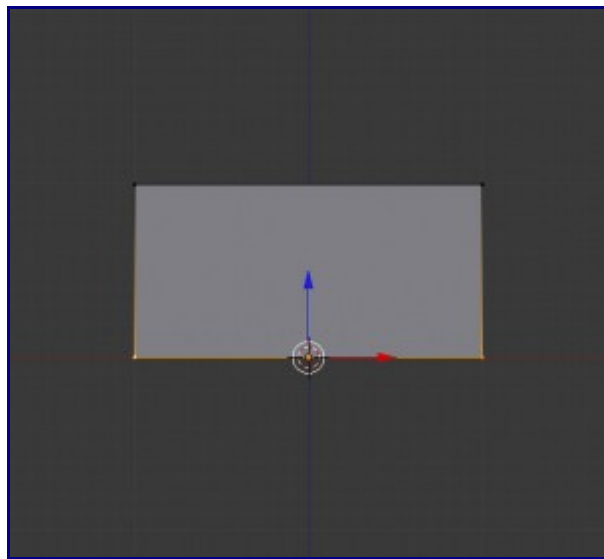


Katana Project – Model Stage

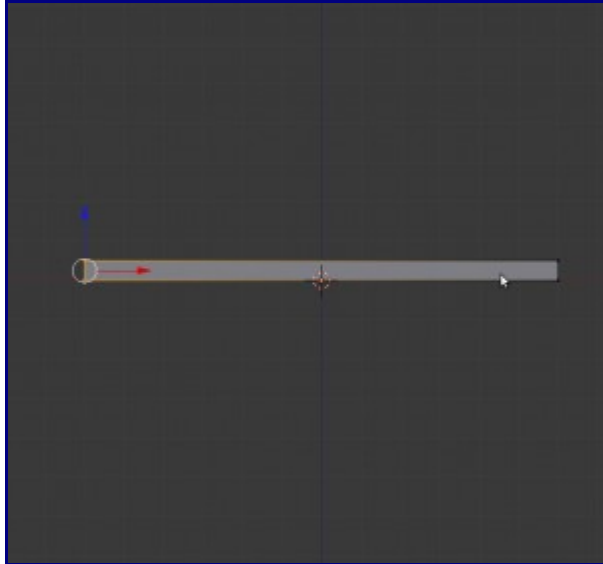
Step 1

1. Switch to an Orthogonal View (Numpad 5) from the Right (Numpad 1). Ortho views are better for modeling because there are no spatial distortions to muck up your manipulations.
2. Enter Edit Mode (Tab). This is the mode from which you can actually manipulate the verts of the object in question. You can't model otherwise!
3. Switch to Vertex Mode (Ctl-Tab). Now we are only affecting vertices. Vertices are the most basic object in a model, with Edges being a pair of adjacent vertices, and a Face being three (or more) connected vertices.
4. Select one of the bottom-most verts.
5. Enter Drag-Select Mode (B). This mode allows you to grab a series of verts (or anything else, for that matter) by dragging a box around the desired objects.
6. Drag to select all the bottom verts.
7. Turn on Snap (the magnet icon on the window bar). Snap allows you to make precise transformations by always moving in even amounts.
8. Drag until the bottom verts are on the x-axis (at 0 in the z-axis, or on the origin). We will only be working on one half of the model and then mirroring the results much latter.



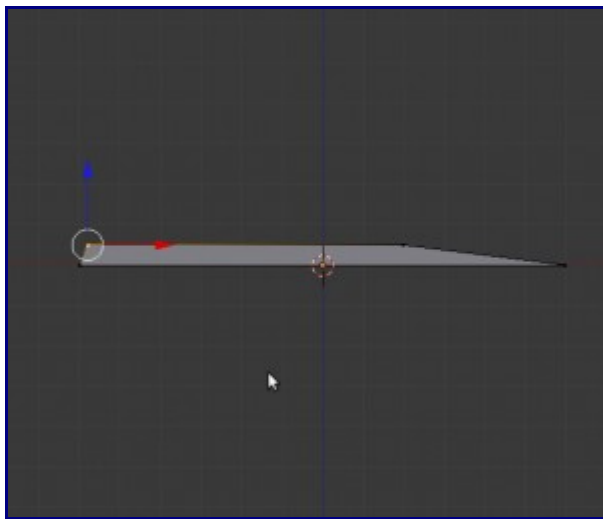
Step 2

1. Repeat the steps to move the top verts closer to the middle forming the basis of the top half of the blade (around 0.5 units high).
2. Bring the left and right sides in around 4 units to form the sides of the blade.



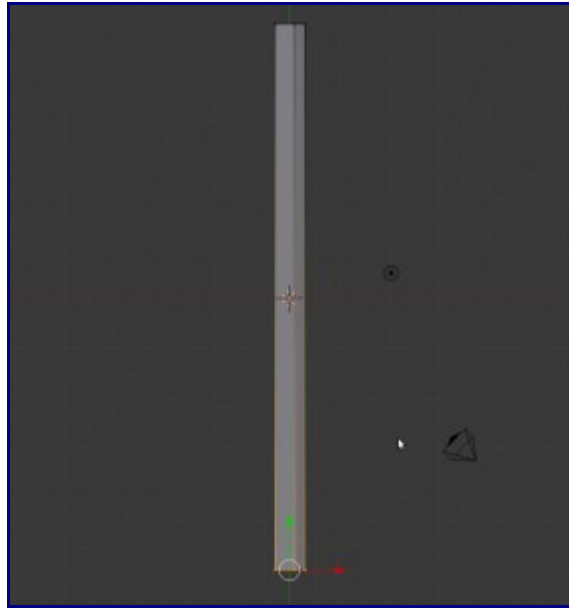
Step 3

1. Bring the two top right verts in 4 units to form the edge.
2. Bring the two top left verts in 0.2 units to form the back edge.



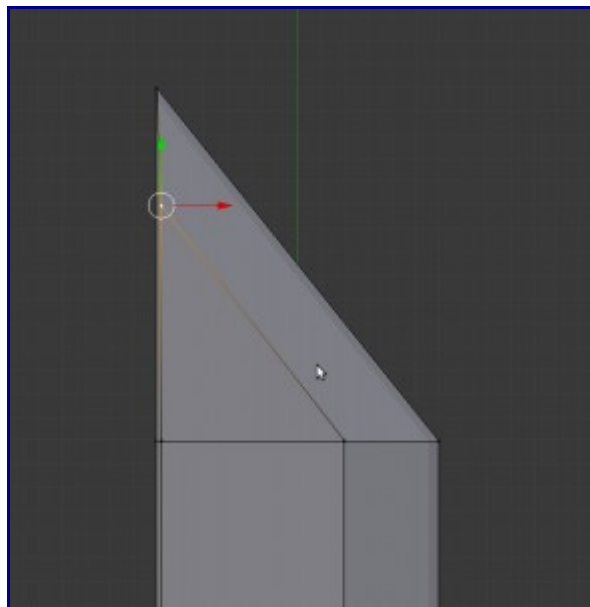
Step 4

1. Switch to the top view (Numpad 7).
2. Using the above techniques pull the front and back verts out to form the length of the blade.



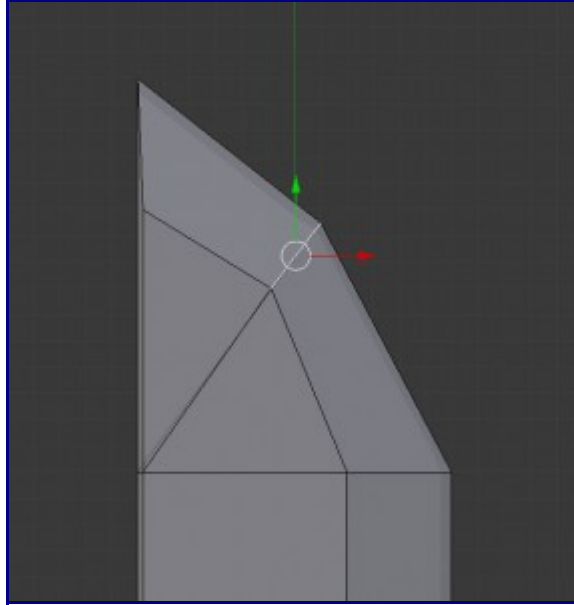
Step 5

1. Zoom in and select all the verts at the front of the blade.
2. Extrude (E) the face about 1.5 units. By extruding we are adding more detail and giving us more geometry to work with. It is very versatile, and is possibly the most powerful tool in modeling.
3. Select the top two verts and Merge Verts (Alt-M) depending on the order you selected either “at first” or “at last.” Merging verts is another powerful tool, and one that you will get a lot of miles out of.
4. Pull it back about 0.5 units.
5. Now merge the bottom two verts as before forming the beginning of the tip of the blade.



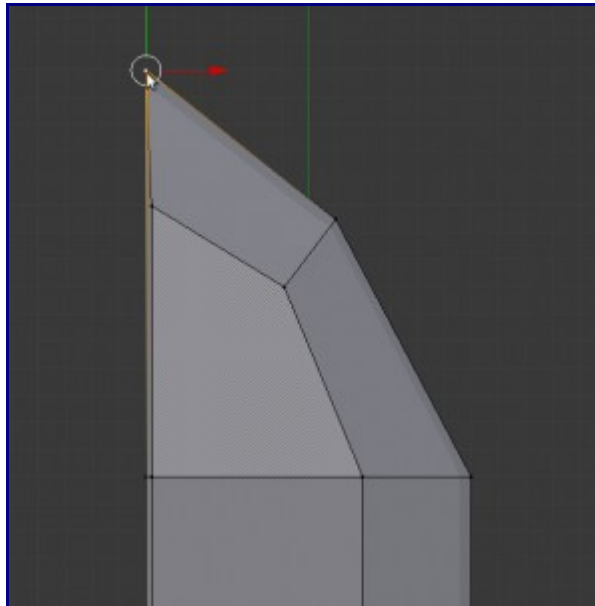
Step 6

1. Toggle to Edges (Ctrl-Tab) and select the two edges that make up the blade portion of the tip.
2. Now we Subdivide (Ctrl-E). Subdivide is pretty much the final piece of the modeling triumvirate of Extrude/Merge/Cut. With these three tools there is literally nothing you can't model.
3. Select the new edge across the blade and pull it right and to the front to round off the tip.



Step 7

1. At this point you can clean up the triangles we made (quads are better at this point) by selecting the faces (Ctrl-Tab to switch to them) and pressing Alt-J to join the tris into quads.

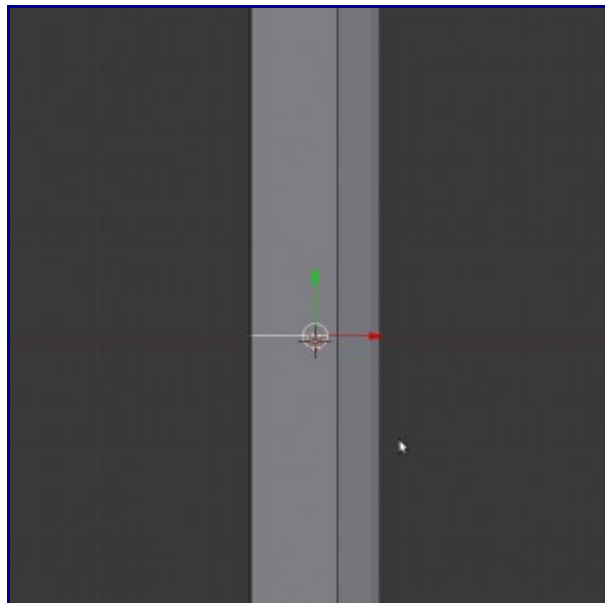


Step 8

1. Now is a good time to save (Shift-Ctrl-S). It is always a good idea to save multiple iterations of a project. Just saving over the same file leaves you without a way to back track if something goes wrong (and when you are first starting, this will happen a lot). I suggest using a numeric scheme and naming this file: Katana01.blend.

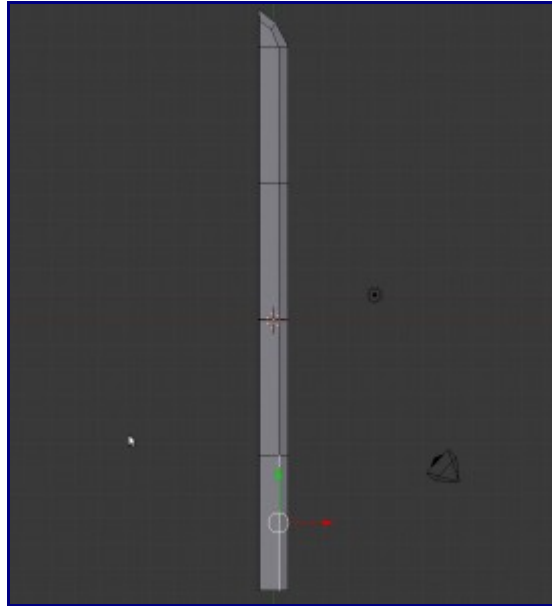
Step 9

1. Switch to Edges.
2. Select one of the edges along the blade.
3. Now select the entire Edge Ring (Ctrl-E). An edge ring is a series of parallel (not connected at a vertex) edges.
4. Subdivide just like before. Subdivide always cuts directly across the center of the geometry in question.



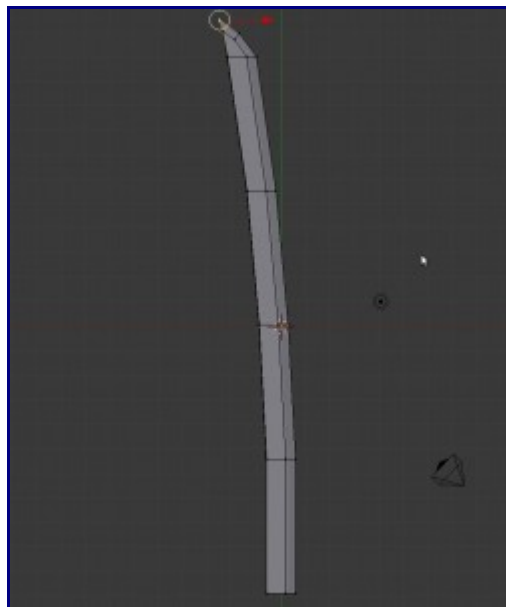
Step 10

1. Repeat the above steps twice more, once on the upper half and once on the lower half.



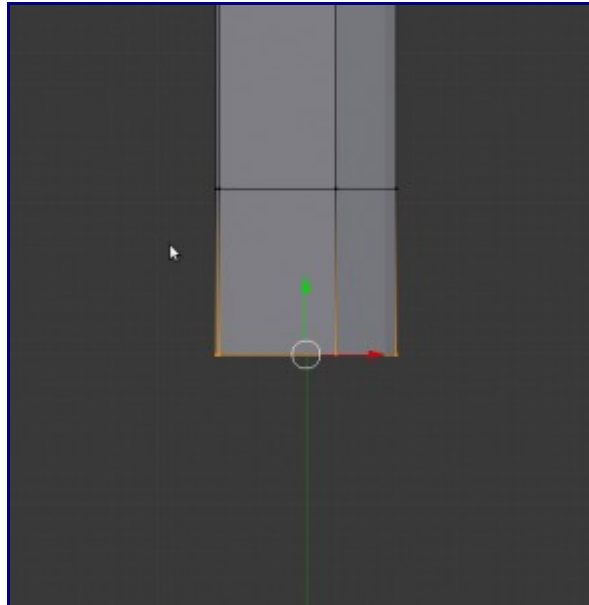
Step 11

1. Switch back to vertices.
2. Selecting all the verts at each joint, pull them leftwards into a gently curving blade shape. Don't forget to adjust the tip.



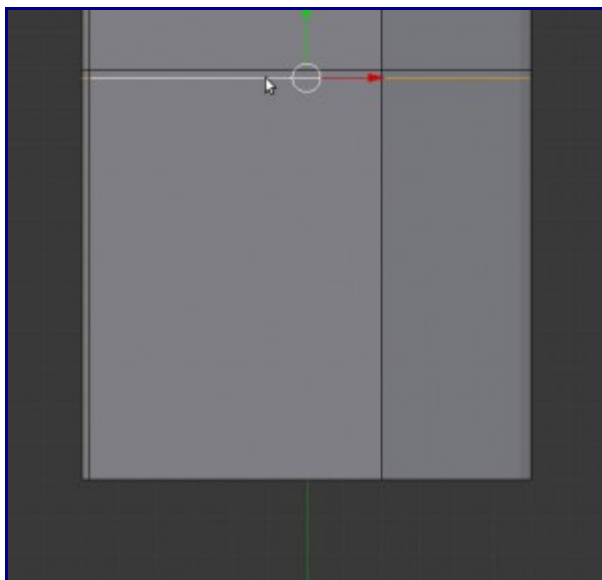
Step 12

1. Select all the verts at the base of the blade.
2. Extrude (E) about 1 unit.



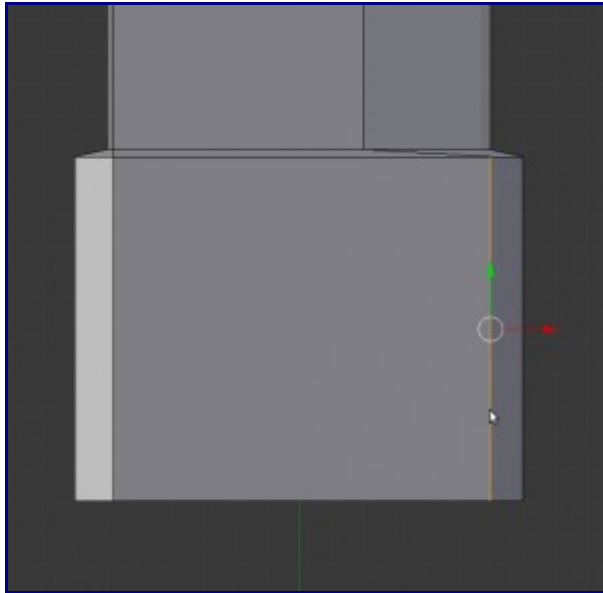
Step 13

1. Switch back to edges.
2. Select an edge along the blade.
3. Select the Edge Ring (Ctrl-E) and Subdivide.
4. Select one of our new edges across.
5. Select the Edge Loop (Ctrl-E).
6. Slide the Edges (Ctrl-E) up close to the upper edge.



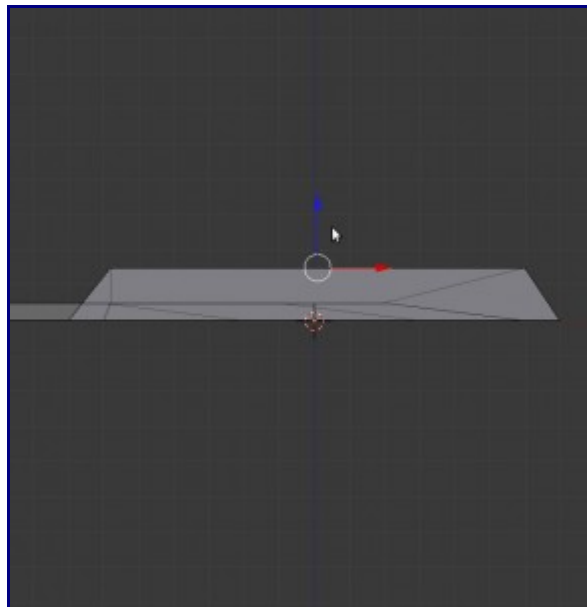
Step 14

1. Adjust the outer edges outwards about 1 unit.
2. Translate the right edge that was previously the blade of the katana right about 3 units.



Step 15

1. Select both of the inner edges.
2. Move to the Front view (Numpad 1).
3. Move the two edges up about 1 unit.

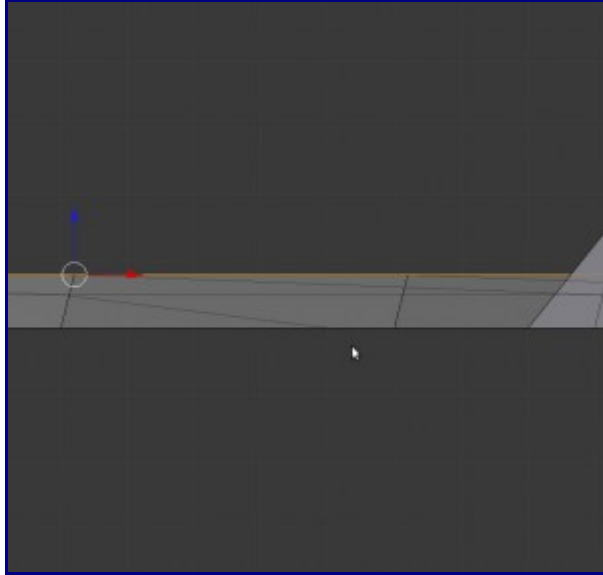


Step 16

1. Save.

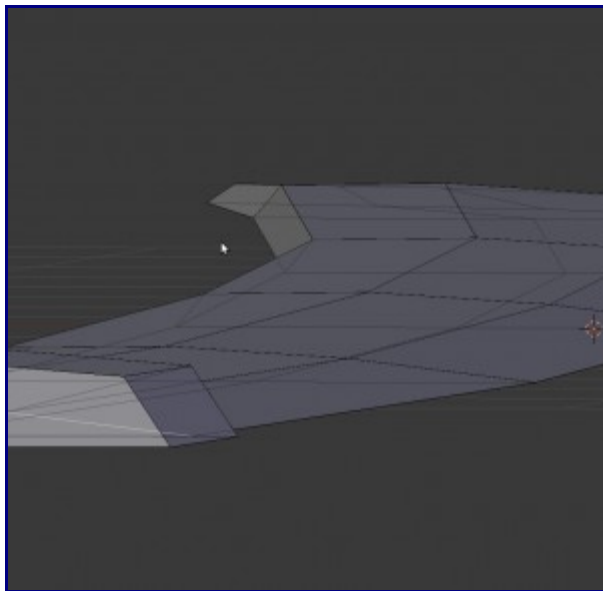
Step 17

1. You may have noticed that the blade is very flat. That was intentional. When modeling it is very important to continually look over the model as a whole. Now we will fix it.
2. First, grab all the verts along the back-top edge of the blade.
3. Now we are going to pull these up about 0.02 units and in about the same.



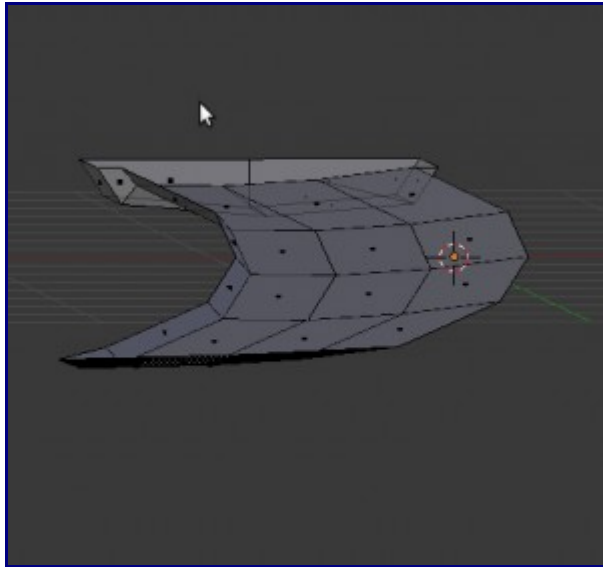
Step 18

1. Now we need to add a little roundness to the blade. Subdivide another edge down the center of the blade.
2. Grab those edges and pull them up to just a little higher than the back edge, creating a slight rounding of the blade.



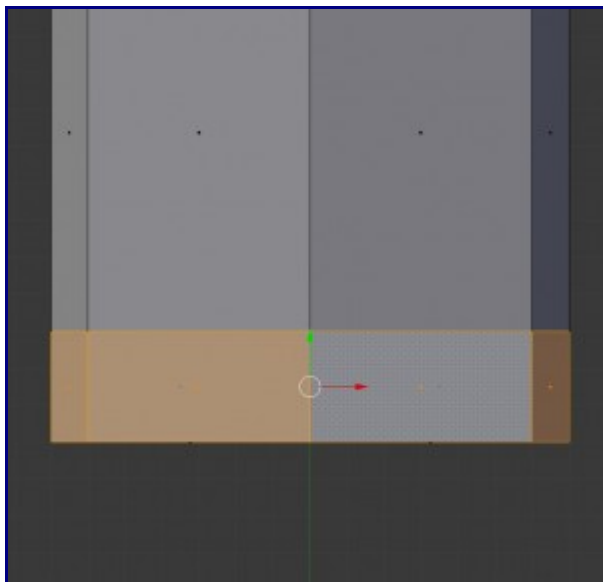
Step 19

1. One last thing you may have noticed is that we have lots of extra faces on the bottom which we have no use for. Lets get rid of those before we move on.
2. Select all the bottom faces. Hold down Ctrl as you select them to just add to your current selection.
3. When you've gotten them all, just hit Delete and choose Faces off the sub menu that pops up.
4. The blade is finished!



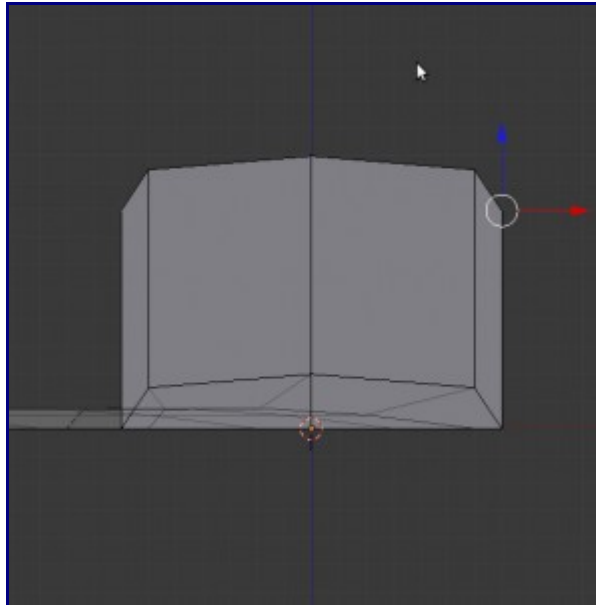
Step 20

1. Now for the hilt (tsuba, more accurately). Select all the verts at the seat of the blade like before.
2. Extrude down about 0.2 units.



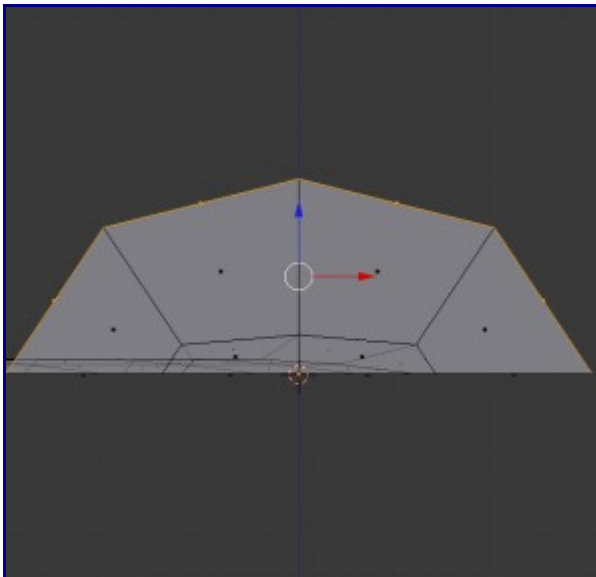
Step 21

1. Grab all four faces on this new section.
2. Extrude up about 0.8 units.



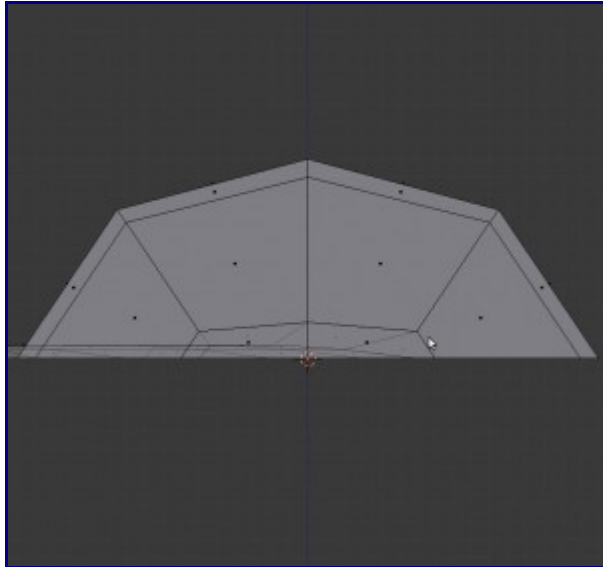
Step 22

1. Now move the edges so that you form something half of an octagon.



Step 23

1. Repeat the above steps to create another similar section that will become the edge of the tsuba.

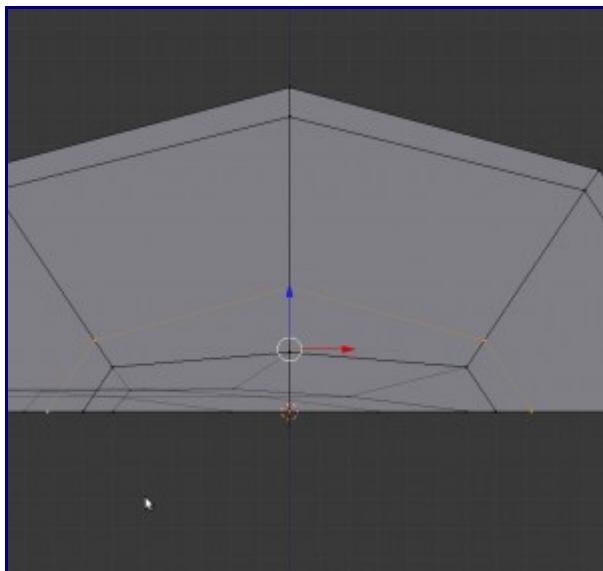


Step 24

1. Save.

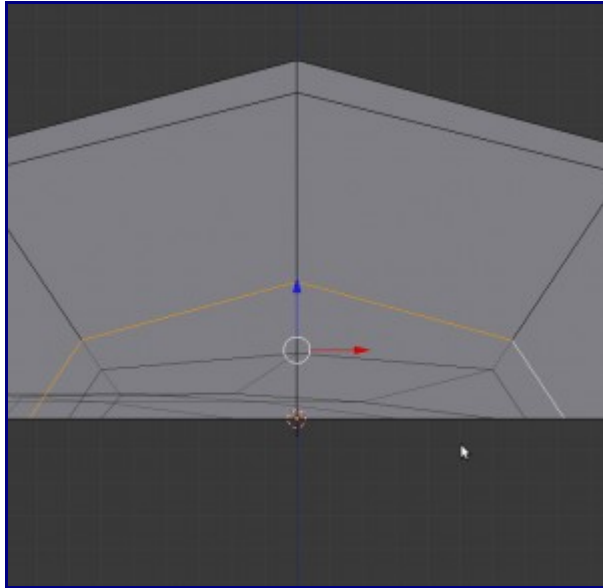
Step 25

1. Edge ring select the edges on the upper half of the tsuba and subdivide them.
2. Slide the resulting ring down somewhat close to the connection to the blade.
3. Round this ring off like the others.



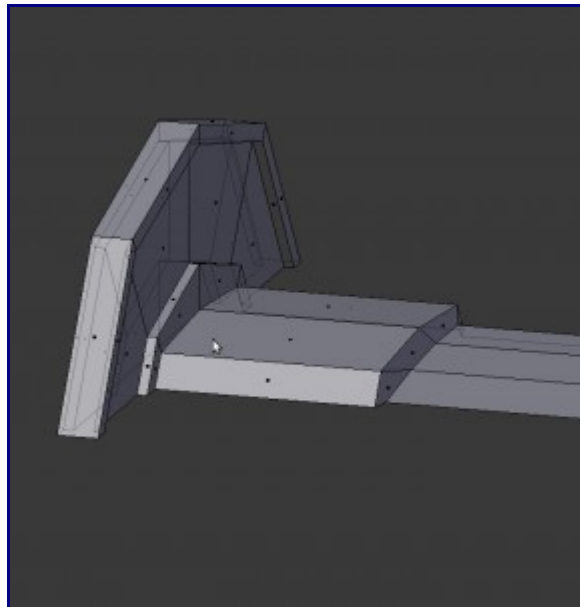
Step 26

1. Adjust and round the bottom of the tsuba to match.



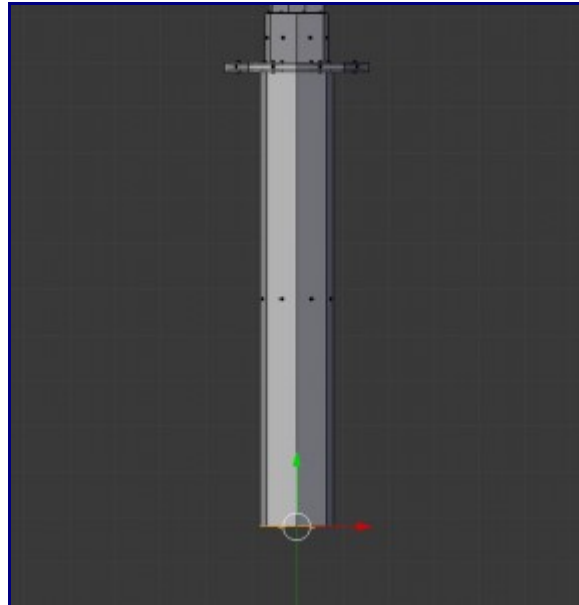
Step 27

1. Grab all the center faces on the top side of the tsuba and extrude them down, making an indentation into the hilt.
2. Repeat the same on the bottom side.
3. The tsuba is finished.



Step 28

1. On to the handle. Grab the two faces on the bottom of the tsuba.
2. Extrude them down about 10 units.



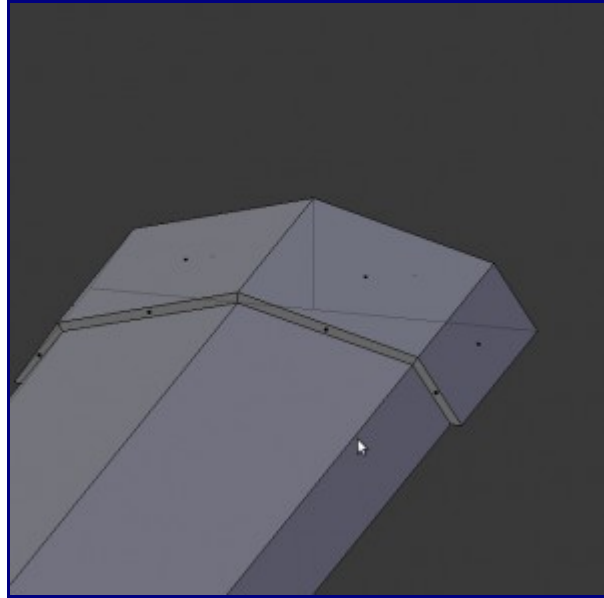
Step 29

1. Ring Select and Subdivide the handle.
2. Translate the loop down to about 1 unit away from the bottom.



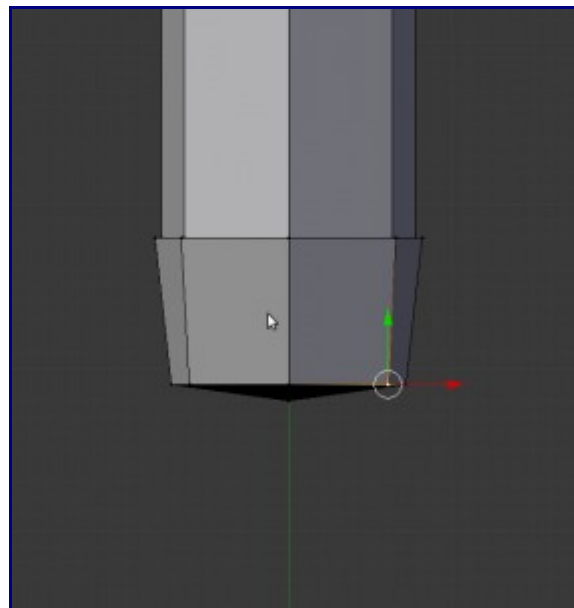
Step 30

1. Grab the four faces that make up the handle.
2. Extrude these down a little, about 0.04 units.
3. Even out the edges to form the handle.



Step 31

1. Grab the four verts that make up the outer edge of the pommel of the sword.
2. Pull them up about 0.1 unit.
3. Pull them each in about 0.1 unit to give the pommel a slightly rounded look.



Step 32

1. Press Tab to switch back to Object mode.
2. Select the half of the katana.
3. Duplicate it (Shift-D) but DON'T MOVE IT. Just click again to leave it in place.
4. Now we Mirror the duplicate in the Z direction (Ctrl-M to enter Mirror mode and Z to set direction).
5. Lastly we Join the two halves by selecting them and hitting Ctrl-J.



Step 33

1. Switch back to Edit mode.
2. Now we must weld the two unconnected halves together a pair of vertices at a time. I suggest box selecting them (B) and then Merging at center.
3. Once that is finished, so is the model. Save.