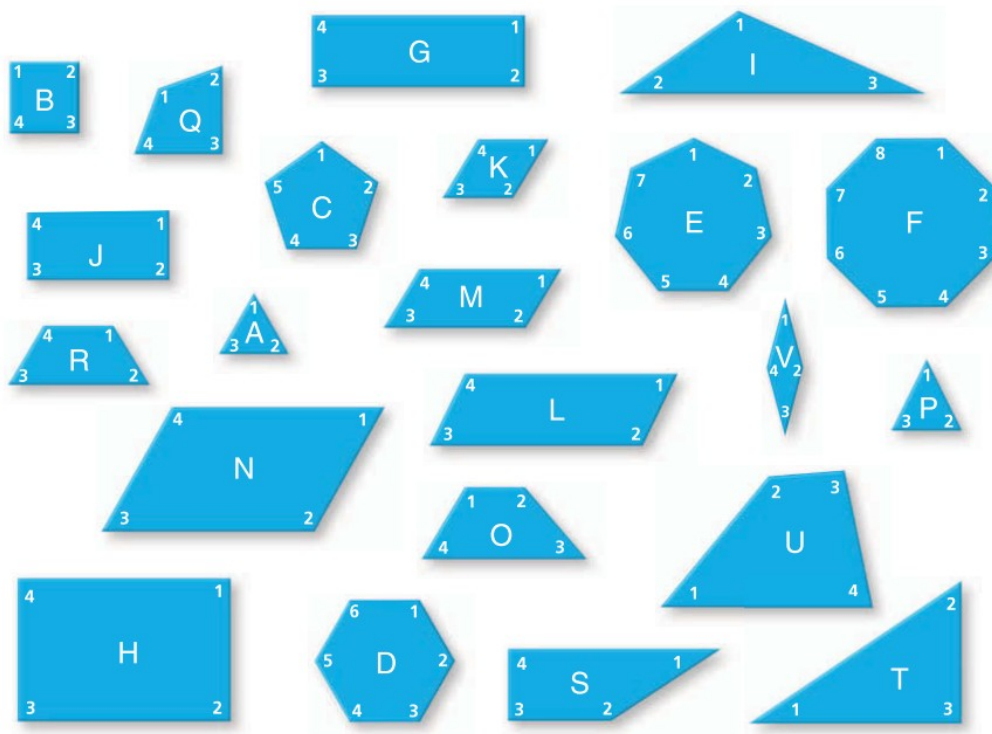# 1.1 Sorting and Sketching Polygons

Polygons come in many shapes and sizes. The set of 22 shapes shown here is only a sample of the infinite variety of polygons. Polygons are used in practical, artistic, and scientific shapes and designs.

Mathematicians classify and name groups of polygons with similar properties.

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1.1 **1.2** 1.3 1.4 1.5

Problem 1.1

A Sort the polygons in the Shapes Set into groups that have one or more properties in common.

    1. Describe the properties shared by the members of each group.

    2. Sketch another shape that belongs in each group.

B Polygons with three sides (and three angles) are called *triangles*. How are the triangles in the Shapes Set different from each other?

C Polygons with four sides are called *quadrilaterals*. Sort the quadrilaterals in the Shapes Set into two or more subgroups. What properties do the subgroup members share?

D A group of students put shapes R, O, and S into the same group.

    1. What properties do R, O, and S share?

    2. Would shape Q belong in this group? Why or why not?

    3. Would shape L belong in this group? Why or why not?
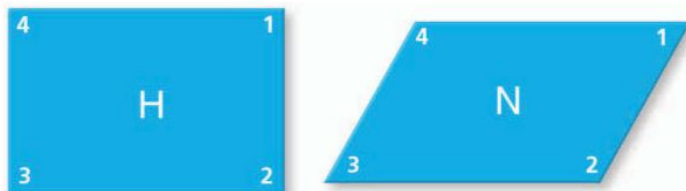
A C E Homework starts on page 24.

1.2 In a Spin
Angles and Rotations

The shape of any polygon depends on the number and length of its sides. The shape also depends on the angles at which those sides meet. Here are two quadrilaterals with identical side lengths, but different shapes.

The term *polygon* is a Greek word that means "many angles." You will look at how the side lengths and angles affect the shape of a polygon. To begin, you will explore angles.