**Key Idea**
Some polygons have special names that tell how many sides the polygon has.

**Vocabulary**
- polygon
- triangle
- quadrilateral
- pentagon
- hexagon
- octagon
- regular polygon

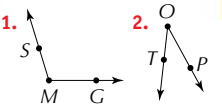
**Materials**
- geoboard or dot paper or

e tools

# Polygons

**WARM UP**

Identify the vertex and sides of each angle.

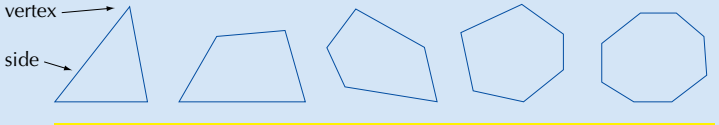



## LEARN

### What are the names of polygons?

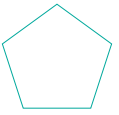
A **polygon** is a closed plane figure made up of line segments. The names of common polygons tell how many sides the polygon has.

1. Vertex: $M$ Sides: $\overrightarrow{MS}$, $\overrightarrow{MG}$
2. Vertex: $O$ Sides: $\overrightarrow{OT}$, $\overrightarrow{OP}$




| Triangle | Quadrilateral | Pentagon | Hexagon | Octagon |
|---|---|---|---|---|
| 3 sides | 4 sides | 5 sides | 6 sides | 8 sides |

A **regular polygon** has sides of equal length and angles of equal measure.

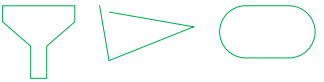


regular polygon

**Talk About It**

1. Is each figure at the right a polygon? Explain why or why not.

1. No; The first figure is a polygon because it is closed and made up of line segments. The second figure is not a polygon because it is not closed. The third figure is not a polygon because it is not made up of line segments.



See above.

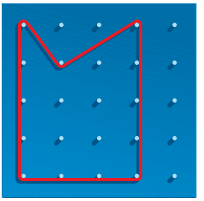
**TEST TALK**

**Think It Through**
I can **use objects** or **draw a picture** to understand the main idea.

**Activity**

### What are some examples of polygons?

**a.** Work with a partner. On a geoboard or dot paper, create examples of polygons with 3 through 12 sides. Have your partner tell how many sides the polygon has and, if possible, name it.



**b.** How many angles are there in a triangle? An octagon? A 12-sided polygon? An $n$-sided polygon?

3 angles; 8 angles; 12 angles; $n$ angles

**c.** Tell if each road sign suggests a polygon. If so, what is its name? Does it appear to be a regular polygon?


Yes; quadrilateral; yes

Yes; pentagon; no


Yes; quadrilateral; no


Yes; octagon; yes


Yes; triangle; no


No