

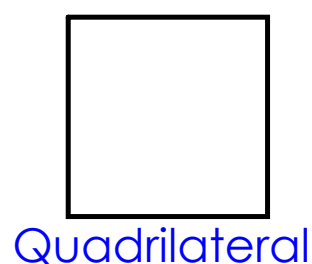
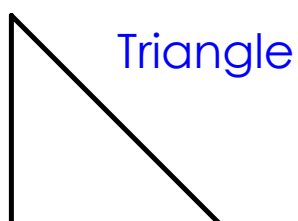
# Polygons

# IXL Practice

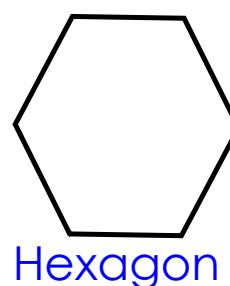
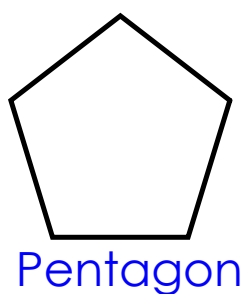
Level G - Two Dimensional Figures

W.1 Is it a polygon?

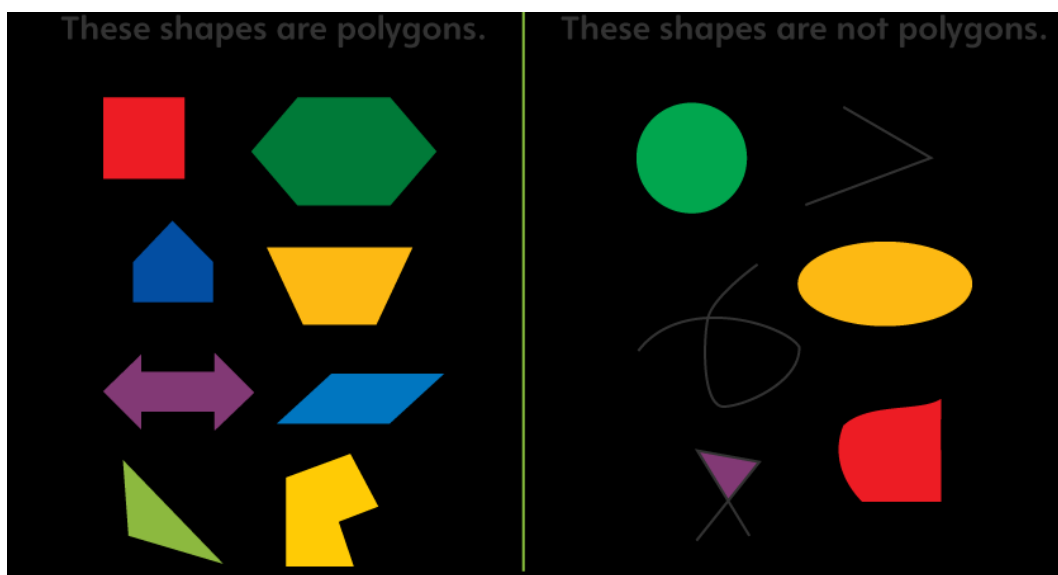
W.2 Number of sides in polygons



A **polygon** is any 2-dimensional (2-D) shape formed with closed, straight lines.  
Triangles, quadrilaterals, pentagons, and hexagons are all examples of polygons



## Polygon or Not?



**Straight and closed lines**

**Rounded, not closed-in lines or both**

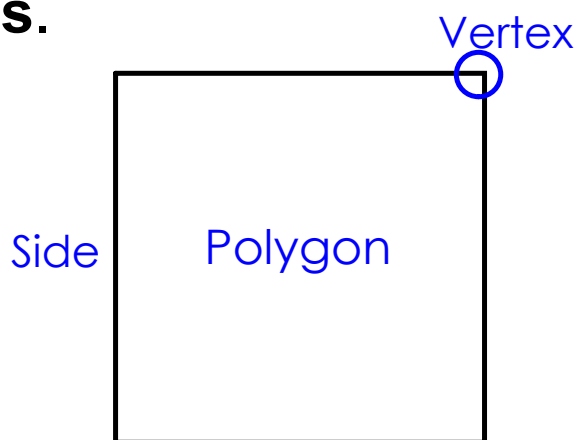
## **Circles are NOT Polygons**

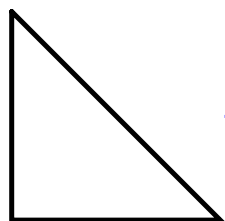
Circles and other rounded shapes are NOT polygons.

**They are closed in shapes, but do not have straight lines.**

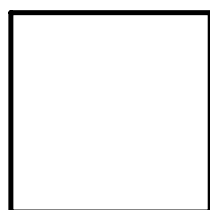
## Sides and Vertices

**Polygons** are identified and classified by the number of **sides** and **vertices** they have. **Vertex** is singular for **vertices**.

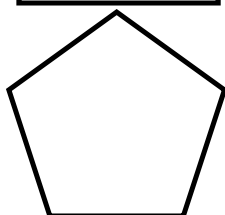




Triangle



Quadrilateral



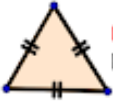
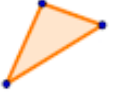
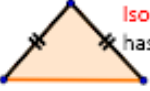


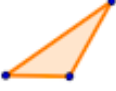
Pentagon

Sides	Vertices
3	3
4	4
5	5

# Triangles

Triangles are always made up of 3 sides and 3 vertices. Although there are a few different types of triangles.

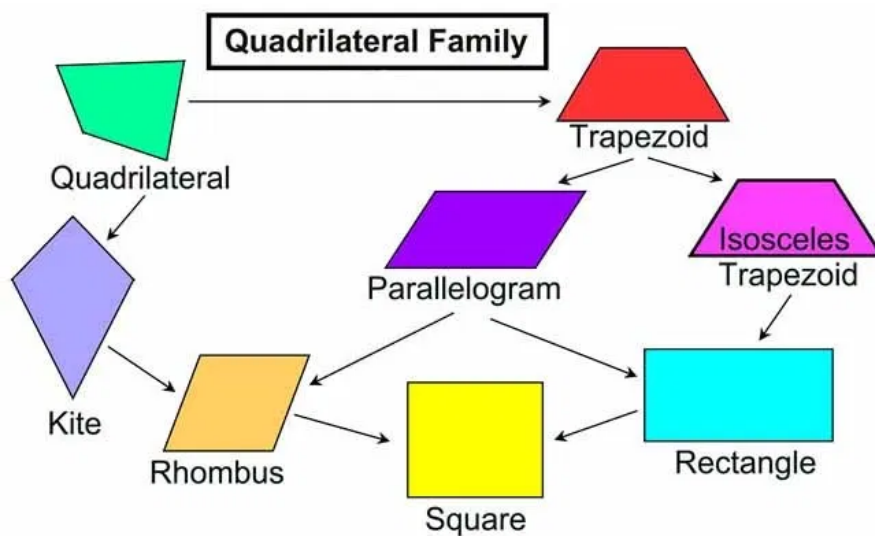
Types of Triangles

By Side	By Angle
 <b>Equilateral Triangle</b> has three equal sides	 <b>Acute triangle</b> has three angles $< 90^\circ$
 <b>Isosceles Triangle</b> has two equal sides	 <b>Right triangle</b> has one angle $= 90^\circ$
 <b>Scalene Triangle</b> has no equal sides	 <b>Obtuse triangle</b> has one angle $> 90^\circ$

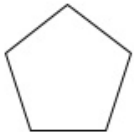
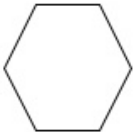
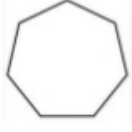
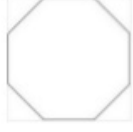
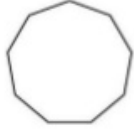
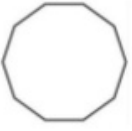
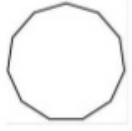
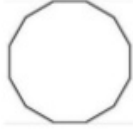


## Quadrilaterals

Quadrilaterals are always made up of 4 sides and 4 vertices. There are a few different types, however, the square and rectangle are the most common.



**Pentagons (5), Hexagons (6),  
Heptagons (7), Octagons (8),  
Nonagons (9), Decagons  
(10), Hendecagons (11) and  
Dodecagons (12)**

PENTAGON	HEXAGON	HEPTAGON	OCTAGON
			
NONAGON	DECAGON	HENDECAGON	DODECAGON
			

REGULAR POLYGONS SORTED BY NUMER OF SIDES

Remember polygons are identified and classified by the number of sides and vertices. **Pentagons** have 5 of each and **hexagons** have 6 of each and so on. In the last slide you can see the polygons and their names up to the **12-sided dodecagon**.

# Challenge!

How many sides do 3 triangles, 2 quadrilaterals, 1 pentagon and 1 octagon have all together?

**How can we figure this out?**

## Answer

3 Triangles = 3 sides x 3 triangles = 9

2 Quadrilaterals = 4 sides x 2 quadrilaterals = 8

1 pentagon = 5 sides x 1 pentagon = 5

1 octagon = 8 sides x 1 octagon = 8

Total sides =  $9+8+5+8 = 30$  sides altogether

You could also draw out the polygons and count the total number of sides, but that takes more time. Try to use your multiplication and addition skills!