First Steps: workspace and references

Before we get started modeling, the first thing we want to do is make our workspace more efficient. The way I like to do this is to simply split my view down the center, putting the resulting left viewport in front view (numpad 1) and the right viewport in side view (numpad 3). If you’re not familiar with how to split your view, please reference this short video tutorial: http://www.cgcookie.com/articles/2008/12/16/blender-tip-splitting-the-workspace. This allows us to work from both sides of the model at the same time without having to switch our view constantly. It also gives us more views of the model to help with accuracy and proportion.

Now that we have our workspace setup, let’s go ahead and bring in our background image for reference. Today we are going to use a simple, rough drawing of mine that has a front and side view. Anytime you are working from references (which should be almost always!) try to get as many angles as possible. This is particularly important when we work from photo references. Here is the drawing:
To place the reference into the background of your workspace:

1. Go to View > Background Image
2. Click Use and Load to navigate to your image.

Do this with both viewports. The next step is to adjust the X and Y positions to line up your image, it’s best to align the center of the head from both views with the Central Axis point (where each of the three axis’ meet.)

Modeling: mirroring and structure

With our workspace and references set up it’s time to start modeling. The first thing we want to do is add a mirror modifier to the default cube so that we only have to work on one side of the model; anything we do will be mirrored across the central axis. But, before we do that, we need to add a central loop of vertices to our cube, along with deleting one half. This way we don’t mirror our cube on top of itself. You can do this by:

1. Going into Edit Mode with Tab
2. Hit Control + R to activate the Loop Cut tool.
3. Cut a new loop, vertically, along the cube by clicking the MMB when you see the purple line with your mouse hovered over the cube.
4. From the Front View, make sure everything is deselected with A and then select the left-most vertices and hit X > Delete Vertices
The last thing we need to do before we start modeling is adding a mirror modifier for symmetry:

1. Go to the Edit Buttons (F9) and click Add Modifier > Mirror
2. Click Do Clipping

We are now ready to really get down to business!

**Modeling: edgeloop structure**

The single most important thing to remember while modeling a character head is the structure of your mesh. This is referred to as “topology.” Edgeloops, or continuous lines or circles of edges, are the primary concern with topology. Proper edgeloops allow your model to deform well during animation; they also make tweaking and detailing your model much easier!

To get started:

1. Select the back side of the cube
2. X > Delete Vertices

We do this because we want to work from a single face. What we are going to be doing is laying out a series of edgeloops to map out the structure we want for the mesh. Let’s start at the chin by moving our remaining face with G to line up with the reference from both views.

*Due to the variations in our drawing it is going to be necessary to compensate between the views from time to time.*
What we are now going to do is use the Extrude tool to lay out our loops. To do this:

1. Select the two outside vertices with Shift + RMB
2. Hit E > Only Edges to extrude.

Extruding will automatically place you into grab mode, which allows you to place the newly created edge where you want it. In this case, along the jaw bone. You can use Rotate, Scale and Grab to help you position the edges. When you’re done you should have something like this:

We can continue using this same technique to get the following for the top of the head:

As you can see, we are starting to define the structure of the mesh and the shape of the head, much as a traditional artist would use reference lines to sketch out a head.

Before we go too much further, we need to go ahead and map out the eye, as it is one of the most important areas of the head, and it’s topology is essential the rest of the mesh. To do this we are going to add a circle from the Front View:

1. From the Front View, left click in the center of the eye to position the 3D Cursor
2. Hit Spacebar > Add > Mesh > Circle
3. Use 8 Vertices and a Radius of 0.500
Next you want to use your translate tools (grab, rotate, scale) to position each of the vertices to fit the shape of the eye socket:

Now with everything selected (A):

1. Hit E > Only Edges
2. Then immediately hit $ to scale in.

Use this same technique for around the nose and the mouth:
That’s it for the structure, this will then allow us to connect all the areas and not have to worry so much about getting the topology right as we have just laid out the major areas.

**Modeling: filling in the gaps**

With the topology laid out, it’s now just a matter of filling in the gaps (essentially). This means our job has just gotten a lot easier. Using just the Extrude tool, Translate tools, Fill tool, and the Loopcut tool we can very quickly complete rest of the head.

Let’s start with the nose:

1. Select the inside edge of the eye socket
2. Hit E > Only Edges
3. Move into position at the bridge of the nose.
4. Select the bottom edge of the bridge and the top edge along the nose loop
5. Hit F to fill in the face.
Continue this process for the rest of the bridge of the nose and the start of the cheek bones. You can also extrude in the eyelids by:

1. Alt + RMB on the inside loop of the eye socket
2. E > Only Edges
3. S to scale in, LMB to place the loop.

You can add depth to the eyelid by just extruding the new loop in along the Y-axis.

Before we go too much further, let’s go ahead and add a sphere for the eyeball so that we have something to work around. You can do this by:

1. Spacebar > Add > Mesh > UVSphere
2. 12 segments, 12 rings
3. Scale the sphere down to size and position it with S, G

With the eye placed you can easily adjust the eyelid to fit by pushing and pulling vertices around until they lie just on the surface. Let’s move on to the mouth.

Modeling the lips is just a matter of selecting our original loop and just extruding it in, then moving the vertices around one at a time until you have a good shape to the lips:

Moving on to the nose, we can model the nostrils by extruding the bottom edge of the bridge down to connect with the faces below the nose. Then just extruding a edge out along the nostril line and connect it to the side:
Modeling the inside of the nose is as simple as extruding in the newly created loop (hole) and shaping the vertices to fit:

Using these same techniques and tools we can easily fill in the rest of the face quite quickly:

And again for the forehead:
And the back of the head:

The back of the neck is just a matter of extruding down the vertices along the back of the head:

To move on to the front of the neck you can extrude the inside edge from the back of the neck in and down along the muscle. Then it's just a matter of extruding in towards the central axis and shaping the vertices to fit:

You can connect it to the jaw bone like this:
Now, we just have one more thing to do before we move on to ear, and that is to just add in another edgeloop or two for the eyelid and eyebrow. This will allow us to give it that little bit more definition that it’s currently missing. Do this by using the Loopcut tool with Control + R followed by pushing and pulling to shape the loops:

[Continue Reading Character Head Modeling in Blender: Part 2]

If you have read this article you may be interested to view:

- Creating an Underwater Scene in Blender: Part 1
- Creating an Underwater Scene in Blender: Part 2
- Creating an Underwater Scene in Blender: Part 3

Books to Consider