

# *Appendix K*

## *Glossary*

**23 A B C D E F G H I L M N O P Q R S T U V W X Y Z**

**2D**

A 2D object has measurements in only two dimensions. For example, an object that has width and height but no depth.

**3D**

A 3D object has measurements in three dimensions.

**3DMF (3D Metafile)**

The standard QuickDraw 3D file format for 3D models.

**Active Window**

The window in which the user is currently working.

**Ambient Light**

Light with no specific point of origin that shines equally from all directions.

**Attribute**

A characteristic of an object. For example, color, texture, or reflectivity.

**Auto Save**

A feature of the Librarian application that saves the contents of a library automatically whenever the data in the library changes, or at certain time intervals.

**Axial Acceleration Factor**

A value that determines the rate of increase in the distance per turn that the lathe template moves along the lathe axis.

**Axial Speed Factor**

A value that determines the initial distance per turn that the lathe template moves along the lathe axis.

**Axis**

A reference line in space that helps to define the position of geometric objects.

**Axis of Rotation**

A hypothetical line through the center of an object's bounding sphere around which the object is rotated.

**Backface**

The surface of an object which faces away from the camera and which, in a solid object, is hidden from view by the front face.

**Background**

The plane in a 3D World document upon which all background pictures appear to be superimposed.

**Basic Geometry**

The geometry of an object is said to be basic if it cannot be broken down into more simple shapes.

**Bounding Frame/Rectangle/Sphere**

An open structure rectangle or sphere that completely encloses an object or objects.

**Camera Coordinates**

The coordinate system relative to the view angle of the camera.

**Checkbox**

A standard Macintosh control that displays a setting either checked (on) or unchecked (off). Clicking a check box or its text reverses its setting.

**Clipping Plane**

Either of the two planes that are used to cut through the image and remove that part which is either in front of the front clipping plane, or behind the back clipping plane.

**Constrain**

To restrict an object. Object movement and scaling can be restricted to a particular axis.

**Coordinate Systems**

Any system of applying planar or spatial positions to objects.

**Coordinate Values**

A set of numbers used to define the position of an object with reference to a system of axes.

**Crab**

To move sideways perpendicular to the direction the camera is pointing.

**Cross Section**

A plane or surface formed by cutting across a solid object, usually perpendicular to its axis.

**Depth**

The distance away from the viewer.

**Diffused Light**

Light that radiates from all directions.

**Directional Light**

A light source that radiates parallel rays of light in a specific direction.

**Drag And Drop**

A technique for moving or manipulating items. Allows you to click on an item and drag it to a new position.

**Dynamic Updates**

Windows display changes as actions are performed, rather than when the action is complete.

**Editing/Group Window**

A window that displays the contents of a group as single items to facilitate modifying grouped items. Double-click a group to display the editing window.

**Elevation**

A view produced by a camera pointing in a direction perpendicular to the X, Y, or Z axes, as determined by the World Coordinate System.

**Ellipse**

A shape like a flattened circle or sphere.

**Extrude**

To stretch a shape in one direction.

**Foreground**

The plane in a 3D World document which all objects appear to be behind.

**Front Face**

The side of an object directed towards the camera.

**Geometry**

A shape.

**Global Lights**

A checkbox in the 3D World Preferences dialog that allows the user to specify whether adjusting controls in the Lights palette affects the entire document or just the view in the current window.

**Grid**

A network of lines displayed in a 3D World document as a frame of reference for positioning objects.

**Group**

A set of collected objects which can be moved or manipulated as a single item.

**Handle**

A square or cube displayed at the points where the lines of a bounding frame intersect. Used to manipulate an object.

**Hardware Renderer**

An accessory for the computer used to accelerate the creation of an image. It may also allow you to use additional features within the application.

**Helix**

A spiral which winds outwards rather than upwards.

**Home View**

A standard 3D World view displayed when a new file is opened.

**Interactive Rendering**

Rendering fast enough to allow users to receive instant feedback from their actions.

**Lathe**

A 3D World tool used to produce an object by turning a template around an axis.

**Lathe Axis**

The user defined axis around which a lathe template is turned to produce a lathed object.

**Lathe Template**

The user defined shape which is turned around the lathe axis to produce a lathed object.

**Librarian**

An application included with 3D World that allows for easy storing and retrieving of data.

**Library**

A file created by the 3D World Librarian application.

**Light Marker**

A type of 3D World object which shows the position of spot/point lights, and the orientation of spot lights.

**Look At Selected**

A view option that allows you to direct a camera to create a view which centers on a selected object.

**Marker (Text/Sound)**

A 2D object which has a fixed position in 3D space, but always displays perpendicular to the camera.

**Marquee**

The rectangle created when you drag diagonally to select an object or group of objects.

**Named View**

A user defined view that is saved under a specific name.

**Object Coordinate System**

The coordinate system as defined by a selected object.

**Origin**

The point the X, Y and Z axes intersect (position 0,0,0).

**Original Geometry**

The shape of an object when it is first drawn.

**Orthographic**

A style of view that displays parallel lines as parallel, as opposed to a perspective view in which parallel lines, if extended, would converge to the vanishing point.

**Pan**

To turn a camera left or right on a fixed axis.

**Perspective**

A type of view that displays parallel lines in such a way that if extended, they would converge at some point. This creates an illusion of distance or depth.

**PICT**

A Macintosh image file format.

**Plane**

A hypothetical 2D construct that may exist at any orientation in space.

**Plug-In**

A programming architecture that allows features or tools to be easily added without changing the original code of an application.

**Polygon**

A planar object bounded by three or more straight sides that meet in pairs in the same number of vertices, and do not intersect other than at these vertices.

**Preferences**

Settings or options specified in the Preferences dialog and saved in the application's Preferences file in the System folder.

**Pyramid**

A solid object with a polygonal base and triangular sides that meet at a common vertex.

**QuickDraw 3D**

A graphics library developed by Apple Computer, Inc. that can be used to create, render and interact with models of 3D objects. Also allows you to read and write 3D data.

**Radial Acceleration Factor**

A value that determines the rate of increase in the distance per turn that a lathe template moves away from or towards the lathe axis as an object is lathed.

**Radial Speed Factor**

A value that determines the initial distance per turn that a lathe template moves away from or towards the lathe axis as an object is lathed.

**Radius**

Any straight line from the center to the periphery of a circle or sphere.

**Reflective Color**

The color displayed on a surface that reflects sun or spot/point lights.

**Reflectivity**

The degree to which a surface is able to reflect light.

**Render**

To create a 2D image on the screen of a 3D model.

**Scrapbook**

An application provided by Apple Computer, Inc. that allows users to display, cut, copy and paste data.



**Select**

To choose an object or objects that will be affected by the next action, or to choose a location where the next action will take place. To select an object in 3D World, click on it or drag out a rectangle with the Marquee tool.

**Shading**

The graded areas of color applied to an object to give the illusion of depth and lighting.

**Shadow**

The projection of an object on the document grid, used to facilitate the positioning of objects. Shadows are not affected by light sources.

**Sharpness**

The hardness of the edge of a beam of light.

**Shininess**

The degree of directional light an object is able to reflect.

**Snapping Grid**

An invisible grid in a 3D World document on which all parts defining the object and its position must lie. All dimensions will be a multiple of the set grid distance.

**Solid Fill**

Objects are drawn with surfaces rather than as wire frame shapes.

**Sound Icon**

An icon depicting a speaker that represents a sound file or sound data.

**Spiral**

A twisted or winding shape; a helix.

**Spread**

The range of a hypothetical cone directing a beam of light.

**Sun Light**

Directional light from overhead.

**Surface**

The exterior face of an object.

**Texture**

A PICT image applied to a surface to give the impression that it is a solid object of a different material.

**Tilt**

To rotate an object away from its vertical axis.

**Transparency**

The degree to which an object will allow other objects to be seen through it.

**Twist**

To rotate an object around its Y axis.

**Ungroup**

To remove a command that defines a set of collected objects as a single item.

**Unlock**

To remove a command which fixes an object so that it cannot be moved or modified.

**Vanishing Point**

The point to which parallel lines appear to converge in a perspective view.

**Vertex**

A point at which two or more lines intersect.

**View Definition**

The camera position, height and angle that determines how a view is displayed in a window.

**Wire Frame**

An object is displayed only with lines, not surfaces.

**World Coordinate System**

The coordinate system defined in the 3D World application and displayed by the grid.

**X Axis**

A reference axis which is depicted as a red line along which the  $X$  coordinate is measured.

**Y Axis**

A reference axis which is depicted as a green line along which the  $Y$  coordinate is measured.

**Z Axis**

A reference axis which is depicted as a blue line along which the  $Z$  coordinate is measured.

**Z Dimension**

A measurement along the  $Z$  axis.

**Zoom**

To increase or decrease the apparent magnification of an image.