This lesson introduces the concept of attributes and defining attributes. Students learn how to use attributes to identify and draw shapes.

**COMMON CORE STANDARD(S)**

1.G.A.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.

**DURATION**

Two 45-minute classroom periods

Engage and Explore, Explain, Elaborate page 1—one 45-minute classroom period
Elaborate page 2, Evaluate—second 45-minute classroom period

**MATERIALS**

Shape cards
Assorted geometric solids

**ENGAGE AND EXPLORE**

Have students work in pairs or small groups. Give each group a set of shape cards and geometric solids. Ask students to sort the shapes by things they notice about the shapes. After sorting, ask students:

- What rule did you use to sort your shapes (or figures)?
- Could you sort them using a different rule?
Have students challenge each other to figure out the rules they used to sort their shapes.

Bring the class together to discuss ways that students sorted the shapes. Highlight when students sorted shapes by their defining attributes, such as straight or curved sides or by the number of sides the shape has. Ask students to name the shapes they know that have these attributes. Students should already be familiar with how circles, triangles, square, rectangles, and hexagons are defined, but they may still struggle to see that these names are the correct names regardless of size, orientation, and color.

The goal with this activity is to have students think about attributes they can use to categorize an object or shape. In the video, students will learn the difference between defining and non-defining attributes of shapes.

EXPLAIN

WATCH THE GENERATION GENIUS IDENTIFY AND DRAW SHAPES BY ATTRIBUTES VIDEO AS A GROUP
Facilitate a conversation using the Discussion Questions.

ELABORATE

Direct students to use their new understanding to complete the practice problem worksheets. Page 1 contains bare mathematical problems to solidify understanding of the process. Page 2 contains application problems for students to apply the process to solve real-world problems.

EVALUATE

Have students gather in groups of 2 or 4 to compare and discuss their answers to the problems. Allow students enough time to communicate with their peers about their process and their thinking. Encourage students to use correct mathematical language when discussing their process. Have each group choose two questions they want more information about, or they want to discuss as a class.

When groups are ready, take questions from students. Encourage groups to answer questions brought up by other groups.

Students can play the online Kahoot! quiz game located below the video. It provides downloadable scores at the end of the quiz game. Alternatively, you can use the paper quiz, or the exit ticket questions. All these resources are located below the video in the assessment section.