3D Studio Max Lesson 1.2: Tool Tabs Overview

Objects Tab

Objects Tab

The second part of our first lesson in 3D Studio Max's tools will cover the bank of tabbed tool sets below the main toolbar. These tool sets allow quick and easy access to a large majority of 3D Studio Max's various objects and tools used to create, modify, and animate, and can be used as a shortcut to commonly-used buttons/tools found elsewhere.

The first tab is the Objects tab. It contains buttons that let you draw/create many of the often-used basic shapes among the large repetoire of pre-set shapes that 3D Studio Max contains, without having to find them in their usual sets and subsets in the regular areas. From left to right: **Box, Sphere, Cylinder, Torus, Teapot** (no, this is not a joke, it's really a teapot)**, Cone, GeoSphere, Tube, Pyramid, Plane, Hedra, Chamfer Box, Oil Tank, Chamfer Cylinder, Spindle, Gengon, RingWave, Torus Knot, Capsule, L-Extrusion, C-Extrusion, Prism, Point Surface Object (NURBS), CV Surface Object (NURBS), Quad Patch, Tri Patch, Bones IK Chain, Damper Dynamics,** and **Spring Dynamics**.

These are many of the base objects that can be drawn into your scene and then animated and modified.

Shapes Tab

Shapes Tab

The Shapes tab deals with two-dimensional shapes, also called "splines", that are created or modified through connecting points to create outlines and planes. You can also create text, and extrude shapes or letters to move from two into three dimensions.

- **Line:** Draws a simple line between two points.
- **Circle:** Draws a point-delineated circle.
- **Arc:** Draws a point-delineated arc.
- **NGon:** Draws a polygon with "N" number of points and sides, set by the user.
- **Text:** Lets you enter text as spline shapes, customizing the font and size based on your system fonts.

- **Section:** Generates spline/point shapes based on a cross-section of another, three-dimensional object.
- **Rectangle:** Draws a point-delineated rectangle.
- **Donut:** Draws two concentric circles in a "donut" shape.
- **Star:** Similar to the Ngon, but drawn as a star of multiple points instead of a polygon.
- **Helix:** Creates a spiral/spring/helix.
- **NURBS Point Curve:** Creates a curve as a NURBS object, with curves modifiable by adjusting the vertices.
- **NURBS CV Curve:** Another variation of the above.

Compounds Tab

Compunds Tab

The compound tab takes two or more objects and merges them into a single compound object; the individual buttons control the different types of merges applied and how they affect the behavior of the compound. The buttons are only active when there are shapes that can be compounded in the scene; otherwise, they are "greyed out", as seen above.

- **Morph:** Can be used to morph one object into another over time.
- **Conform:** Conforms one shape to the contours of another, as if "wrapping" it around its surface.
- **Shape Merge:** Merges a mesh (3d) object with a shape (2d) object into a single compound shape.
- **Terrain:** Generates elevated terrain from splines arranged to mimic contour maps.
- **Connect:** Connects two or more objects seamlessly by joining them at vertices bordering open areas without plane fills.
- **Boolean:** Connects two objects by performing Boolean operations on them in various ways; more will be explained on this at a later time.
- **Loft:** Extrudes a two-dimensional shape to make it three-dimensional.

Lights & Cameras Tab

Lights & Cameras Tab

This tab gives you access to the tools to create various light or camera objects in your scene, and modify them.

- **Target Spotlight:** Casts a focused beam of light on the scene, directed by a "target". When you move or rotate it, it always turns to stay focused on its target.
- **Free Spotlight:** Focused beam of light; moving or rotating it moves the light in any direction with no anchor.
- **Omni Light:** True to its name, an "omnidirectional" light that throws light in all directions. Think of a light bulb without a shade.
- **Directional Light:** Casts parallel rays in a single direction.
- **Target Directional Light:** A directional light that pivots/focuses around a target, like the target spotlight.
- **Sunlight System:** Simulates the lighting and movement of a sun whose position adjusts by the orbit of your environment.
- **Light Include/Exclude:** Opens a dialog that lets you view the objects in your scene and select which lights do or do not affect them.
- **Light Lister:** Opens a dialog listing each light in the scene with various settings for each.
- **Target Camera:** A virtual camera that captures an area of the scene for rendering; can be moved or rotated. The target camera's view is focused by a target object. Moving or rotating the target camera will cause it to always tilt so that its focus remains on the target.
- **Free Camera:** Like the target camera, but when the free camera is tilted or rotated, its focus/view shifts with the motions, as it is not attached to a target.

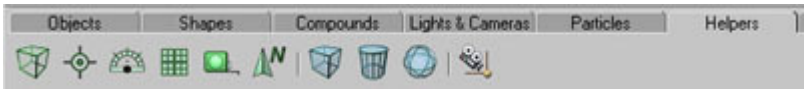
Particles Tab

Particles Tab

On the Particles tab, you can find tools to create particle systems and forces to control them. Particle systems can create things like clouds of blowing leaves, tornados of dust, and galaxies of stars; they can be anything from a snowflake to a buzzing insect. Particle systems are used to control anything that is in a swarm or cloud or cluster with movements too variated and numbers too great to control individually.

The particles tab is broken into three areas.
Particle Systems: Actually creates the particle systems. **Spray, SuperSpray, PArray, Snow, Blizzard, PCloud**
Forces: Direct forces acting like natural environmental forces on the particles in the systems. **Gravity, Wind, Motor, PBomb, Push**
Forces 2: Slightly more indirect "universal" forces that deflect particles away from objects/areas based on the laws of the deflector's behavior/gravitation. **Deflector, POmniFlect, SDeflector, SOmniFlect, UDeflector, UOmniFlect, Path_Follow**

Helpers Tab

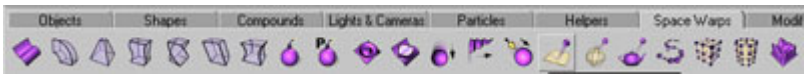


Helpers Tab

From the Helpers tab, you can create Helper objects: invisible objects used to assist in animating.

- **Dummy:** A cube whose only purpose is to act as an additional pivot point.
- **Point:** Anchors a point in 3D space, to mark a position. It is invisible, but some effects can be "attached" to it, or directed to appear in the area that the point marks.
- **Protractor:** Like a real protractor, it measures the angles between two objects in the scene.
- **Grid:** A grid visible only in the user space, for assistance in positioning/placing as a visual reference.
- **Tape Measure:** Provides a virtual tape measure to measure on-screen distances and lengths.
- **Compass:** Part of a sunlight system, aligning with the virtual world's N, S, E, and W and giving directional indicators.
- **Box Gizmo:** Gizmos give shapes to attach atmospheric effects (volume fog, etc.) to, and can be like invisible volumetric containers for the effects: think of pouring fog into a glass cube, and being able to adjust the density of the cube to allow the fog to seep out at varying rates.
- **Cylinder Gizmo:** Cylinder-shaped gizmo.
- **Sphere Gizmo:** Sphere-shaped gizmo.
- **Camera Point:** This is used if you've applied a photo background to your scene; you can set a camera point to attach your camera to so that it mimics the position of the real-life camera that took the original photo.

Space Warps Tab



Space Warps Tab

The space warps found on the Space Warps tab let you warp and mold objects in various ways, either by twisting them physically according to set parameters or applying forces that affect their geometric composition through mathematical calculation of how the forces would deform the objects were they real.

The space warps on the Space Warps tab are: **Wave, Bend. Taper, Noise, Twist, Skew, Stretch, Bomb, PBomb, Ripple, Displace, Conform, Gravity, Wind, Motor, Push, Deflector, SDeflector, UDeflector, Path Follow, FFD(Box),** and **FFD(Cyl)**.

You'll notice that some of these are duplicates of buttons found on the Particles tab, because these forces can be used to affect particles or applied to other shapes.

Modifiers Tab

Modifiers Tab

The Modifiers tab contains many of the commonly-used modifiers that are used to--you guessed it--modify an object. These can range from space warps such as the previous lesson to modifiers that smooth the surface of a polygon, or round its corners, or cause their materials to be mapped on in a different way--or many others.

The modifiers on the Modifiers tab are: **Bend, Taper, Skew, Twist, Stretch, Noise, Wave, Melt, Spherify, Ripple, FFD Box, FFD Cylinder, XForm, Flex, Morpher, Skin, Displace, Optimize, Smooth, Cap Holes, Linked XForm, Push, Vertex Paint, MeshSmooth, Volume Select, Mesh Select, Edit Mesh, Edit Patch, Edit Spline, Spline Select, UVW Map, Unwrap UVW,** and **Material ID**.

When there are no objects in a scene to be modified, the buttons are greyed out, as above.

Modeling Tab

Modeling Tab

The Modeling tab is actually a bit of an abridged summary of several other tabs and toolsets: combining a selection of the most commonly-used sets of each tool type and the objects they're used on into a single tab, so that all of the most oft-needed tools are at your fingertips.

The tools on the Modeling tab are: **Line Shape, Circle Shape, Rectangle Shape, Edit Spline Modifier, Loft Compound Object, Extrude Modifier, Lathe Modifier, Bevel Modifier, Bevel Profile Modifier, CrossSection Modifier, Surface Modifier, Quad Patch Object, Edit Patch Modifier, Relax Modifier, Box Object, Cylinder Object, Sphere Object, Plane Object, Edit Mesh Modifier, Mesh Select Modifier, Volume Select Modifier, Face Extrude Modifier, Affect Region Modifier, Push Modifier, MeshSmooth Modifier, FFD Box Modifier, NURBS Point Curve, NURBS CV Curve, Point Surface (NURBS), CV Surface (NURBS),** and the **Isolate Tool**.

Rendering Tab

Rendering Tab

On the Rendering Tab, you'll find all of the render tools we discussed on the top menu, plus buttons to open dialogs to further rendering settings or tools.

The tools on the Rendering tab are: **Environments, Effects, Preview, RAM Player, Material/Map Browser, Material Editor, Render Scene, Quick Render, Render Last,** and **ActiveShade Floater** .

That's all for now. In the next lesson, we'll cover the Create, Modify, Hierarchy, Motion, Display, and Utilities tool sets in the right-hand panels in 3D Studio Max, and start to use them to create objects. Until then, experiment with the tools explained in this lesson, and get more familiar with how they work and the effects of the differences between them.