

# Intermediate

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## MeshMan

This is an intermediate four part tutorial. Part one explains the basic of how Amorphium Pro creates mesh. Part two explains when, why and how to use the MeshMan Tools. Part three shows some ways to use the MeshMan Tools for rendering effects, modeling and texturing techniques. Part four is a quick projects ( Disintegrating a planet )

### *Part one*

Definitions for terms used

**Edge** : The outer or furthest point outward. Or the location where two outward surfaces meet.

**Mesh** : Polygons put together to form an object's geometry.

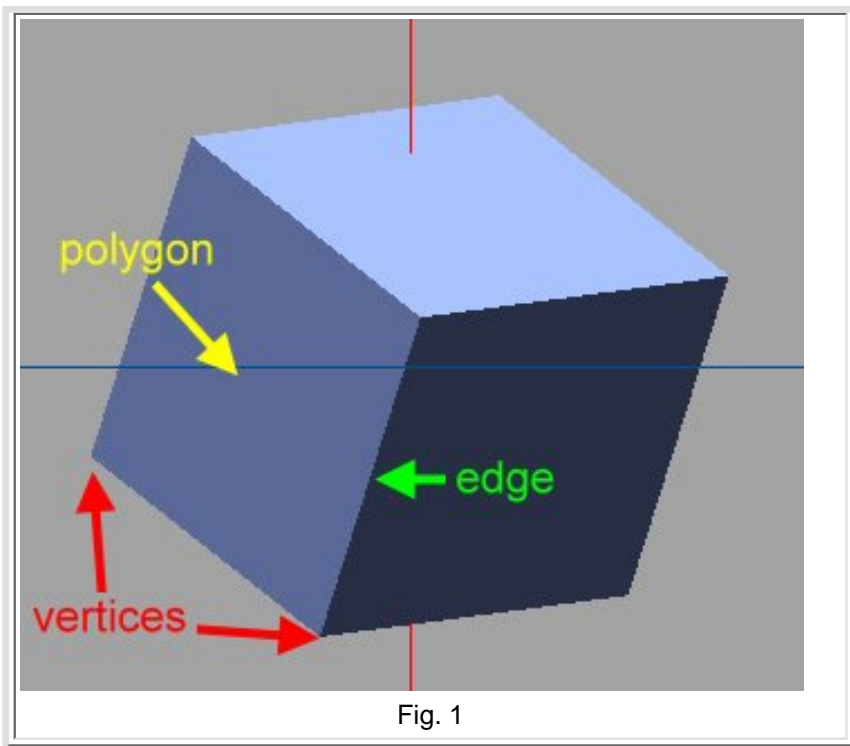
**Normal** : Refers to the direction a polygon faces. A normal is an imaginary line at the center of a polygon. The normal points strait out from the surface at a right angle, or perpendicularly.

**Polygon** : A flat shape with 3 or more straight sides. Meshes are made from polygons accumulated or placed together.

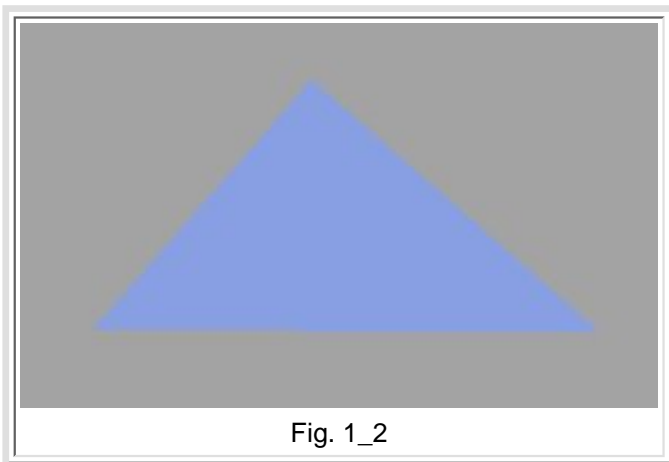
**Vertices** : The point where lines meet to form an angle

### **Mesh**

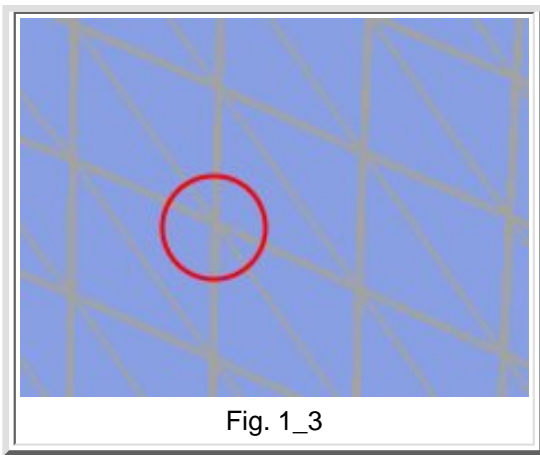
This 3D cube object is made up of vertices, edges and polygons. Basically the vertices are the corners, the edges are the lines that connect the vertices, and the polygon is the face or the filled in parts.



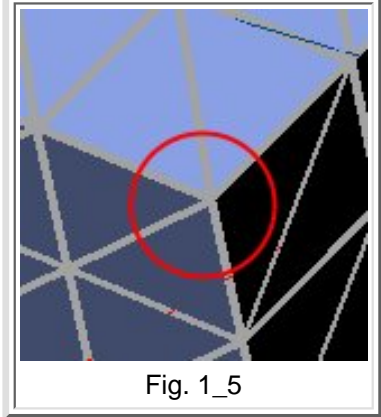
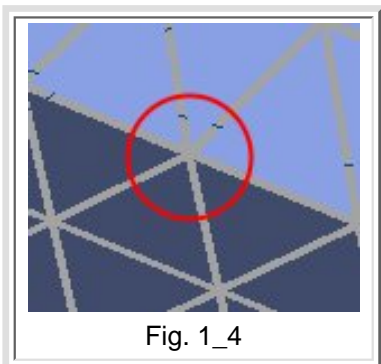
The cube in Fig. 1, has 8 vertices, 12 edges and 6 polygons. This is a very basic primitive, and wouldn't work very well for sculpting with brushes and distortion tools. So Amorphium Pro creates primitives and imports differently, first Pro uses triangle shaped polygons which work very well for sculpting and distortion. ( Fig. 1\_2 )



Pro also uses a large number of polygons to create a primitive. The vertices of these primitives are described as where the corners of the triangular polygons meet.



As you can see many polygons make up the faces, edges and corners of a cube primitive. Six polygons meet at every vertex on the faces of the cube.( Fig. 1\_3 ), Six polygons meet at every vertex on the edges of the cube. ( Fig. 1\_4 ) And five polygons meet at every vertex on the corners of the cube (Fig. 1\_5)



This gives Pro the ability to smoothly change the geometry of the mesh. Instead of having 3, or 4 polygons to manipulate at each vertex, there are 5 or 6 with the triangular shaped polygons.

The normal of a polygon can basically be defined as the side of the polygon which should face the camera or face the outside of the object. When the normal are correct the object will appear proportion and colored correctly. Fig. 1\_6

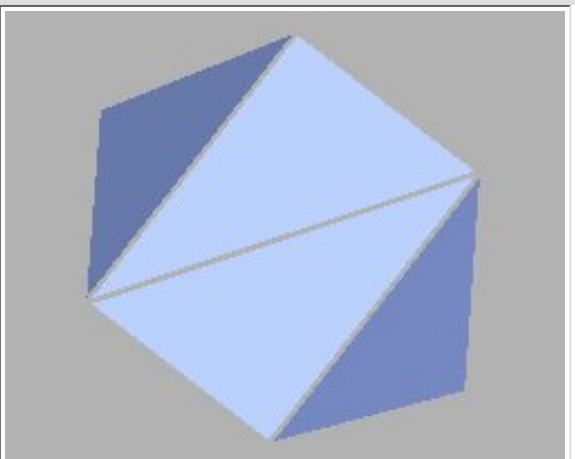


Fig. 1\_6

But when the normal is inverted or backwards you will actually be looking through the polygons and seeing the ones that are on the backside of the object. Making the object look unnatural and maybe even shaded black in some spots. Fig. 1\_7

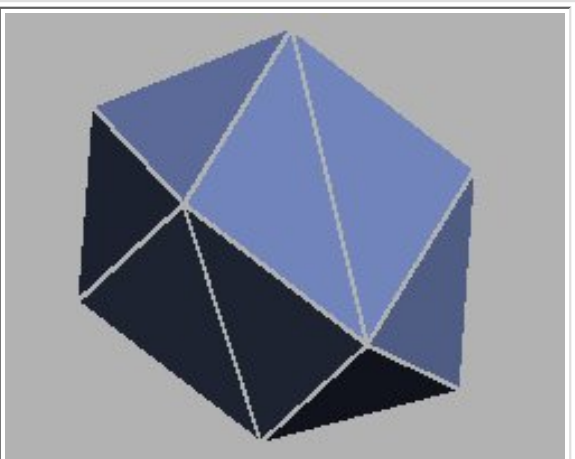


Fig. 1\_7

Fig. 1\_6 and Fig. 1\_7 are the same object.

**Continued**

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