

Solid wood dodecahedron according to Leonardo Da Vinci

Leonardo da Vinci drew a large number of geometrical figures for the textbook **De Divina Proportion**, including the Platonic solids.

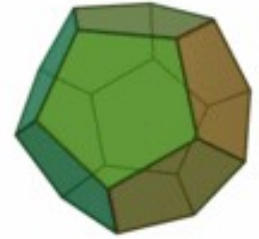
The **dodecahedron** [ˌdɒdɪkəˈtʃeɪdʒ] (from Greek twelve-faced; dt. Also (the) twelve-faced) is a body with twelve planes. Usually a platonic solid is meant, namely the regular pentagon dodecahedron, a solid with Regular pentagon dodecahedron **12 congruent regular pentagons**

30 edges of equal length, each of which is the side of two pentagons

20 corners, in each of which three of these pentagons meet - (Info: Wikipedia)

How do you build a dodecahedron?

Depending on the ideas, materials such as wood, paper, metal, plastic, ... and with strips or surfaces. Several different models can be found at www.leonardowerkstatt.at.



Dodecahedron solid wood block

This construction was my first thought, it would be the most difficult one to somehow get the pentagons, the angles between the surfaces and edges with a saw.

There are also very clever video instructions for building a solid wood dodecadre, with a miter, circle or even hand saw, and mostly with highly complex calculations of pentagons, compasses and rulers for templates with pentagons and many angles.

The first solid wood dodecahedron was created with a chopping saw and band saw and paper templates, compasses, ruler and then a few cuts almost freehand without a possible stop, and was therefore not perfect.

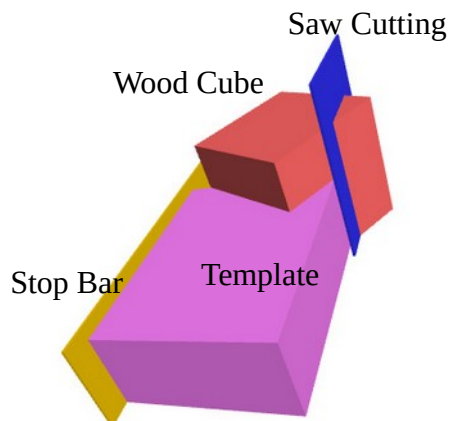
Through the explanation of the Greek mathematician Euclid 300 BC in his 13th book, that a dodecader is composed of 6 roofs and a dodecader can be placed in a cube, it sparked with me. The slope of a roof surface is 31.7175 degrees, because with the dodecahedron the interior angle at an edge between two surfaces is 116.565 degrees.

For this I built a template from a piece of wood with a corner cut-out at an angle of 31.7 degrees, in which the cube is struck and thus guided through my band saw.

You only have to know that on the cube surface, the cut ends exactly in the middle (an edge of 2 pentagons) on each surface you have to make 2 x 31.7 degree cuts, the wedges you cut off are used as a corner stop for the next cuts. And after cutting 12 times, the dodecahedron is ready.

If you want to calculate it, the edge length between two pentagons times the golden cut squared is the side length of the cube.

Still sound complicated? Then come to my Leonardowerkstatt. There I can also show you the other Platonic solids, how you can make these solids with an angle on the saw or with other materials.



Leonardowerkstatt

www.leonardowerkstatt.at