

Before This Module

Grade 1 Module 6

Students identify, name, and describe squares, rectangles, and triangles by using defining attributes such as the number of closed, straight sides and the number of corners. They are exposed to trapezoids and rhombuses.

They also describe the faces of solid shapes and discuss functionality. However, triangular prisms are new to grade 1.

In kindergarten, students construct solid and flat shapes by using sticks, and they draw flat shapes by using a straightedge and dot paper.

Students compose two-dimensional and three-dimensional shapes and identify the smaller shapes used in the compositions.

Overview

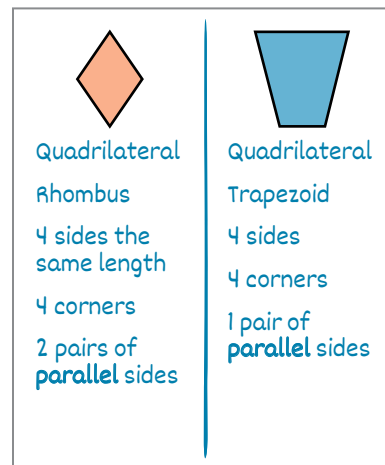
Part 1: Attributes of Shapes

Topic A

Attributes of Shapes

Students begin their study of geometry by describing and naming two-dimensional flat shapes by using defining attributes. At first, they count the number of sides on shapes to sort them into these categories: triangles, quadrilaterals, pentagons, and hexagons. They see that two shapes with the same number of sides that look different can still be given the same name. Students draw, name, and describe shapes (triangles, rectangles, squares, rhombuses, trapezoids, and hexagons) by using defining attributes such as square corners, parallel sides, and side lengths.

Students describe and name three-dimensional solid shapes, including cubes, cones, cylinders, rectangular prisms, triangular prisms, and pyramids. They look at the faces they see in unfolded nets to describe the solid shapes the nets will become. They also notice how a solid shape's attributes (its faces, edges, and corners) impact its functionality (like whether it rolls or stacks).



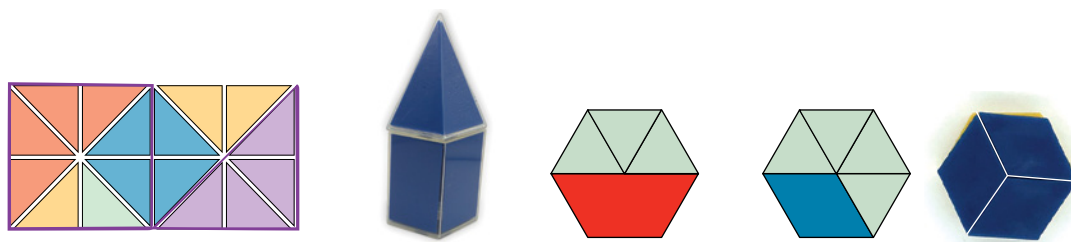
Topic B

Composition of Shapes

Students decompose and compose flat and solid composite shapes in increasingly complex ways:

- They identify shapes within a composite shape.
- They name composite shapes using defining attributes.
- They create composite shapes by combining shapes.

Geometric composition is an important concept because it deepens understanding of part-whole relationships in other areas, such as composing 10 ones to make 1 ten, decomposing 8 into 2 and 6, partitioning a whole into halves, or recognizing that a clock is partitioned into hours and minutes. After students compose a shape in a variety of ways, they compare the number of shapes they used. They realize that the smaller the shapes they use to make a composed shape, the more shapes they need to make the composition.



Topic C

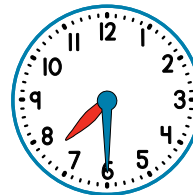
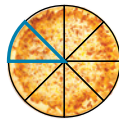
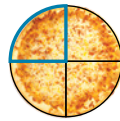
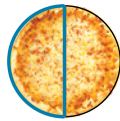
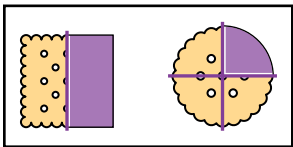
Halves and Fourths

In topic C, students continue to compose and decompose shapes and relate their work to basic fractions. They partition shapes in a variety of ways and determine if the parts are equal shares of the whole. They conclude that equal parts (or shares) are the same shape and size.

Then students partition circles and rectangles into 2 and 4 equal parts and name the shares as halves, fourths, and quarters. They identify 1 share as 1 half or 1 fourth of the whole and verbalize how many equal shares compose the whole (2 shares or 4 shares).

Students also determine that the more shares you partition a shape into, the smaller the shares get.

Finally, students connect their understanding of halves to telling time. They reason about the phrase *half past* and relate it to a half-circle. They recognize that half past can also be stated as a time, such as 2:30, because the minute hand has gone halfway around the clock. In optional lesson 15, students also analyze the movement and location of the hour hand, noting that it will be halfway between the 2 and the 3 at 2:30.



After This Module

Grade 2 Module 3

Students begin using the number of angles in a shape as a defining attribute of flat shapes. They use the number of faces, edges, and vertices as defining attributes of solid shapes.

Fraction work expands from working with halves and fourths to include thirds. Students refine their understanding of equal shares as they see that equal shares are the same size, but not always the same shape.

Grade 2 students relate fractions to telling time by using the language *quarter past* and *quarter to*.