

The Golden Mean

As you travel through history, you will begin to find examples of The Golden Mean. As early as 1650 B.C. you will find The Golden Mean being used or recorded. Around 1650 B.C. The Golden Mean was discussed on The Rhind Papyrus. It discussed how the Egyptians used The Golden Mean on the building of their pyramids. As you continue to travel through time you will begin to see that a clear definition was not known. Until a man by the name of Euclid wrote his book entitled, "Elements", between 365-300 B.C. As time progresses we have begun to discover The Golden Mean in various objects. We have found it in apples, snail shells, various plants, pictures, paintings, and in several different shapes. The following worksheets are examples of a few things that The Golden Mean has been found in.

The Quasicrystal relates to The Golden Mean by the following:

- The Quasicrystal is a six-sided figure with each side being a diamond whose diagonals are in the ratio of The Golden Mean.

The dodecahedron is related to The Golden Mean by the following:

- If you take three golden rectangles and assemble them at 90 degree angles to get a 3D shape with 12 corners, the twelve corners become the 12 centers of each of the 12 pentagons that form the faces of a dodecahedron. This makes a ratio that is equivalent to The Golden Mean.

The icosahedron is related to The Golden Mean by the following:

- If you take three golden rectangles and assemble them at 90 degree angles to get a 3D shape with 12 corners, the 12 corners can also become the 12 points of each of the 20 triangles that form the faces of a icosahedron. This also makes a ratio that is equivalent to The Golden Mean.

Now that you have read a little bit of information on The Golden Mean and how it relates to the Quasicrystal, the dodecahedron and the icosahedron, Complete the following worksheets to construct your own Quasicrystal, dodecahedron or icosahedron.