



Topic A

Attributes of Shapes

1.G.1

Related Topics:

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Focus Standard:	1.G.1	Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.
Instructional Days:	3	
Coherence -Links from:	GK–M2	Two-Dimensional and Three-Dimensional Shapes
-Links to:	G2–M8	Time, Shapes, and Fractions as Equal Parts of Shapes

In Module 5 students build on their exploration and knowledge of shapes from kindergarten. In Topic A, students identify the defining attributes of individual shapes.

In Lesson 1, students use straws cut at various lengths to create and then classify shapes. A list of the attributes that are common to a set of shapes is created. As students create a new shape with their straws, they decide if it has all the listed attributes. The names of these shapes are intentionally omitted during this lesson to encourage students to use precise language as they describe each shape. In this way, students attend to, and clarify, a shape’s defining attributes (**1.G.1**). For instance, rather than describing a shape as a triangle, students must describe it as having three sides and three corners. As students sort the shapes as examples and non-examples, they do the thoughtful work that is depicted in the image to the right at a first grade level.¹ Students are introduced to the term *attributes* during this lesson and continue to use the new vocabulary throughout the lessons that follow.

Triangles

Examples

- Exemplars:** Three standard triangles.
- Variants:** Three triangles of different sizes, orientations, and colors.

Nonexamples

- Palpable Distractors:** A square and a circle.
- Difficult Distractors:** A trapezoid, a semi-circle, and a right-angled triangle.

Rectangles

Examples

- Exemplars:** Two standard rectangles.
- Variants:** A long thin rectangle, a vertical rectangle, and a square.

Nonexamples

- Palpable Distractors:** A pentagon and a triangle.
- Difficult Distractors:** A parallelogram and a trapezoid.

Exemplars are the typical visual prototypes of the shape category.

Variants are other examples of the shape category.

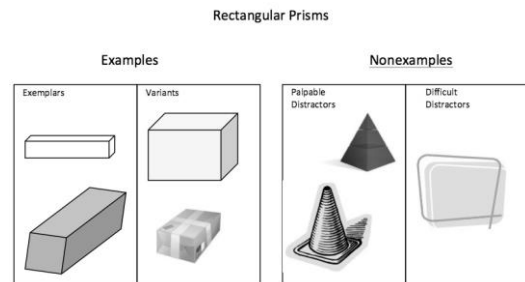
Palpable distractors are nonexamples with little or no overall resemblance to the exemplars.

Difficult distractors are visually similar to examples but lack at least one defining attribute.

¹ This excellent image plus further clarification is found in the Geometry Progression document.

In Lesson 2, students connect defining attributes to the classification name. Along with *circle*, *triangle*, *rectangle*, and *hexagon*, which were introduced in kindergarten, students learn *trapezoid* and *rhombus*. Like in kindergarten, students see squares as special rectangles.

In Lesson 3, defining attributes of three-dimensional shapes are explored. Along with the three-dimensional shape names learned in kindergarten (*sphere*, *cube*, and *cylinder*), students expand their vocabulary to include *cone* and *rectangular prism*. Students are presented with models of three-dimensional shapes as well as real life examples to sort and classify based on their defining attributes. Students complete sentence frames that help to distinguish defining attributes from non-defining attributes. For example: “A [can] is in the shape of the [cylinder]. It has circles at the ends just like all cylinders. This cylinder is made of metal but some cylinders are not.”



A Teaching Sequence Towards Mastery of Attributes of Shape

Objective 1: Classify shapes based on defining attributes using examples, variants, and non-examples. (Lesson 1)

Objective 2: Find and name two-dimensional shapes including trapezoid, rhombus, and a square as a special rectangle, based on defining attributes of sides and corners. (Lesson 2)

Objective 3: Find and name three-dimensional shapes including cone and rectangular prism, based on defining attributes of faces and points. (Lesson 3)