

Before This Module

Grade 2 Module 3

In grade 2, students identify fractions geometrically as parts of shapes. They partition rectangles and circles into two, three, and four equal parts or shares and name the equal parts as halves, thirds, or fourths. Students compose equal parts to make a whole. They describe the parts as a “half of,” “third of,” or “fourth of” the whole shape and identify the number of parts required to make the whole. Students recognize that parts can be equal in size even when they are shaped differently.

Grade 3 module 5 elevates the work of grade 2 through the formal introduction of fractions as numbers.

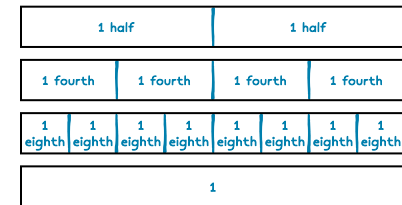
Overview

Fractions as Numbers

Topic A

Partition a Whole into Equal Parts

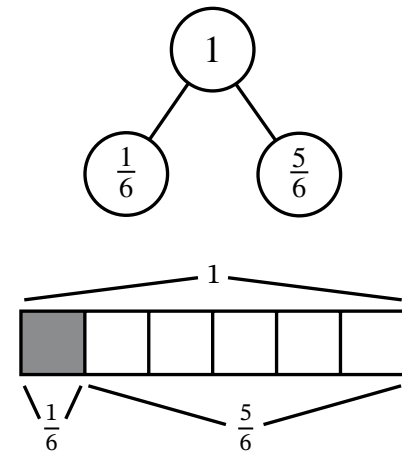
Students begin to formalize their understanding of fractions as numbers by transitioning from recognizing fractional parts of geometric shapes to partitioning and recognizing fractional parts of concrete objects and pictorial models. They begin to understand fractions as numbers by naming the fractional parts of the whole in unit form and describing the relationship between the number of fractional parts and the size of each part. Students define 1 of a fractional unit as a unit fraction, identify the number of unit fractions needed to make 1 whole, and name unit fractions in fraction form.



Topic B

Unit Fractions and Their Relationship to the Whole

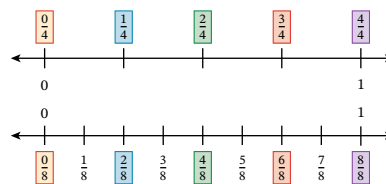
Students iterate unit fractions to create non-unit fractions concretely, pictorially, and numerically in unit form and fraction form. They compose and decompose wholes with unit and non-unit fractions by using number bonds and tape diagrams. After establishing that the fractions refer to the same whole, students compare unit fractions and fractions with the same numerator concretely and pictorially by reasoning about the size of the parts.



Topic C

Fractions on the Number Line

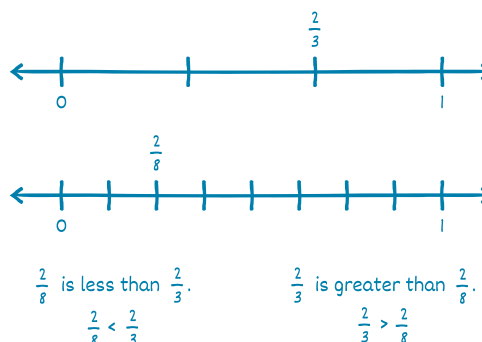
Students continue to formalize their understanding of fractions as numbers by representing fractions from 0 to 1 on a number line. They partition number lines with fraction tiles, and they compose and decompose 1 whole by using strategies similar to those used with number bonds and tape diagrams in topic B. Students relate a fraction's value to its size, its location on a number line, and its distance from 0 to find pairs of equivalent fractions. They generalize their understanding of fractions on a number line to build a ruler that they use to measure lengths within fractions of an inch and to create line plots representing fractional length data.



Topic D

Comparing Fractions

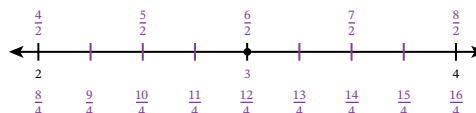
Students extend a number line to include fractions greater than 1 by drawing and partitioning number lines that represent specified intervals. They count and skip-count by fractional units to name fractions greater than 1 and to recognize fractions that are equivalent to whole numbers. They generalize their understanding of location and distance on a number line to compare fractions.



Topic E

Equivalent Fractions

With a progression of strategies similar to those in earlier topics, students use one or two number lines to find pairs of equivalent fractions greater than 1. They identify fractions equivalent to whole numbers and express whole numbers as fractions with a denominator of 1 (e.g., $\frac{4}{1}$). The module culminates with two lessons in which students apply what they have learned about fractions to new problem situations: creating a ruler without other measurement tools and completing a multi-part task.



After This Module

Grade 4 Module 4

In grade 4 module 4, students build on their understanding of fraction composition, decomposition, equivalence, and comparison to include additional fractional units and mixed numbers. Students extend their thinking to more abstract reasoning about fraction relationships including using benchmark fractions to compare the relative sizes of fractions and mixed numbers and using multiplication and division to generate equivalent fractions. Students apply what they know about whole number operations to add and subtract fractions with like units, including mixed numbers, and they multiply fractions by a whole number.