

3rd Grade Math: Classifying Polygons

What Is a Polygon?

A **polygon** is a flat, two-dimensional shape made up of straight lines that are connected. The lines (called **sides**) join to form a closed shape, meaning there are no gaps or openings. Polygons have at least **3 sides** and can have many more!

Key Features of Polygons

1. **Straight sides:**
All sides of a polygon are straight, not curved.
2. **Closed shape:**
The sides must connect to form a shape with no gaps.
3. **Two-dimensional:**
Polygons are flat shapes, meaning they have length and width but no thickness.

Types of Polygons

Polygons are classified by the number of sides they have. Here are some common polygons:

1. **Triangle:**
 - **3 sides**
 - Example: A slice of pizza.
2. **Quadrilateral:**
 - **4 sides**
 - Example: A rectangle or square.
3. **Pentagon:**
 - **5 sides**
 - Example: The shape of a house seen from above (roof outline).
4. **Hexagon:**
 - **6 sides**
 - Example: A honeycomb cell in a beehive.
5. **Octagon:**
 - **8 sides**
 - Example: A stop sign.

How to Classify Polygons

To classify a polygon, count the number of sides it has. The name of the polygon will tell you how many sides it has:

- **3 sides = Triangle**
- **4 sides = Quadrilateral**
- **5 sides = Pentagon**
- **6 sides = Hexagon**

- **8 sides = Octagon**

Example 1: Classifying a Shape

Problem:

You see a shape with 6 sides. What is this shape called?

Solution:

A shape with **6 sides** is called a **hexagon**.

Example 2: Classifying a Triangle

Problem:

A shape has 3 sides. What is this shape called?

Solution:

A shape with **3 sides** is called a **triangle**.

Special Types of Quadrilaterals

Since quadrilaterals have 4 sides, there are many types of them, including:

- **Square:** All sides are equal in length, and all angles are right angles (90°).
- **Rectangle:** Opposite sides are equal in length, and all angles are right angles.
- **Rhombus:** All sides are equal in length, but the angles are not right angles.
- **Trapezoid:** Only one pair of opposite sides is parallel.

Practice Problems

1. How many sides does a pentagon have?
2. What is the name of a shape with 8 sides?
3. Is a triangle a polygon? Why or why not?
4. Can a shape with curved sides be a polygon?
5. Look at a stop sign. What type of polygon is it?

Conclusion:

- A **polygon** is a closed, two-dimensional shape with straight sides.
- Polygons are classified based on the number of sides they have: triangles, quadrilaterals, pentagons, hexagons, and octagons are common examples.
- Learning to identify and classify polygons helps students understand the properties of shapes and how they are used in geometry and real life.