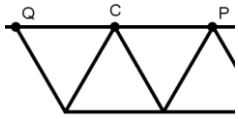
Polyhedrons [ ]

A **polyhedron** is a 3D solid formed by polygons that only intersect on their edges. A **regular polyhedron** is formed when all of the faces are congruent and regular. At each vertex, the same number of faces intersect.



1. Cut out a string of three triangles.
Notice that three vertices meet at point C.
2. Fold the triangles along the edges so that points Q and P meet.
3. Tape the edges together. You will have made a kind of "cup". Notice that the "opening" is another triangle.
4. Tape a 4th triangle to close it off. This is our first regular polyhedron: a **tetrahedron**.
How many faces does it have? _____ How many edges does it have? _____ How many Vertices does it have? _____

5. We're going to try to do the same thing with more triangles, and later, with different shapes. Which polygons will make a cup? How many of each polygon are able to meet at one vertex? Pick one of the rows in the table → and try it out!

Regular Polygon	# that meet at one vertex	Total of the angles around the vertex	Do they fold up to make a cup?
Triangle	3	$3 \cdot 60° = 180°$	Yes
Triangle	4		
Triangle	5		
Triangle	6		
Triangle	7		
Square	3		
Square	4		
Square	5		
Pentagon	3		
Pentagon	4		
Hexagon	3		
Heptagon	3		

What determines if a polygon can form a regular polyhedron? _____
_____

The ones that work…

Name	Created by Polygons	Vertices	Edges	Faces
Tetrahedron	Four triangles			
Octahedron				
Icosahedron				
Cube				
Dodecahedron				