



## More About Math

### Background for Leaders

This unit focuses on defining and non-defining attributes to guide 6-8 year olds as they identify, name and draw (construct) a variety of two-dimensional (flat) and three-dimensional (solid) shapes.

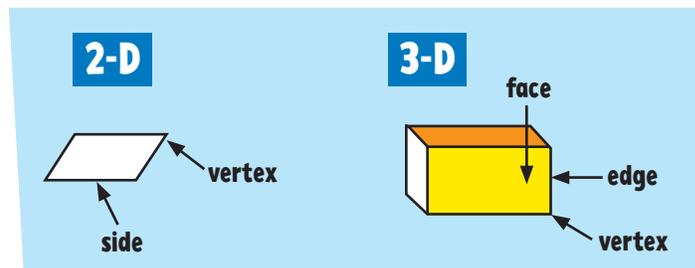
### Defining vs. Non-Defining Attributes

Through the activities in this unit, children will reinforce or learn vocabulary that is essential to defining geometric shapes. The number of sides and angles help to define a shape and its geometric properties while the color and size of a shape are non-defining attributes. For example, all triangles must have three straight sides and three corners, or vertices but they do not have to be blue. At this age, children can easily sort objects by defining and non-defining attributes. In fact they likely have practice sorting items by non-defining attributes such as color and size.

### Two-Dimensional and Three-Dimensional Shapes

One set of defining characteristics is whether a shape is two-dimensional or three-dimensional. Children should practice identifying both of these types of shapes and use the proper vocabulary to describe them. Two-dimensional shapes are flat shapes because they have only length and width. A two-dimensional shape consists of line segments, referred to as sides that meet at the corners (vertices) to form angles.

In comparison, three-dimensional shapes are solid shapes because they have length, width, and height. A three-dimensional shape has corners called "vertices," segments that connect vertex to vertex called "edges," and flat surfaces called "faces." For example, a square has 4 vertices and 4 sides; a cube has 8 vertices, 6 faces and 12 edges.



### Combining Sets

When children combine two or more shapes they are creating composite shapes. Children at this age should recognize that putting shapes together creates new shapes, based upon their defining attributes. Additionally, they should be able to divide simple shapes into smaller equal shares (like halves, fourths, thirds and quarters). At this age children should be able to identify simple three-dimensional shapes and construct them from a series of two-dimensional shapes (nets).