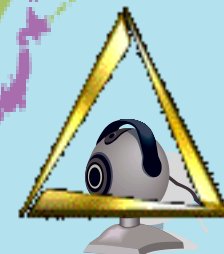


Explore Polygons Around the World



Movie



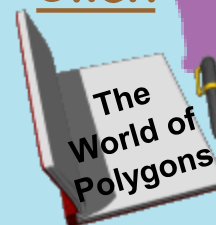
The
Polygons



About Our
Trip

Travel Journal

Click



Pamela J Oliveira

Welcome to POLYGONS AROUND THE WORLD

- About Our Trip.....Polygons are all around us in our everyday lives. They are on buildings, road signs, playgrounds, and even in the classroom! We are going to travel the world looking for polygons in real life situations.
- A polygon is a two dimensional shape that is closed and made with straight lines only. It can be simple or complex, regular or irregular, and concave or convex. It is named according to the number of sides it has. Let's find out what we will learn on our trip to find polygons.....



Trip Objectives

- Identify and name different polygons in real world structures.
- List attributes of each polygon including angle types, and congruent or parallel sides.
- Calculate the sum of the interior angles.
- Calculate the value of each interior angle.
- Identify if polygon is regular or irregular.
- Classify triangles by their angles and sides.

Glossary of Trip Terms

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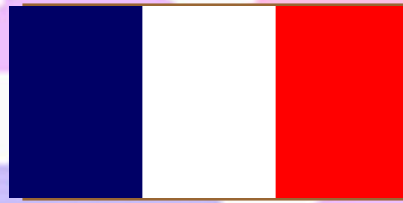
Glossary of Trip Terms

- **Congruent**- Equal in length or angle measurement.
- **Decagon** – Polygon with 10 sides.
- **Heptagon** – Polygon with 7 sides.
- **Hexagon**- Polygon with 6 sides.
- **Octagon**- Polygon with 8 sides.
- **Parallel**— 2 lines on a plane that will never meet.
- **Parallelogram** – Quadrilateral with opposite sides parallel and congruent.
- **Pentagon**- Polygon with 5 sides.
- **Polygon**- Three or more line segments in a plane that forms a closed figure. The line segments never cross but meet at their endpoints.
- **Rectangle** – Quadrilateral with opposite sides parallel and congruent and 4 right angles.
- **Regular Polygon** – All sides have the same length and all angles measure the same.
- **Rhombus** - Parallelogram with all sides congruent.
- **Quadrilateral**- A polygon with 4 sides. Can be square, rectangle, parallelogram, rhombus, or trapezoid.
- **Square** – Quadrilateral with congruent sides and 90 degree angles.
- **Trapezoid** - Quadrilateral with 1 pair of parallel sides.
- **Triangle**- A polygon with 3 sides. Can be classified as scalene, isosceles, or equilateral by its sides and acute, obtuse, or right by its angles.

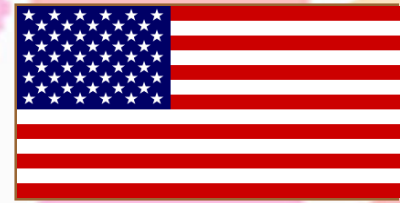
The Polygons



Triangles
in Egypt



Trapezoids
in France



Regular
Polygons in
USA



Squares
and
Rectangles
in England



Hexagons in
Turkey



Decagons in
Australia



Triangles in Egypt

Pyramids at Giza Web Links

[Pyramids at Giza Facts](#)

[National Geographic](#)

[Travel Journal Questions](#)



A triangle is a 3-sided polygon with an interior angle sum of 180 degrees. It can be classified by angles or sides. By the angles a triangle can be right (if it has one right angle), obtuse (if it has one obtuse angle) or acute (if all angles are acute). By its sides a triangle can be equilateral (if all sides are congruent), isosceles (if two sides are congruent) or scalene (if no sides are congruent).



Pyramids at Giza



Great Pyramid at Giza

Each face of a pyramid is a triangle. The Great Pyramid of Giza is one of the original Seven Wonders of the World and is located in Egypt.

Trapezoids in France

A trapezoid is a 4-sided polygon, quadrilateral, with **only** 1 pair of parallel sides. The interior sum of its angles is 360 degrees. A trapezoid can have **at most 2** right angles.

Eiffel Tower Web Links

Facts and Trivia

History

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← Trapezoid

The Eiffel Tower is located in Paris, France was built in 1889. If you look near the center of the structure you will see a trapezoid.

Regular Polygons in the USA



A regular polygon has all congruent sides and all congruent angles. A stop sign is a regular octagon while a yield sign is a regular triangle also known as an equilateral triangle.



The Pentagon Web Links

[Facts and Figures](#)

[History](#)

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The Pentagon, located in Washington DC, is a regular pentagon with 5 congruent sides and 5 congruent angles. It is one of the world's largest office buildings!

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Squares & Rectangles in England

Big Ben Web Links

[Facts](#)

[Online Tour](#)

[Travel Journal Questions](#)



Squares and rectangles belong to a family of polygons called quadrilaterals. Quadrilaterals are any 4-sided polygons. A rectangle is a quadrilateral that has 4 right angles and opposite sides parallel and congruent. A square has 4 right angles and 4 congruent sides. A square is considered a regular polygon.

Big Ben, a bell clock at Westminster Palace in London England is filled with quadrilaterals – squares, rectangles, and even a trapezoid towards the top!



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Hexagons in Turkey

New Bursa Stadium Web Links

[Stadium Concept](#)

[A "Green" stadium](#)

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A hexagon is a polygon with six sides. The sum of the interior angles is 720 degrees.

In Bursa, Turkey the soccer stadium is being rebuilt with a hexagonal roof to blend the hexagonal figures in the surrounding park.

Decagons in Australia

Great Barrier Reef Web Links

Facts

Exploring the Reef Video

Travel Journal Questions



A decagon is a 10-sided polygon. The sum of the interior angles is 1440 degrees.

A starfish is a natural decagon. The one pictured above is found along the Great Barrier Reef in Australia, one the of the seven natural wonders of the world.

Naming Polygons

Sides	Name
7	Heptagon
8	Octagon
9	Enneagon or Nonagon
10	Decagon
11	Hendecagon
12	Dodecagon
13	Triskaidecagon or Tridecagon
14	Tetrakaidecagon or Tetradecagon
15	Pendedecagon
16	Hexdecagon
17	Heptdecagon
18	Octdecagon
19	Enneadecagon or Nondecagon
20	Icosagon
100	Hectagon
N	N-gon

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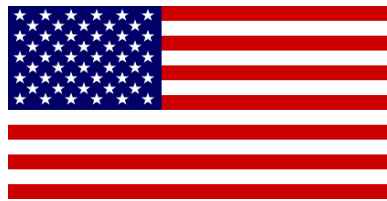


Sum of Interior Angles

- $(\text{Number of sides} - 2)180$
- In any polygon you can make triangles - $(\text{number of sides} - 2)$. There are 180 degrees in every triangle which is why it is necessary to multiply by 180.



Polygons Around the World



Travel Journal

Geometry: Chapter 6



Glossary

<i>Term</i>	<i>Definition</i>
Congruent	
Decagon	
Heptagon	
Hexagon	
Octagon	
Parallel	
Parallelogram	
Pentagon	
Polygon	
Rectangle	
Regular Polygon	
Rhombus	
Quadrilateral	
Square	
Trapezoid	
Triangle	

Investigation

Country	Structure	Characteristics of the Structure	Polygon	Characteristics of the Polygon
Pyramids Of Giza			Triangle	
Eiffel Tower			Trapezoid	
The Pentagon			Regular Pentagon	

Investigation

Country	Structure	Characteristics of the Structure	Polygon	Characteristics of the Polygon
Big Ben Clock			Squares & Rectangles	
Soccer Stadium in Bursa, Turkey			Hexagon	
Great Barrier Reef in Australia			Decagon	

Naming Polygons & the Polygon Angle-Sum Theorem

Use: $(n - 2)180$, where $n = \#$ of sides

# Sides	Name	Sum of Angle Measures
3		
4		
5		
6		
7		
8		
9		
10		
20		
100		
n		

