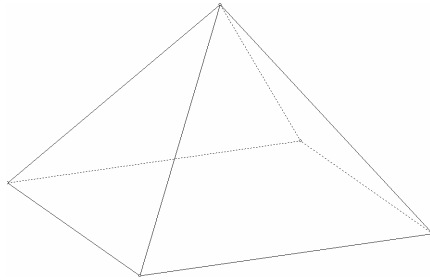
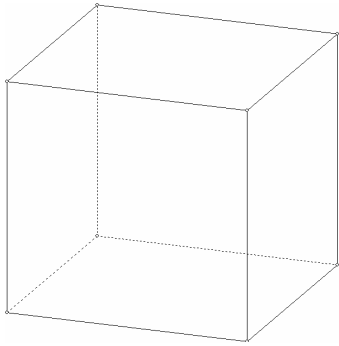
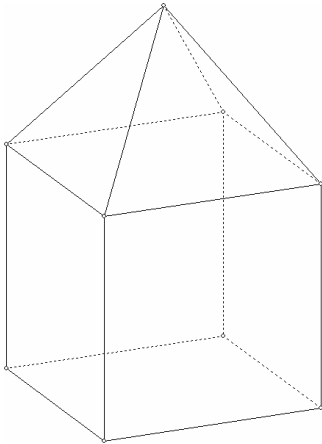


## The Rhombic Dodecahedron

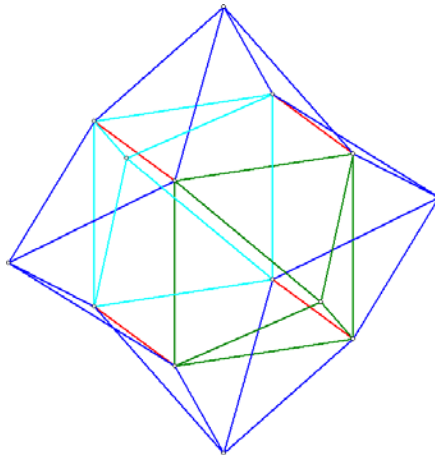
Play with basic 3D models: the cube and pyramid.



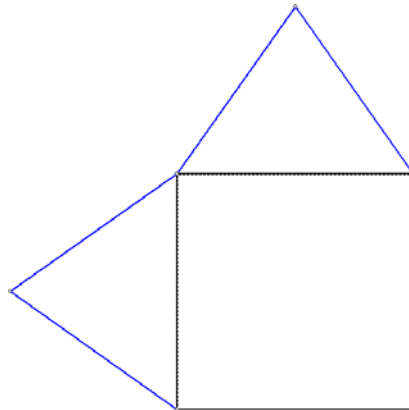
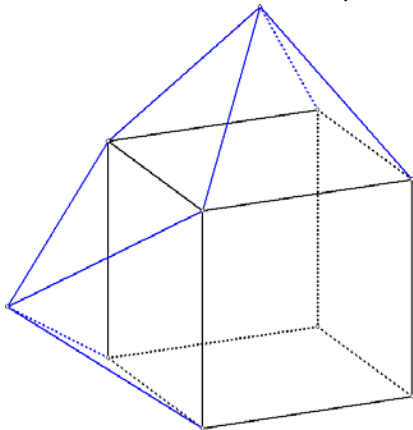
When all edges are of equal length, the sides are squares and equilateral triangles. We can place the pyramid upon the cube.



We can place the pyramid upon each side of the cube.



You can describe this object as a star (stellated polyhedron) with six points. It is difficult to visualize this picture, so we simplify it to the cube and two pyramids.

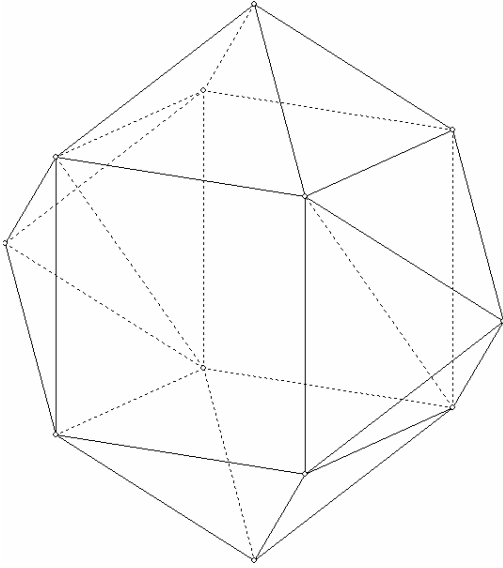


In the front view we recognize that the sides of the separate pyramids make an angle that is almost  $180^\circ$ .

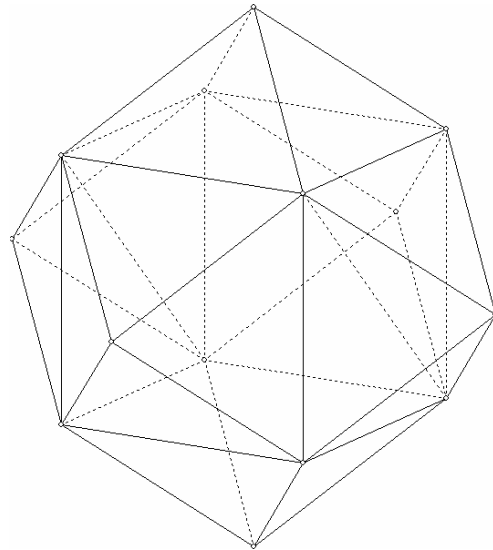
Let us work through the following idea: Reduce the height of the six pyramids to make this angle exactly  $180^\circ$ .

Use the front view to find the height of the pyramids and the edge lengths. Then construct the complete object in Geocadabra making the superfluous edges invisible.

An intermediate picture, without pyramids on the front and back sides of the cube:

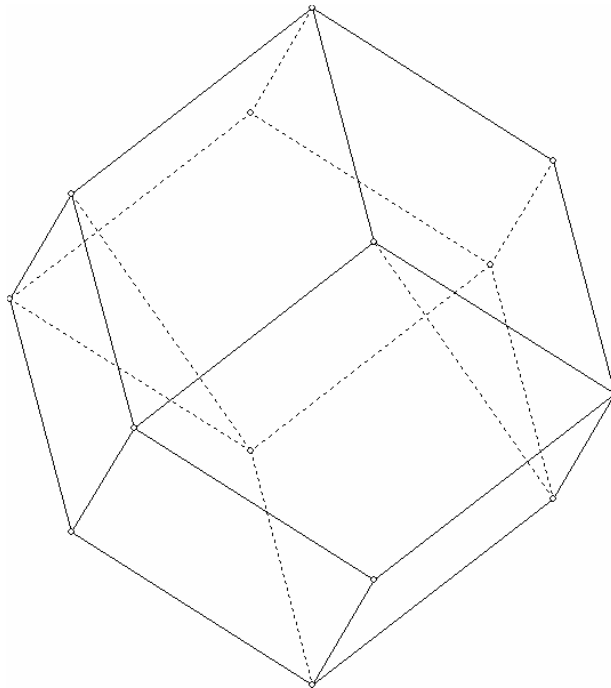


When you look at the front view, you recognise that the pyramids' sides form rhombi.



Below is a picture of the completed model.

Now the rhombi are complete and the cube's edges can be made invisible:



Finally make a net, print it, cut and glue or tape it to make the real object.

