



## Grade 9 - Mathematics Geometry of 3D Shapes 1



### Activity

1. Soccer balls are often made up of 12 regular hexagons which are usually white and twelve regular pentagons which are usually black. When the ball is inflated, the faces are not flat any longer, and the ball is therefore not a polyhedron.



- a. Explain why a polyhedron with 12 pentagonal and 12 hexagonal faces is not a Platonic solid.

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- b. Calculate the size of each internal angle of a regular pentagon.

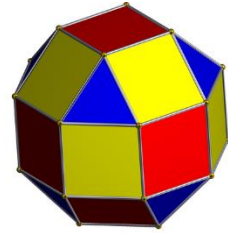
- c. Calculate the size of each internal angle of a regular hexagon.

- d. Calculate the sum of the angles which meet at each vertex.



# WorksheetCloud

2. The image shows a semiregular polyhedron. These polyhedra are also called Archimedean solids. Archimedean solids have faces which are regular polygons, but they are not all the same.



- a. Name the regular polygons that are faces of this Archimedean solid.

- b. Calculate the size of each internal angle of each of the different regular polygons.

- c. Calculate the sum of the angles at each vertex.



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