number line, and arrow diagrams), instead of simply memorizing rules.
- Equivalent fractions are different names for the same fractional amount. An area model illustrates the relationship between numerators and denominators of equivalent fractions.

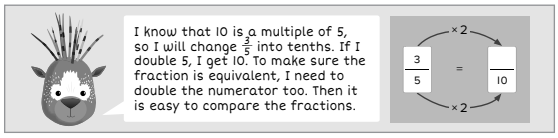


In this lesson, $\frac{5}{6}$ is renamed as $\frac{10}{12}$ when a horizontal line is drawn, doubling the number of part, but keeping the same fractional amount.

- When both the numerator and the denominator of a fraction are multiplied by the same number, as seen in this arrow diagram, an **equivalent fraction** is created.



- Students compare fractions with related and unrelated denominators. When the fractions are not easy to compare, students find a common denominator and rename the fraction.



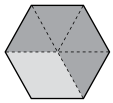
Arrow diagrams show how equivalent fractions with common denominators can be created.

Ideas for Home

- Fold pieces of paper to prove fractions are equivalent. Talk about fraction families and how related fractions are created by one fold that doubles the total number of pieces, e.g. $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, etc.

Glossary

- **Equivalent fractions** are fractions that cover the same amount of area on a shape, or are located on the same point on a number line.



The whole hexagon is $\frac{6}{6}$. The dark gray blocks cover $\frac{4}{6}$. The light gray covers $\frac{2}{6}$ or $\frac{1}{3}$ of the whole.

Helpful videos

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

www.bit.ly/O1_17
www.bit.ly/O1_19

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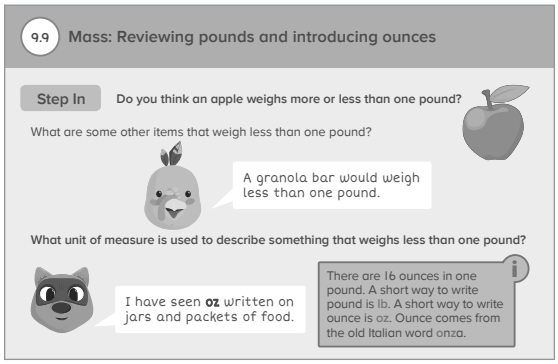
Mass

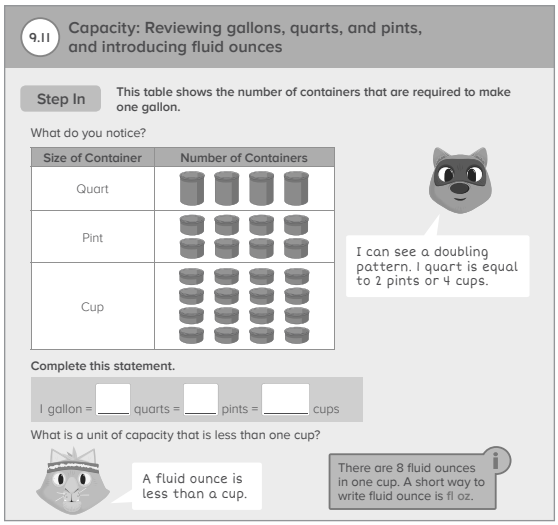
- Students review pounds and are introduced to **ounces**. They use tools such as a pan balance and a customary scale to measure the mass of objects.



In this lesson, students are introduced to ounces.

Capacity

- Students are also introduced to fluid ounces, and make comparisons to pints, quarts, and gallons.



In this lesson, students are introduced to fluid ounces.

Ideas for Home

- Point out the different capacities of groceries in your pantry or fridge so your child has mental images to fall back on. These could be 1 gallon (milk), 1 quart (half and half), and 1 pint (ice cream), or smaller items such as a 6 fluid oz juice box.
- Many items are labeled in both customary units and metric units. You should not ask your child to convert between customary and metric units. However, it is helpful to be familiar with the basic relationships between the two systems (see below), such as knowing that 1 liter is just slightly more than 1 quart.

Customary Units of Liquid Volume		Metric Units of Liquid Volume	
8 fluid ounces	1 cup	1,000 milliliters	1 liter
2 cups	1 pint	1,000 liters	1 kiloliter
2 pints	1 quart		
4 quarts	1 gallon		