

INTRO BLENDER MESH MODELING – OBJECTS

By Mr. D at Delta 3D

Start a new scene

In the **3D View Window Type > Objects hot spot** open the list and take a look. A few items for you to take note of for basic **Mesh Modeling** are.

- 1) **Transform Properties ‘n’** – brings up the Transform Properties pop up box, and through which you can do input of specific numeric values for such items as Loc(ation), Rot(ation), Scale and Dim(ensions).



- 2) **Transform –**

‘g’ ‘s’ ‘r’ grab/move, scale and rotate.

Differences between using 3D View Header Icons and keyboard. When you select an Icon you get a gadget Axis transform, then by placing your cursor over an axis line you influence your action on that axis, or by using the white circle surrounding the object more than one axis. When using keyboard shortcuts. ‘g’ freedom two axis of the window top view XY, side view ZY, front view ZX, and if you are in a user view the view window considers itself to be a flat view giving you control along ZX, but in reality you are moving in all three XYZ.

‘s’ is a uniform 3 axis scale XYZ all at once.

‘r’ rotates on an imaginary axis that is running in and out from that view, so if you are in front view you rotate on the Y axis, side the X axis. However if in user view since more than one axis is in the view rotation occurs as if on a single axis running in and out, meaning rotation will happen on more than one axis to the object.

Grab/Move-Scale-Rotate on Axis – allows you to specify a XYZ global or local axis to lock to when performing these transformations.

To Sphere-Shear-Warp and Push/Pull – Though they show in the **Object List** are actually sub-component actions (Vertices, Edges, Faces), and in **‘Edit Mode’** they will show in their Lists.

IMPORTANT NOTE!!!

In Blender a number of action items on **‘Lists’** will appear for Objects and sub-components, and may not seem to function. However they do function but the right components must be picked, and if components picked from other components actions can be carried out on them.

Example in Blender: if in **‘Edit Mode – Vertices’** if I pick two vertices which share an edge between them I can carry out an **‘Action’** on the **Edge** even though in **Vertices**. And if I selected 4 **Vertices** that formed a quad, I could do a **Face action**.

At first it may seem confusing or frustrating as you’ll try to carry out **Actions** on the various Lists that seem to do nothing. But after working in Blender for a while you pick up on what Actions need which components, and at times will find it easier as you do not have to leave one sub-component mode just to carry out an **Action** for another.

Center New- Center Cursor – Center New places the transform axis at the selected Objects axis location. Center Cursor places it at the location of the 3D/Marking Cursor.

Say for a moment you are making an animation of the moon circling the planet Earth. So with the Cursor set to Center New you set a rotation on the Moon, but you also want the moon to orbit the Earth. So you then place you 3D Cursor at the location of your Earth's axis and use Center Cursor, and now your Moon rotates around the Earth.

- 3) **Mirror** – to mirror along a local XYZ axis 'Ctrl w' then selection 1, 2, or 3.
- 4) **Clear/Apply** – to help see affect bring up your *Transform Properties* or 'n'
Apply Scale/Rotation –
 - a) **Scale**; scale your object and look to your Properties pop up and you should see the scale values have changed. Now do *Object> Clear Apply> Apply Scale/Rotation* and your scale values should now all be 1. It is as if your object was created at this size.
 - b) **Rotate**; now rotate your object on a couple of axis (or input using the Transform Properties popup) and again do an *Object> Clear Apply> Apply Scale/Rotation*. Take note of how all values go to zero, as if this was the rotation angle your cube was created at.

Certain Game Engines will require you to reset your *Scale and Rotation* to work properly in the **Engine**. Also sometimes it is best when joining two Objects with wildly different axis alignments together to reset their **Scale and Rotation** before joining.

-----**!!! Note to 3dsMax and Maya users!!!**-----

This is basically a **RESET TRANSFORM** action.

Apply Deformation 'Ctrl Shift a' - Permanently burns any Modifiers into the *Mesh*, the *Modifiers* can be found in *Buttons Window Type> Editing Panel> Modifiers Area*, and are such things as Subsurface, Lattice and Decimate among others. Once applied you can longer go back and change the *Modifier's* settings. **Much like Collapsing the Stack or History.**

Make Duplicates Real – makes Duplicates Real

Clear Rotation - Location – Scale 'Alt r-g-s' - removes all rotation-location-scale transforms made to and object. Bring up your *Transform Properties* or 'n', then try a type of *Transform* then try *Clearing* it. All your changes should be set back to default values from when you created the Object.

But remember if you had transformed your Object then Applied the Scale or Rotation that is now considered the default value.

- 5) **Snap 'Shift s'** then select from list 1-5: snaps a **Selection to the Grid or Cursor**, or snaps the **Cursor to the Grid or Selection**. **Cursor** here is the 3D/Marking cursor.
- 6) **Insert Keyframe 'i'** – inserts key for selected, current frame. Types of data to be placed in key listed right.

Insert Key	Layer
Loc	Avail
Rot	VisualLoc
Scale	VisualRot
LocRot	VisualLocRot
LocRotScale	
	Mesh

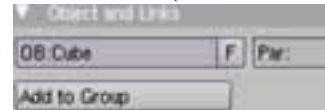
- 7) **Duplicate 'Shift d'** – Duplicates selected Object/Mesh.
 In conjunction with **Duplicate** within the *User Preferences Window > Edit Methods* you can set what properties are duplicated along with an Object.



- 8) **Duplicate Linked 'Alt d'** – Duplicates selected object along with those Linked to it, again with selections in User Prefs.

- 9) **Delete 'x'**- Delete selected Object.

- 10) **Parent Make/Clear 'Ctrl p/ Alt p'**– Make or Clear Object as Parent (used in Animation).



- 11) **Group 'Ctrl g' 1=Add Existing 2=Add New 3=Remove from All**, also can be done in *Buttons Type > Object > Object and Links*. If no Existing Groups only Add to Group Icon shows, if Existing Groups a list shows below with 'X' to delete Group.

- 12) **Constraints Add/Clear 'Ctrl Alt c'** – type of Constraints found at *Buttons Type > Object > Constraints* and can also be added there or 'X' deleted.

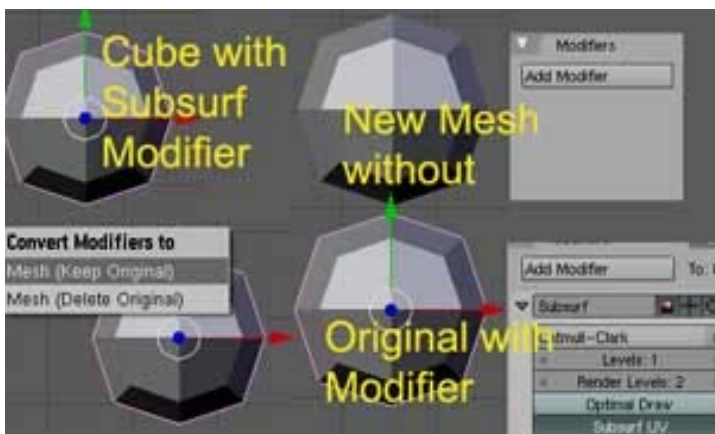


- 13) **Boolean Operations 'w'** – see Booleans paper

- 14) **Join Objects 'Ctrl j'** – select Objects and press '*Ctrl j*' and they are now considered one object. This differs from Grouping where objects can be treated as one *Group*, but they can still be accessed as *Individual Objects*.

- 15) **Convert Object Type 'Alt c'** – If your selected object is a *Mesh with a Modifier* applied this allows you to convert it a Mesh with the Modifiers permanently applied.

Choices are to Keep p the Original Mesh or Delete it.



If your object is a **Curve** or **Nurb Surface** this *Action* converts it to a Mesh Object.