Polygon Angle Sum Investigation

Use a ruler to construct the following irregular, convex polygons:

- 3 sides
- 4 sides
- 5 sides
- 6 sides

Measure each interior angle of each polygon.

- clearly label the measure of each angle

- Add up the total sum of all interior angles and circle it in the center of your polygon.

Extend the vertex of each polygon so that you can measure the exterior angles of each polygon.

- clearly label the measure of each angle

- Add up the total sum of all exterior angles and circle it on the outside of your polygon.

You should be able to check your accuracy on the first triangle (you know the inside adds to 180°)
This accuracy is important so you can find the pattern for the other polygons!!

Sum of Interior Angles of Polygons

Look at the total number of sides and the total sum of the interior angles for each polygon you measured. You should see a pattern. Each time you add a side, what happens to the sum of the interior angles?

Write a formula to represent the sum of the interior angles of a polygon given the number of sides.

Sum of Exterior Angles of Polygons

Look at the total number of sides and the total sum of the exterior angles for each polygon you measured. What happens to the sum of the exterior angles as you add more sides?

Write a formula or explain in words how you can represent the sum of the exterior angles of any polygon.

You may use the table below to help you find the pattern.

Polygon	# of Sides	# of Triangles	Sum of Interior Angles	Sum of Exterior Angles
Triangle				
Quadrilateral				
Pentagon				
Hexagon				
n-gon				

(each triangle adds to 180°)

Triangle Quadrilateral Pentagon Hexagon