BUILDING A FIGURE WITH FACE EXTRUSION MODELING

**Face extrusion modeling**

This is the most basic way to model a figure or an object in a 3D modeling program. Many objects (vehicles, animals, furniture) are symmetrical about one or more axes. To speed up modeling in these cases we can model one half and mirror it. Let’s begin with a cube: Shift-A and select Mesh-Cube:

Go into Edit mode then use Control-R to divide the cube in half along the Y-Z plane. Hit Enter as soon as you left click to change the purple line to orange otherwise any mouse movement will change the location of the line. To recenter it just hit 0 on the number keys and then Enter. The new edgeloop needs to be right in the center.
Use A to deselect all vertices, then C to bring up the Circle select tool. Move it over all the vertices on the left, right click to stop selection, and then hit the Delete key (or X). From the list choose Delete Vertices. You now have half a cube. Use Z to make it shaded and move the viewpoint to see inside.

Go to the Properties window and click on the Modifiers tab (the one with the wrench icon). Click on Add Modifier and choose Mirror in the second column. Now the cube looks complete, but only half is editable. The half without the black vertices mirrors the other.

Use Control-Tab to bring up the Mesh Select mode and choose Face, or click the Face Select button at the foot of the 3D window:
Now each face on the editable half of the cube has a black dot in its center. Right click on one to select it and hit E to extrude.

The face will be extruded along its normal, and the action will be mirrored on the other side of the Y-Z plane. Use Control-R to add another edge loop. Move it up a little before clicking a second time.

Using Control-R will have put you back into Edge mode. Return to Face mode and extrude a few more faces.
Now we’re going to use another modifier, this time Subdivision Surface in the Generate column.

Increase the number of View subdivisions to 2.
You’ll see an odd artefact in the character’s head; it looks like it has a seam down the middle. This is quite common when extrusion modeling, and is caused by an extra face on the mirror plane. You can see the face more clearly in Wireframe mode: it is the one below and to the left of the selected face.

In Face select mode, click on it and hit Delete or X; choose Delete Face, then return to Shaded mode with Z. This will have solved the problem.

Continue to model, but this time you will see the changes in the low detail extruded figure shown as changes in the higher resolution subdivision surface. To see it the subdivision surface smooth (Gouraud) shaded return to Object mode briefly with Tab and hit the Smooth button in the left fly-in

then return to Edit mode. Refine your model with more edgeloops, extrusion, scaling, rotation, and movement of the faces.
Continue to refine the figure by adding, moving, scaling, and rotating edgeloops until you have something like the figure below.

There is a video guide to this procedure at http://youtu.be/KtHD3NRFVs4.

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