

Project Based Tutorials - Human Modeling: Meissie

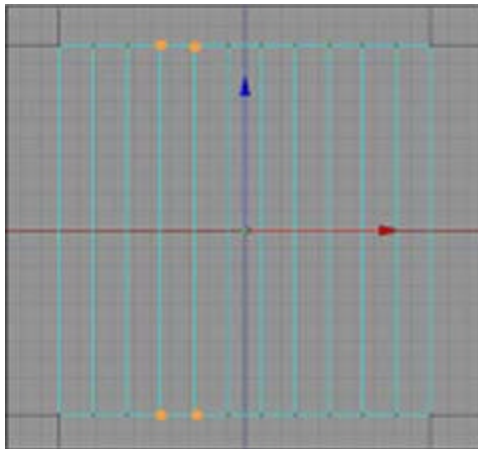
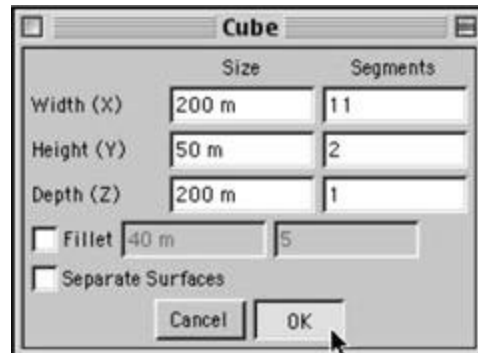
**Human Modeling: Meissie:
Modeling The Hand**

Works with:
XL

Requires:
Version 6+

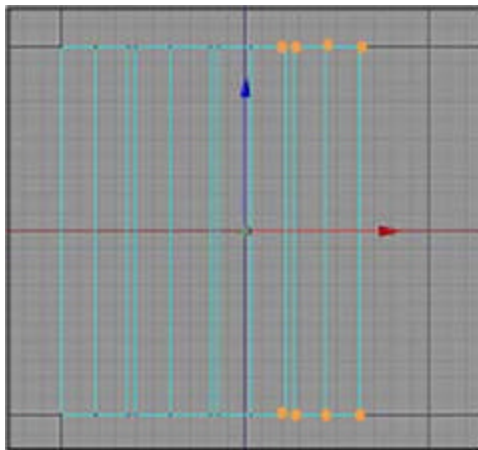
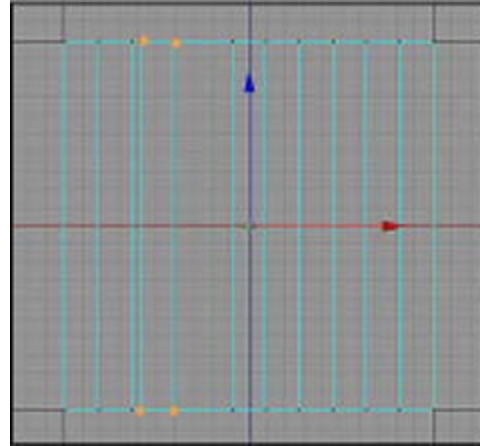
Your next step will be modeling the hand. Setting it up is a rather straight forward task. The actual modeling of the hand isn't. Take your time with this tutorial. Use your own hand as reference. It might be a good idea to create a null in which you drop your hand and rotate in a desired angle to make modeling a bit easier. When done just drag your hand out of the null and reset it's angles to zero in the Coordinates Manager (using the Model Tool)(Tools=>Model). Also make sure you get the 'Dynamic Axis' plugin by Paul Everett. It makes it a breeze to get the axis where you want them and thus makes it a lot easier to rotate the hand while modeling. Initially you were going to drag a complete body out of the head. However, you will cheat with the hand to make life a bit easier.

Step 1: Create a new document(File=>New). Create a Cube (Objects=>Primitive=>Cube), and give it the settings shown before making it editable (Structure=>Make Editable).



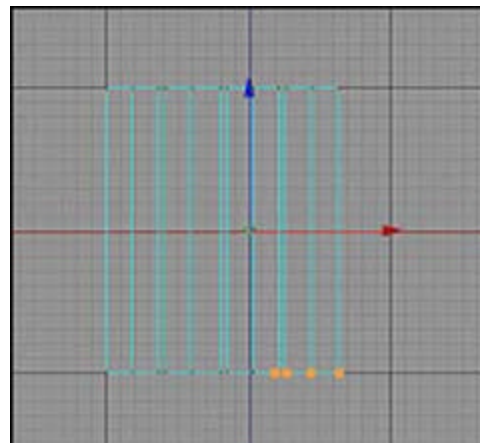
Step 2: Switch to the Points Tool (Tools=>Points), and change your view to the Top View (F2). Select the points as shown with the Live Selection Tool. Just make sure that 'Only Select Visible Elements' is disabled in the Active Tool Manager, you want the bottom points to move along as well.

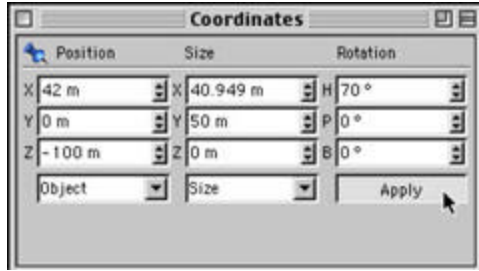
Step 3: Drag the selected points to the left (-X) with the help of the red X axis handle.



Step 4: Keep selecting and dragging points to the left until you get something similar to the picture shown. Scale the third, sixth, and ninth row down in the X direction and make sure the other rows aren't disturbed. The three narrow rows will become the space between the fingers, the other eight, in pairs of two, will become the fingers.

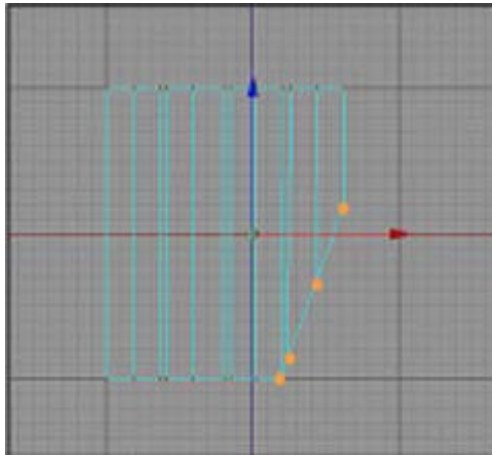
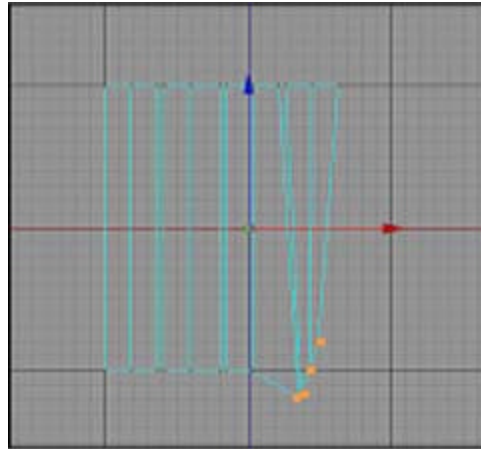
Step 5: Before you begin with the fingers you are going to create the thumb. Select the points (top and bottom) as shown.





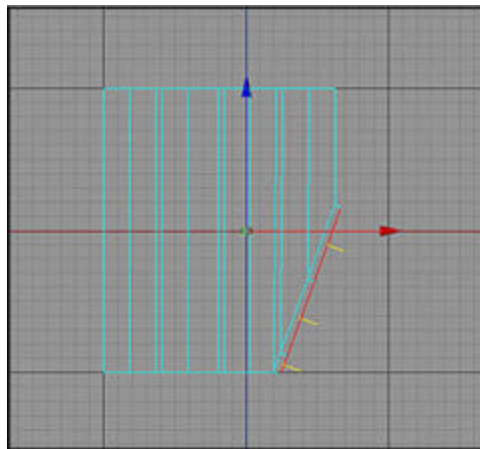
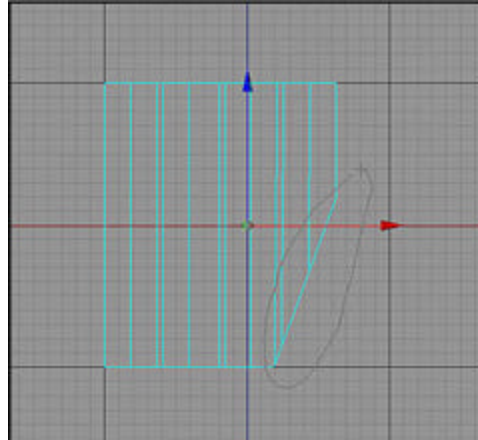
Step 6: In the Coordinates Manager enter 70 degrees for the H value, then click Apply.

Step 7: The results should look similar to the picture shown.



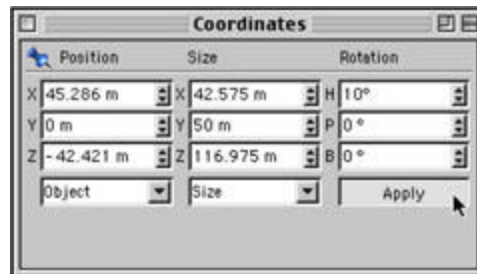
Step 8: Activate the Scale Tool (Tools=>Scale), disable the Y axis and scale and drag the points in place until you get a result similar to the picture shown.

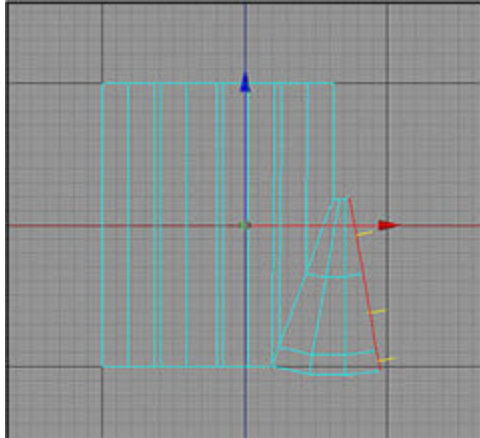
Step 9: Switch to the Polygons Tool (Tools=>Polygons) and with the Freehand Selection Tool (Selection=>Freehand Selection), select the polygons as shown (the side polygons).



Step 10: With these polygons selected, activate the Extrude Tool (Structure=>Extrude) and, using the default settings, click Apply in the Active Tool Manager.

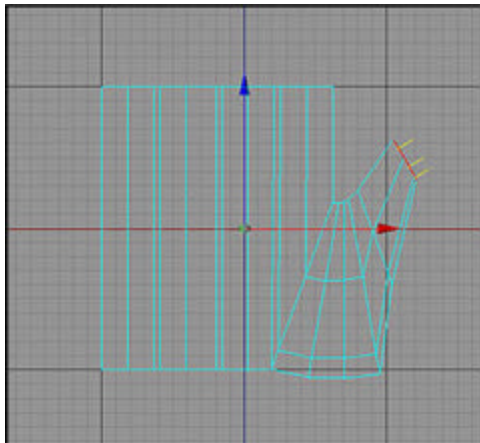
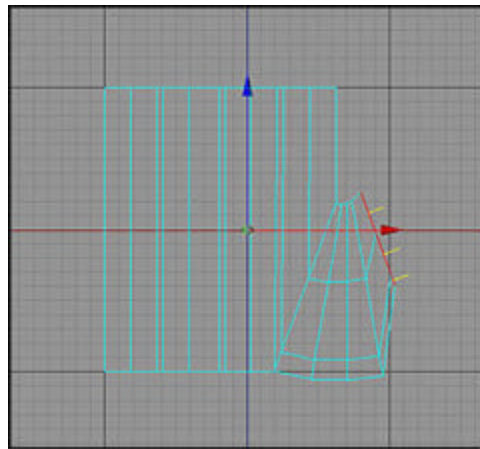
Step 11: With the recently extruded polygons still selected go to the Coordinates Manager, enter 10 degrees for the H value, and click Apply.





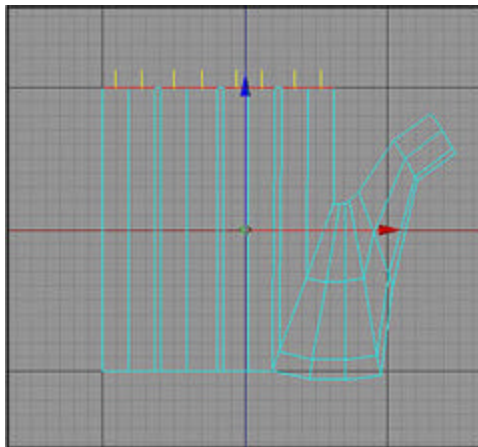
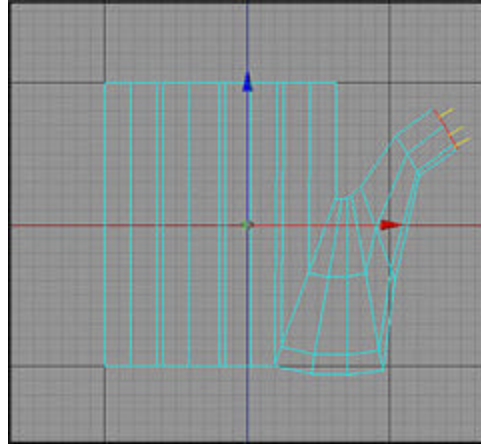
Step 12: Use the Move Tool (Tools=>Move) to keep the top of the polygons more or less in place. Repeat the Extrude, Rotate, and Move cycles two more times until you get something like the picture shown.

Step 13: With the polygons still selected perform one more extrusion. Again rotate it 10 degrees but this time scale it down a bit (the Y axis should still be disabled) and drag them in the +Z direction until you get something similar to the picture shown.



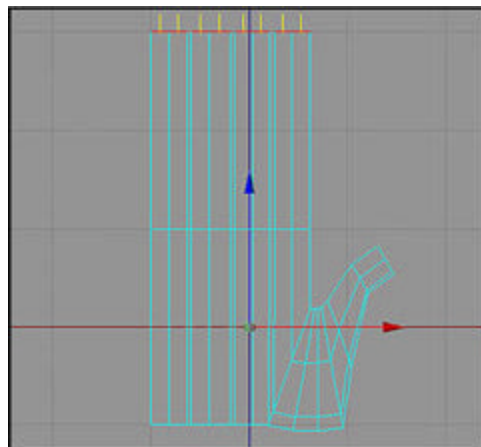
Step 14: Perform two more extrusions using the Extrude Tool (Structure=>Extrude). Scale the first down a bit and drag it even further in the +Z direction.

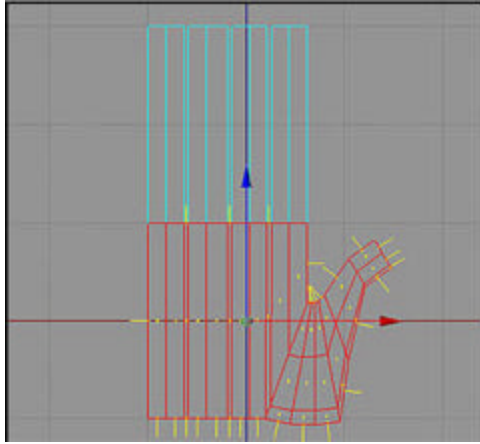
Step 15: For the last one, you only need to drag it a small way into position. You just created your basic thumb.



Step 16: Next select the top polygons, make sure the three small rows are not selected.

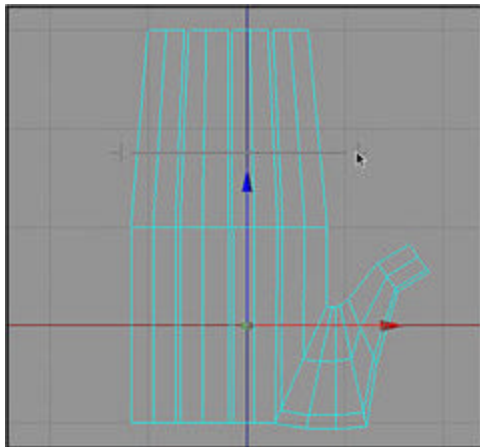
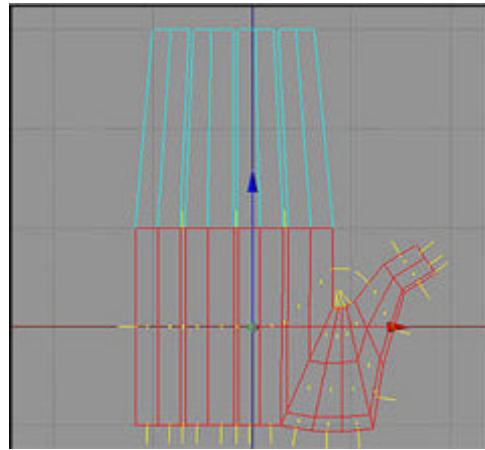
Step 17: Activate the Extrude Tool (Structure=>Extrude), enter 200m for the Offset in the Active Tool Manager and click Apply.





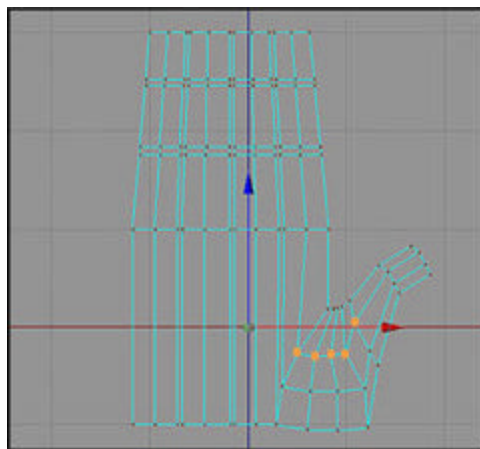
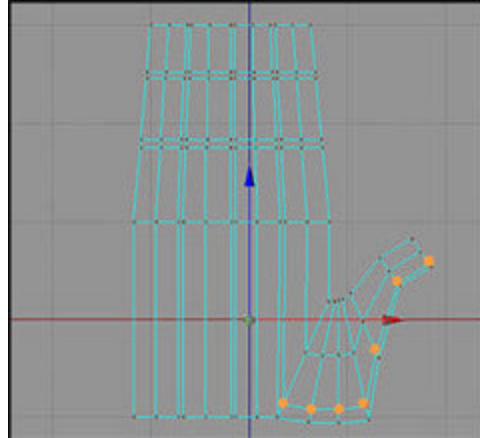
Step 18: Select all the polygons except for the fingers you just created.

Step 19: Now Scale (Tools=>Scale) them a bit up in the X direction only. It already starts to look like a hand.



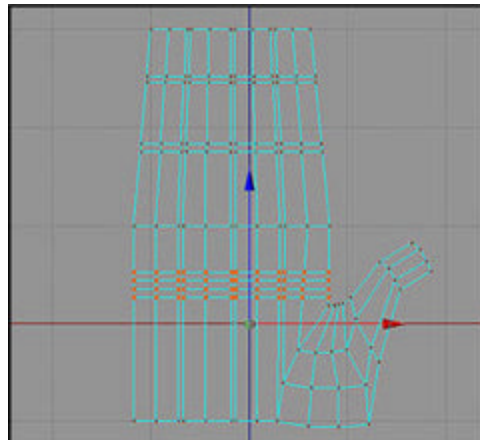
Step 20: Next you need to divide each finger in three parts. Select the Knife Tool (Structure=>Knife) and at \pm one third of the fingers make your cuts.

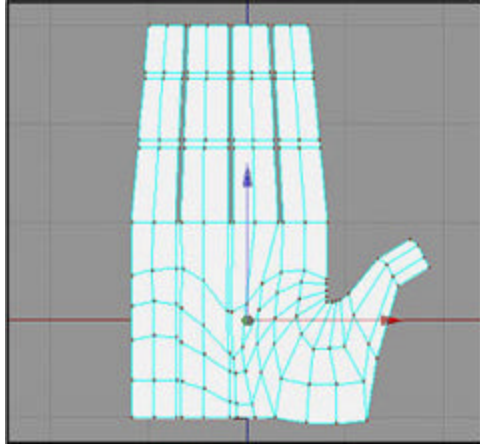
Step 21: Use the Knife Tool (Structure=>Knife) three more times until your hand looks similar to the one pictured.



Step 22: Next Select the points of the thumb as shown and distribute them more evenly. Make sure the bottom points are distributed as well.

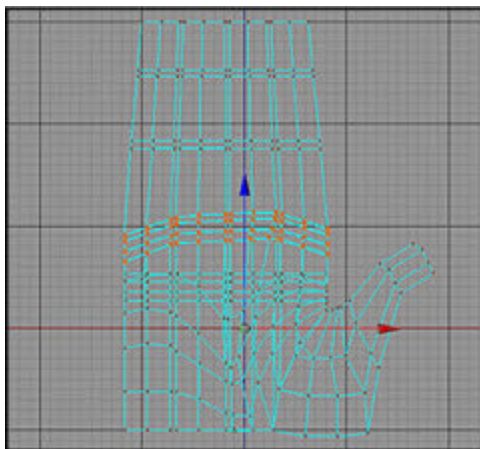
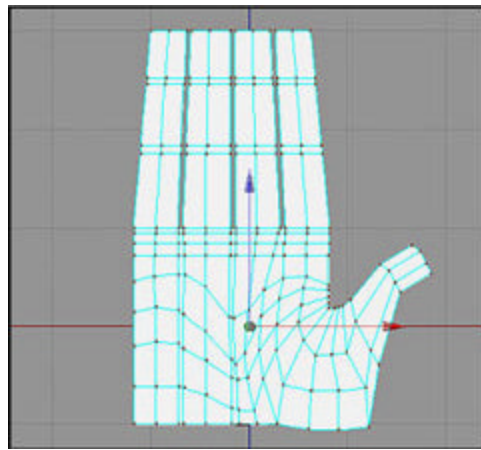
Step 23: Activate the Knife Tool and knife the hand four times just above the thumb.





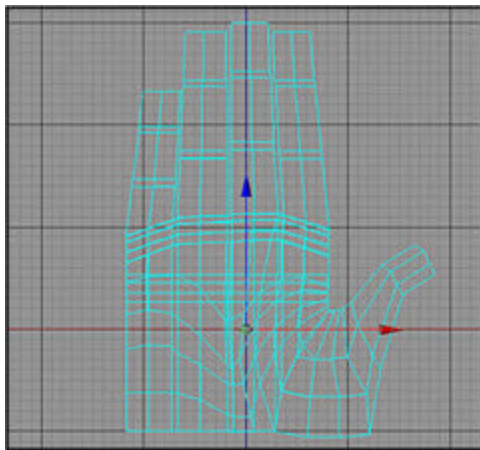
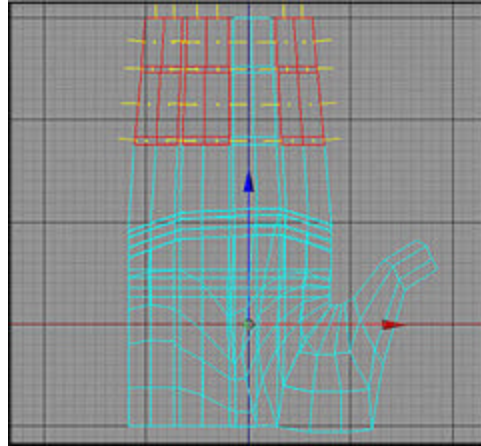
Step 24: Distribute the newly created points as shown. Make sure you leave the opposite bottom points untouched. As you can see by now the top will actually become the palm of the hand.

Step 25: You will use the Knife Tool three more times just below the fingers.

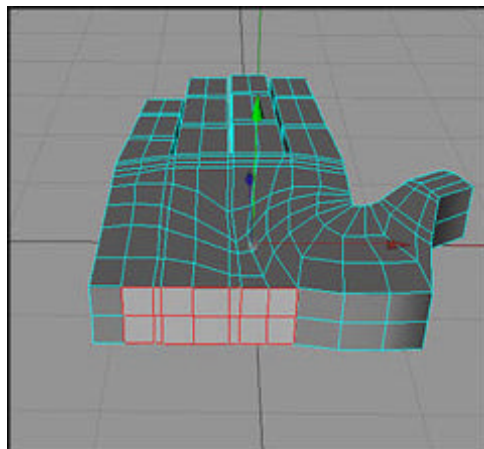


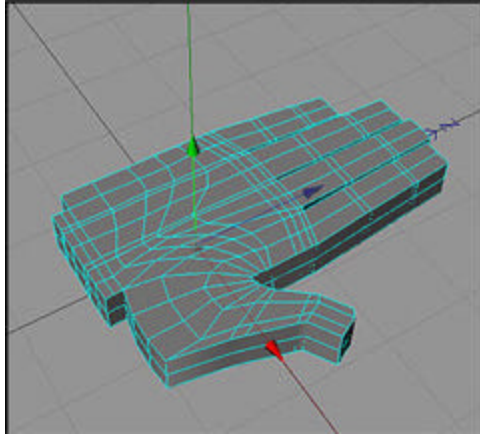
Step 26: When done, distribute the newly created points, including the first points of the fingers as shown. This time make sure you select the top and bottom points when you drag them in place.

Step 27: Next drag the pinky, ring, and index finger into place.



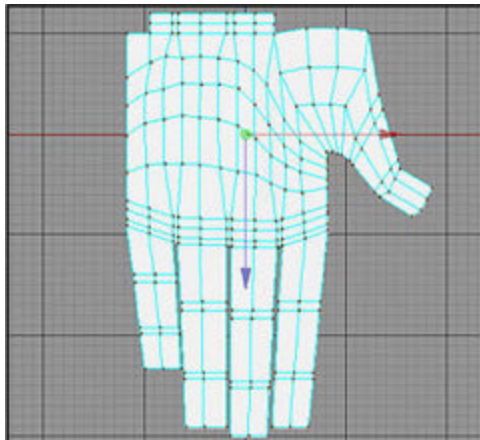
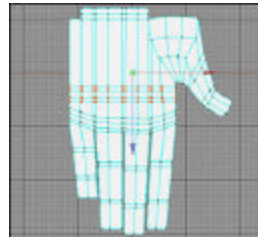
Step 28: In the Perspective View (F1) select the polygons as shown.





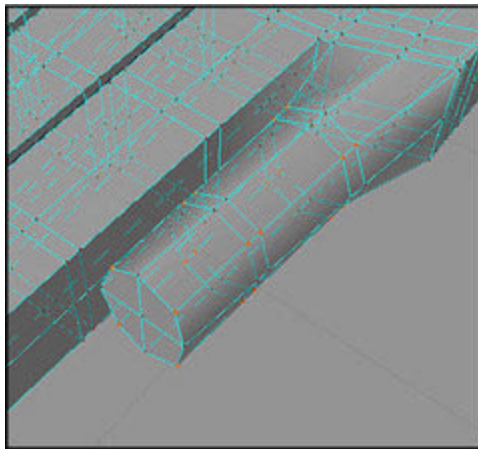
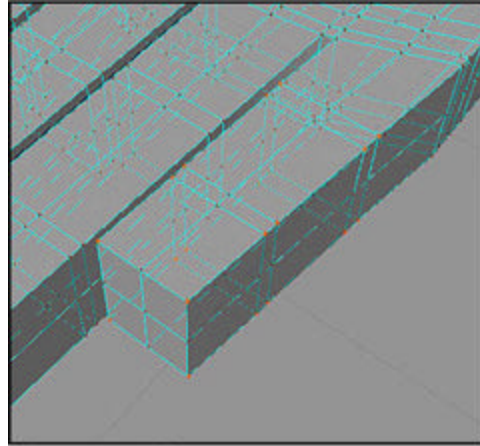
Step 29: Activate the Extrude Tool (Structure=>Extrude) and perform two extrusions with an Offset of 10m in the Active Tool Manager. Set your view to Bottom (Cameras=>Bottom).

Step 30: The last thing you will do before you save your work is distribute the points on the top of the hand.



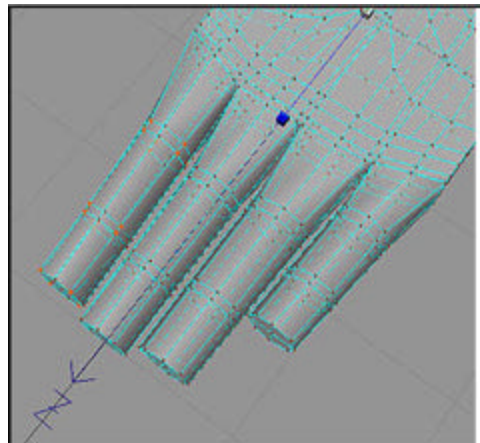
Step 31: If you're done, your hand should look similar to the picture shown. Just make sure you leave the points of the palm of the hand untouched. Again it wouldn't be a bad idea to create a backup null in the Object Manager and drag a duplicate of your hand in it before you save your work.

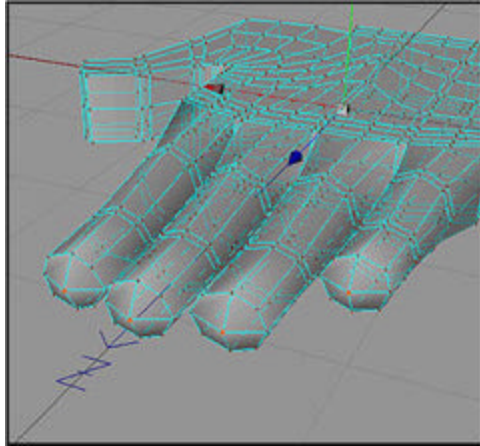
Step 32: Next you will adjust the fingers further. Select the points as shown.



Step 33: With the Scale Tool active (Tools=>Scale) make sure the Z axis is disabled. Scale the points down, your results should resemble the image shown.

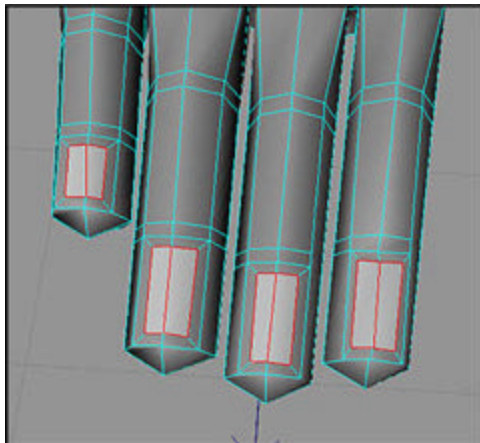
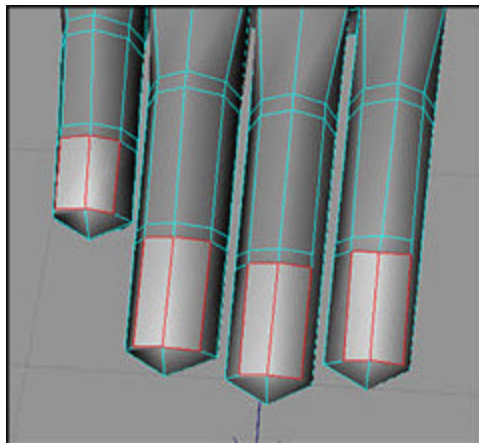
Step 34: Repeat this action for the other three fingers as well.





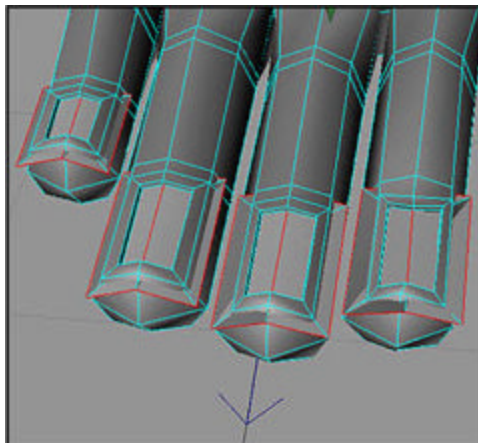
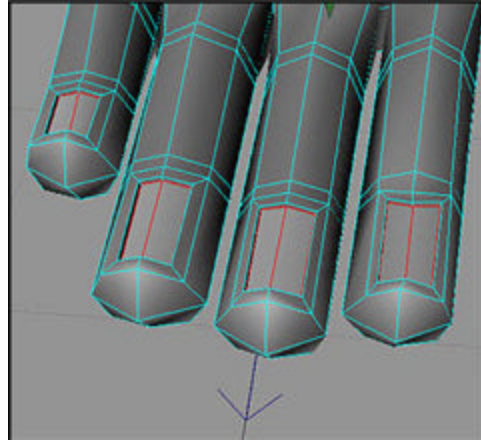
Step 35: Select the points on top of the finger points and drag them a bit in the +Z direction.

Step 36: Switch to the Polygons Tool (Tools=>Polygons) and select the polygons as shown on the top of the fingers for the fingernails.



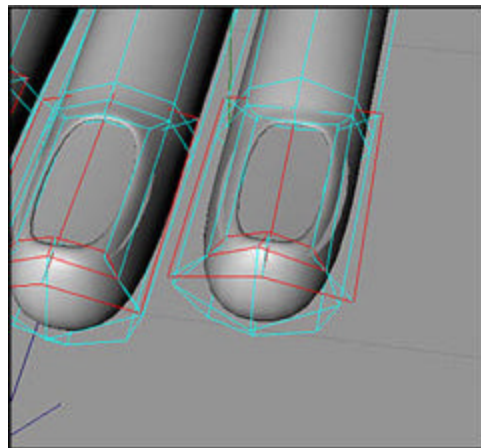
Step 37: Activate the Extrude Inner Tool (Structure=>Extrude Inner) and extrude the polygons inward.

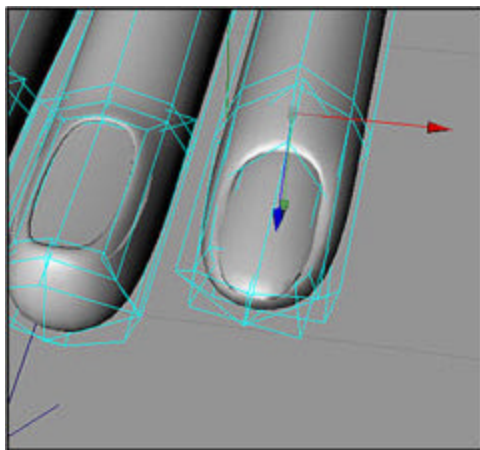
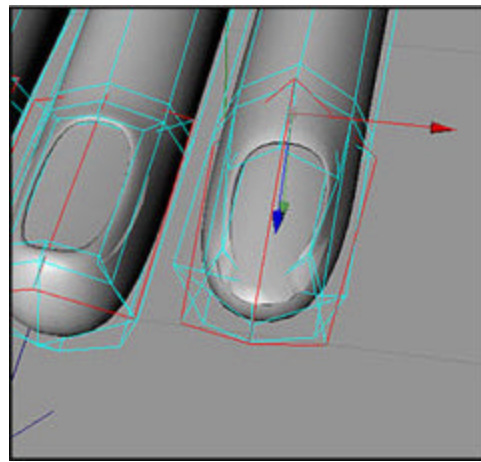
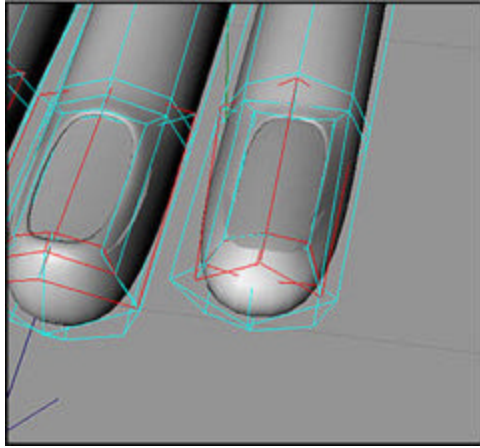
Step 38: Switch to the Extrude Tool (Structure=>Extrude) and extrude the still selected polygons -4m by entering -4m for the Offset in the Active Tool Manager.



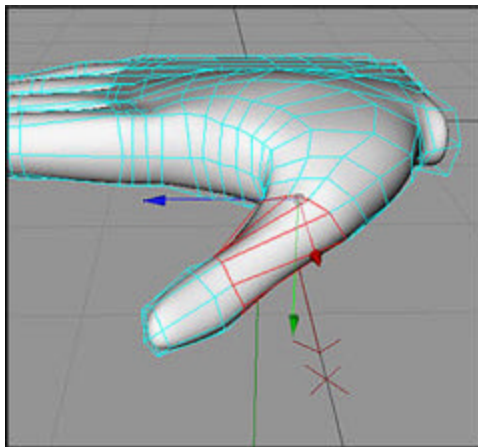
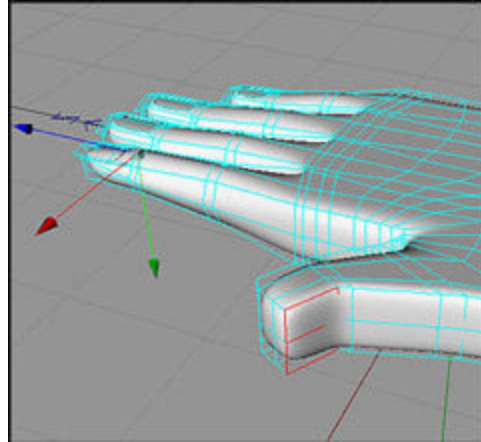
Step 39: Switch back to the Extrude Inner Tool and extrude the polygons until you've got something similar to the picture shown.

Step 40: If you don't have one already, add a Hyper NURBS Object to your scene (Objects=>NURBS->Hyper NURBS), and drop the hand into it. The next few pictures will show how you can model the fingertip. If you think this brief visual feedback gives enough information to sculpt the fingertips, go ahead and do all four fingers (wait with the thumb a bit longer until you get it where you want it). There is a separate tutorial dedicated to modeling the fingertips. This tutorial will continue with the hand.



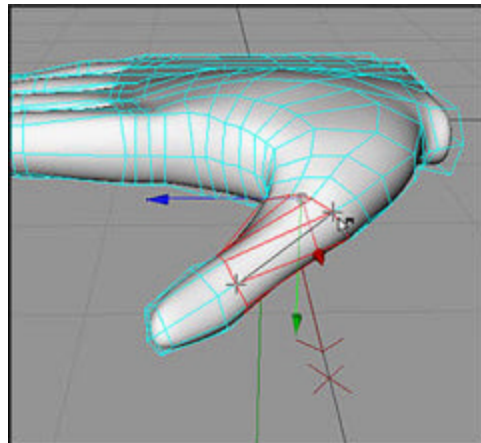


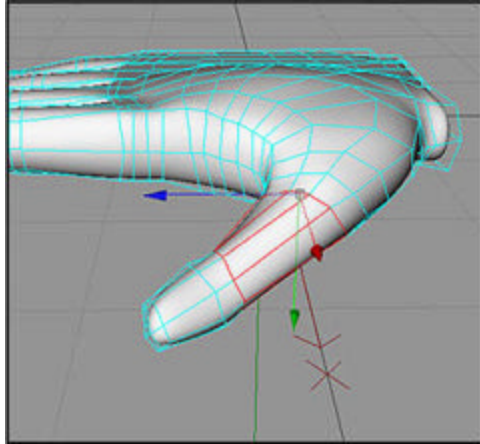
Step 41: The picture shows the two polygons that will be used to create a thumbnail. It also shows that the top of the thumb was knifed once more, feel free to do so yourself. If the angle with the hand of the thumbtip is now 90 degrees then you should bring it back to something like 45 degrees.



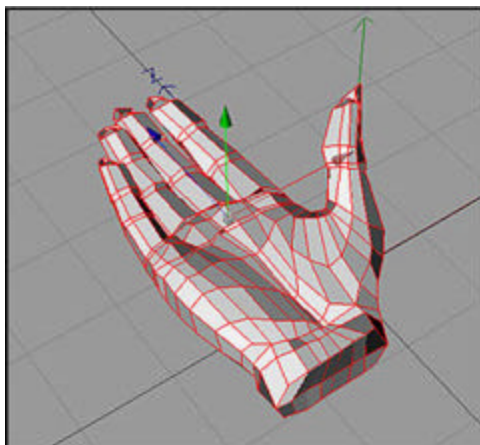
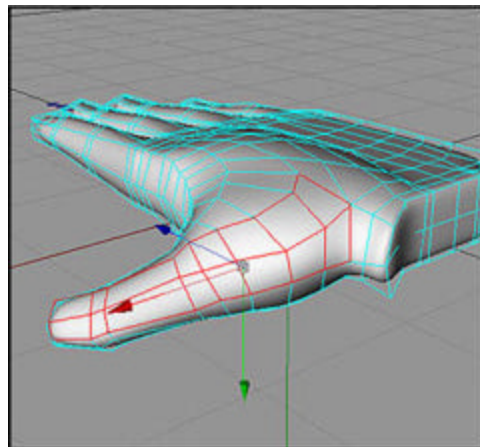
Step 42: Give the thumb more of its final shape while you do that. As you can see, you end up with a twisted row of polygons. Luckily there is a very simple solution to solve this. Select the row of polygons as shown all around.

Step 43: Activate the Bridge Tool (Structure=>Bridge) and connect the opposite corner points of the polygon as shown.

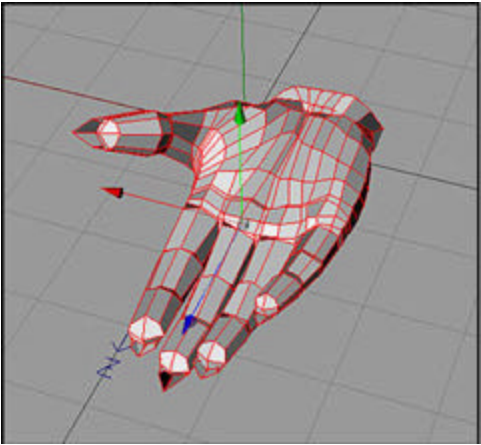
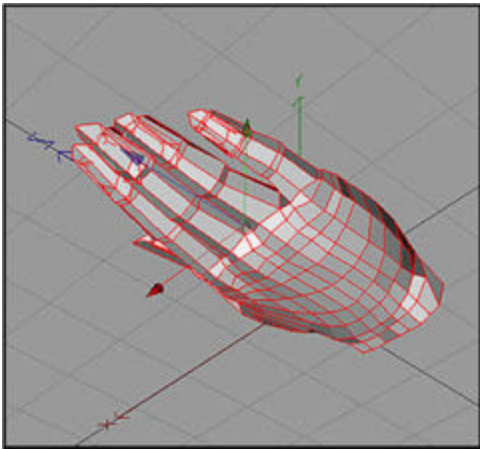
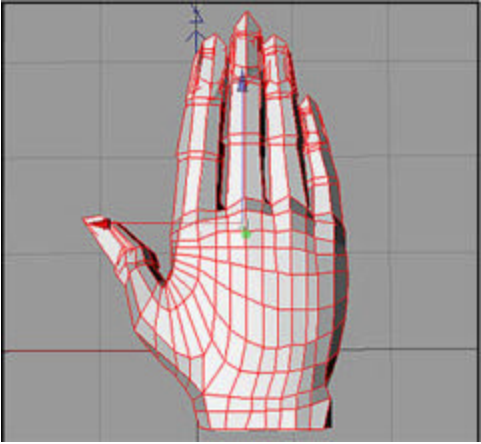


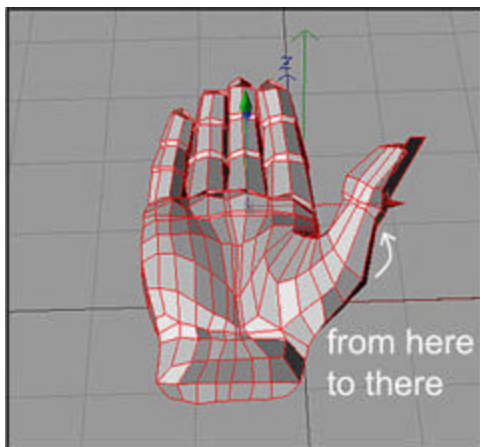
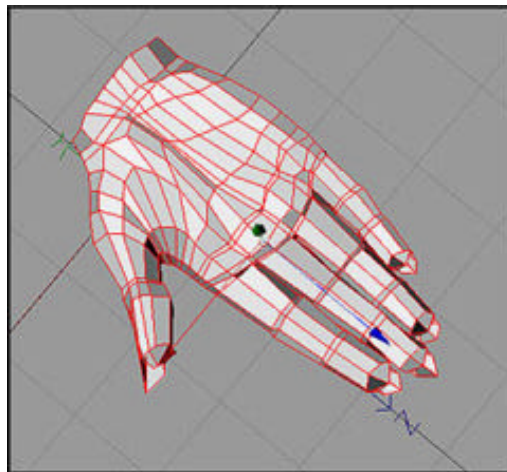
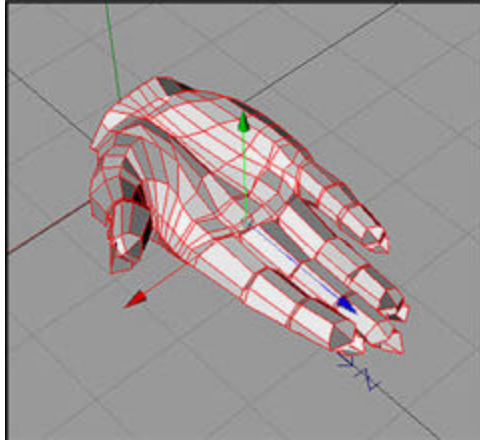


Step 44: It no longer looks like the thumb was twisted. This is another cool trick the Bridge Tool is capable of. Now that you have the thumb more the way you want it you can add the thumbnail. Use the exact same method as used for the fingers to do this. As you would expect you are going to connect the hand to the arm later on.

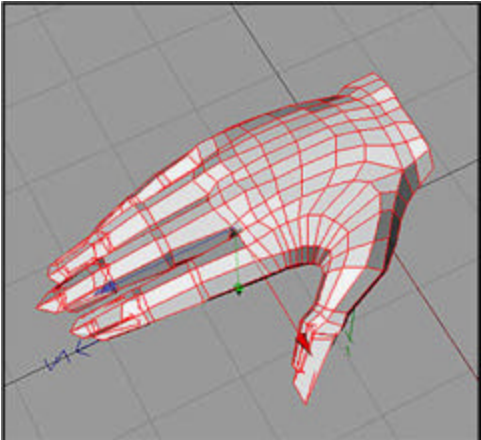
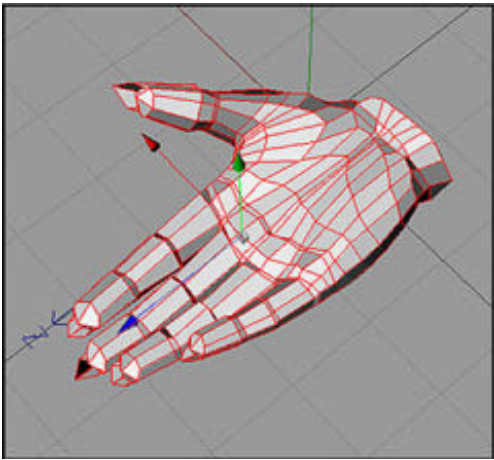
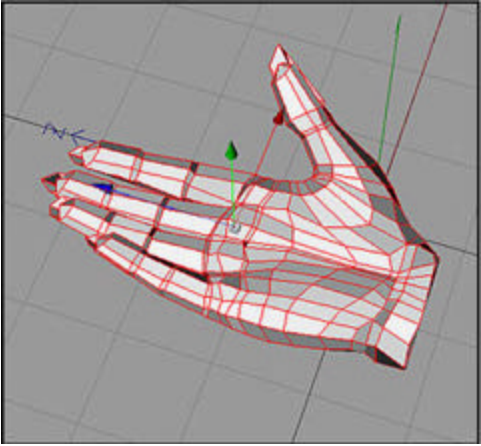


Step 45: You have an arm stump made up of 18 points on the body. The wrist has 18 points as well so that means you're done. Save your work. The following pictures show where the polygons of this hand ended up. The modeling took about a day and a half, just to give you an indication, after completing the basic set up including nails. Success!





One thing you might have noticed is that the thumbtip now exists out of three rows of polygons. This was not done with the Knife Tool. One lower row of polygons was just shifted towards the tip of the thumb where they were more needed.



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