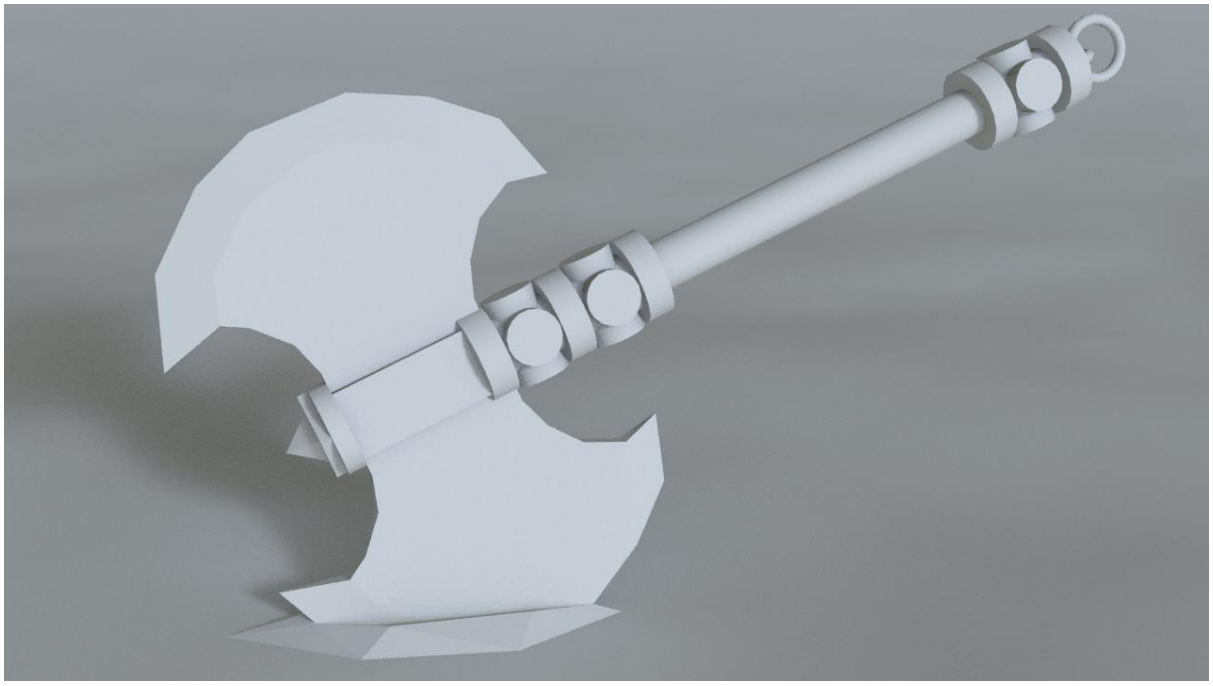
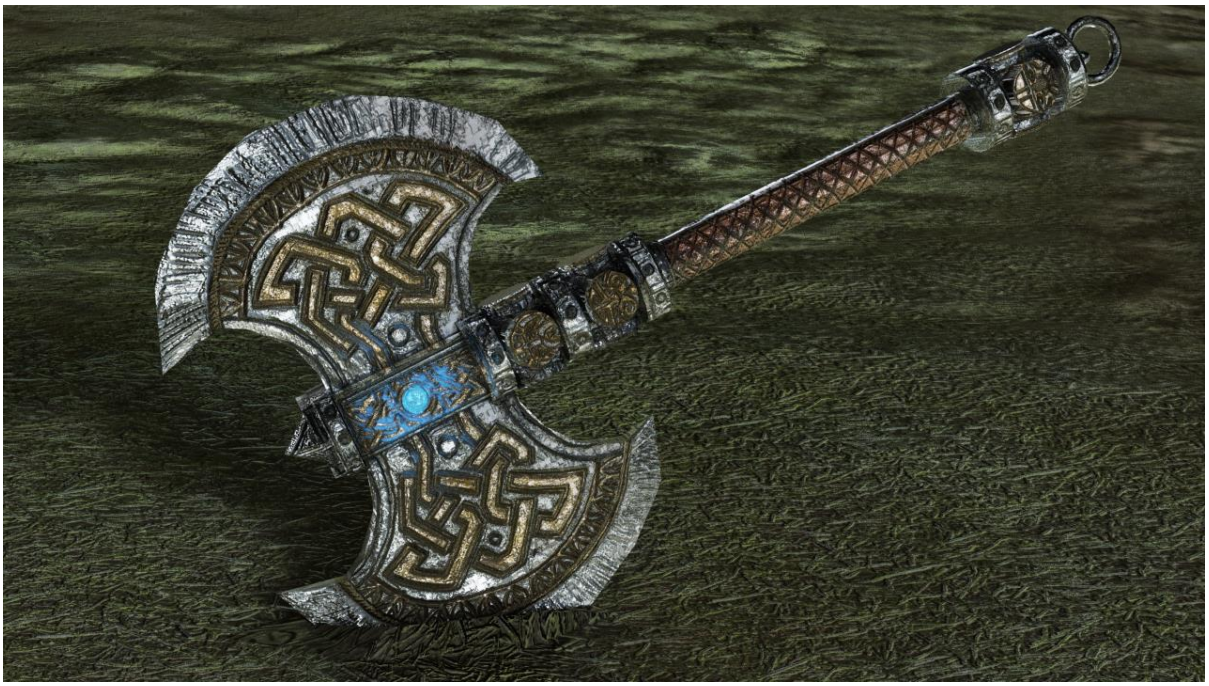
3Ds Max 2014 Modelling Tutorial

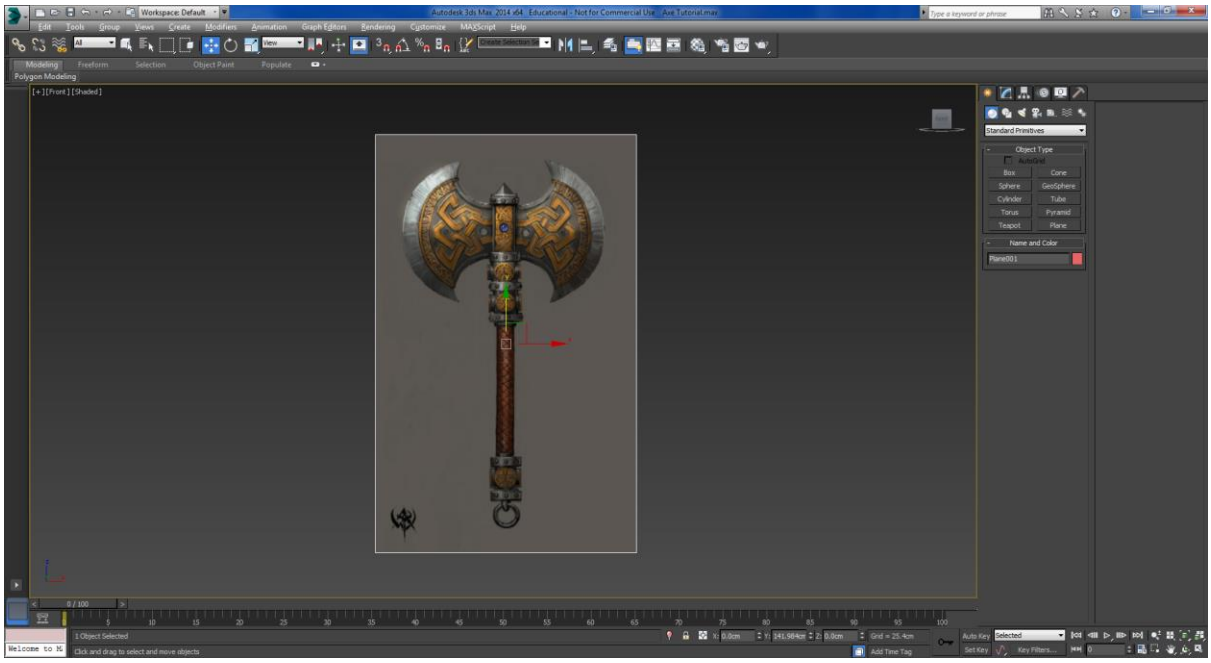
Dwarf Axe

By R Jeffrey





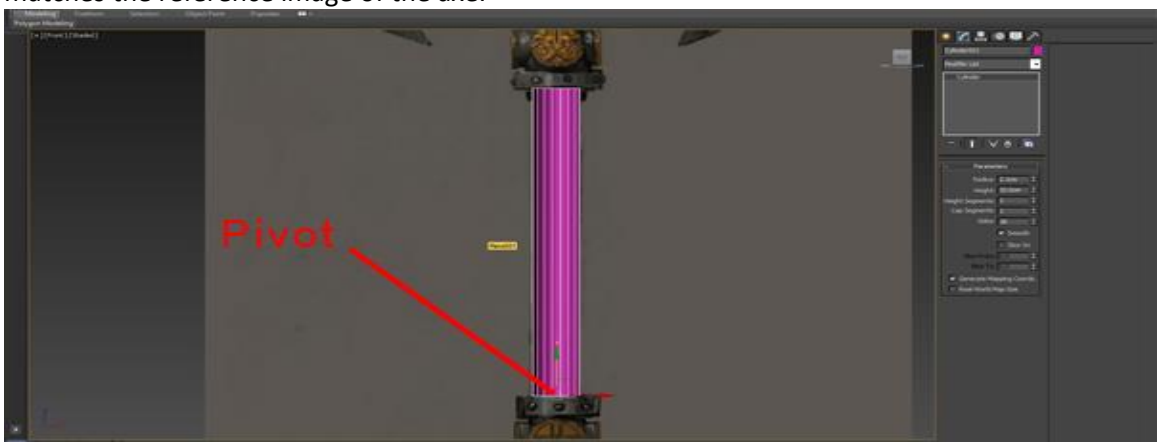
Copy the file from the Game design Dropbox entitled ‘Axe Setup’, and paste it into your own area. Open the file in 3Ds Max. It should look like the image below.



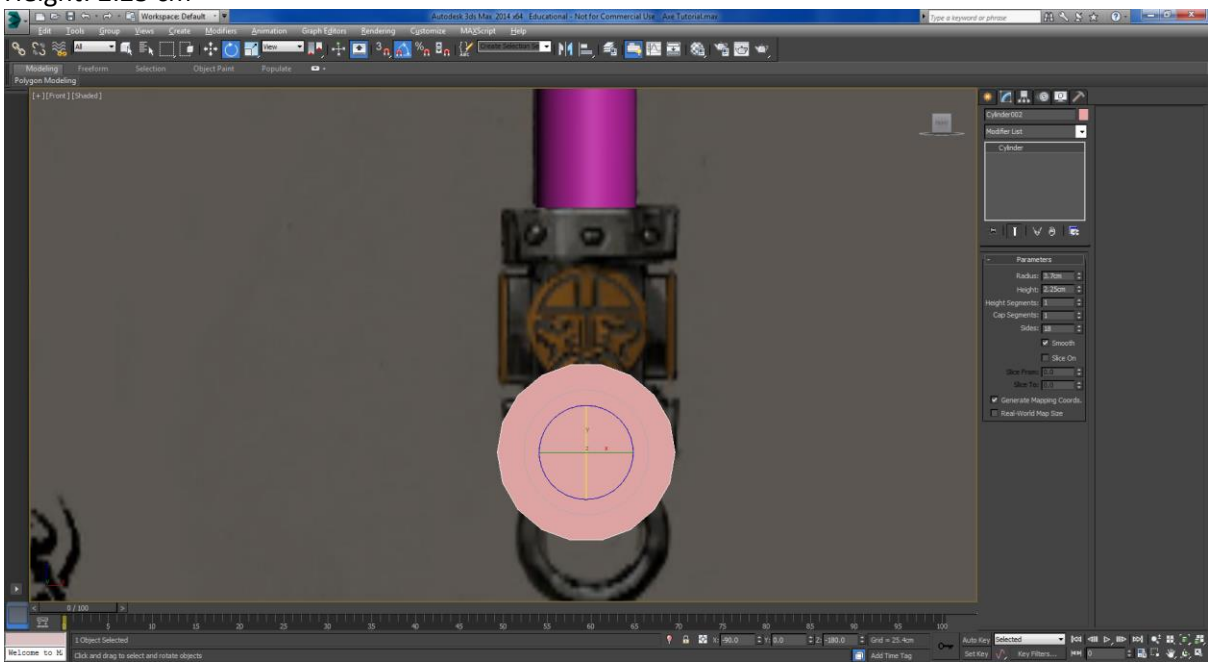
Click on the Create panel  and click the Cylinder. First, click in the viewport and drag it out. At this stage, you will only see the round top face of the cylinder. When it is at the correct size, release the mouse button. Move your mouse in the viewport a little more and click again. This action will add depth to the cylinder (though we cannot see it yet). Then click on the Modify panel  to see a list of properties for the cylinder you created. Set them to the following –

Radius: 2.1cm
Height: 32cm
Height seg: 1
Cap seg: 1
Sides: 18

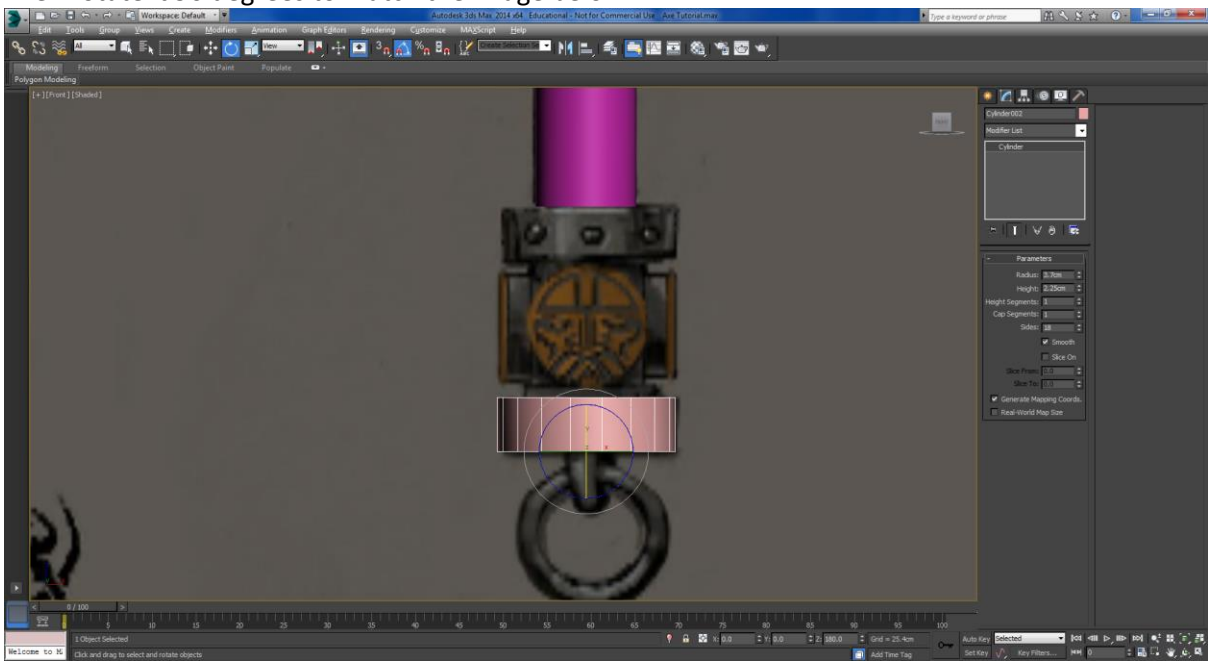
Then, with the cylinder still selected, click E and then A on the keyboard. E enables Rotate, and A enables angle snap. Hover your mouse over the vertical line of the gizmo, and drag to rotate it 90 degrees. Make sure that the pivot is in the same place as the image below. Ensure your work matches the reference image of the axe.



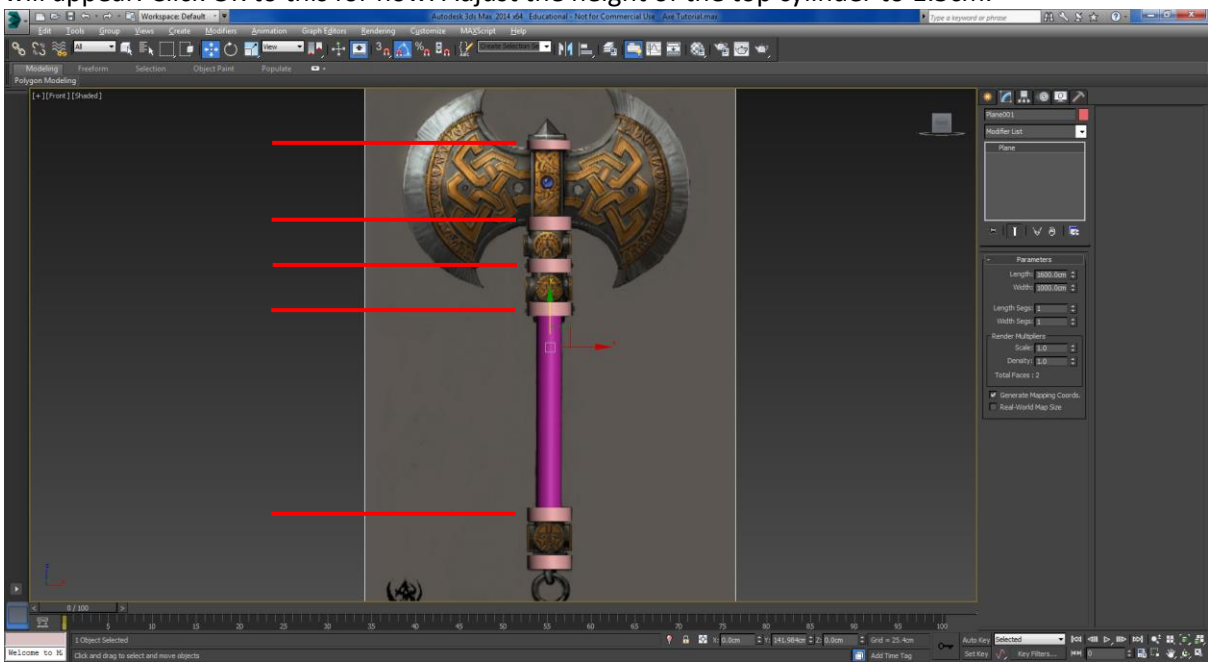
Repeat the above steps to make another cylinder with the sizes –
Radius: 3.7cm
Height: 2.25 cm



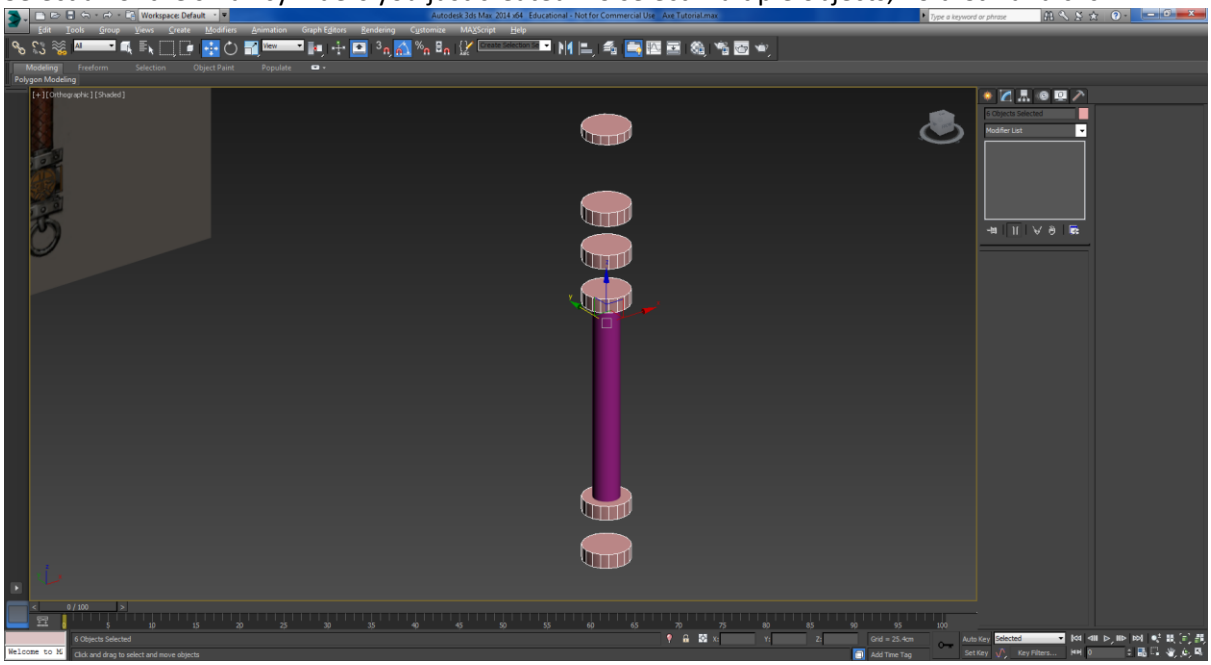
Then rotate it 90 degrees to match the image below.



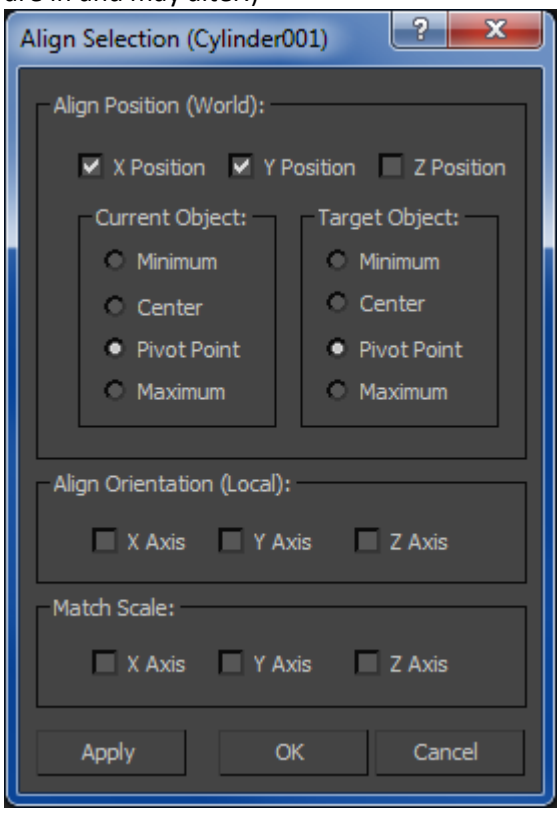
Press W on the keyboard to enable the move tool. With the smaller cylinder selected, hold SHIFT and click the Green vertical arrow to create a copy of it, and move it in the Y axis (up and down). Match it up with the various rings on the reference. When you release the mouse button, a pop up will appear. Click OK to this for now. Adjust the height of the top cylinder to 1.5cm.



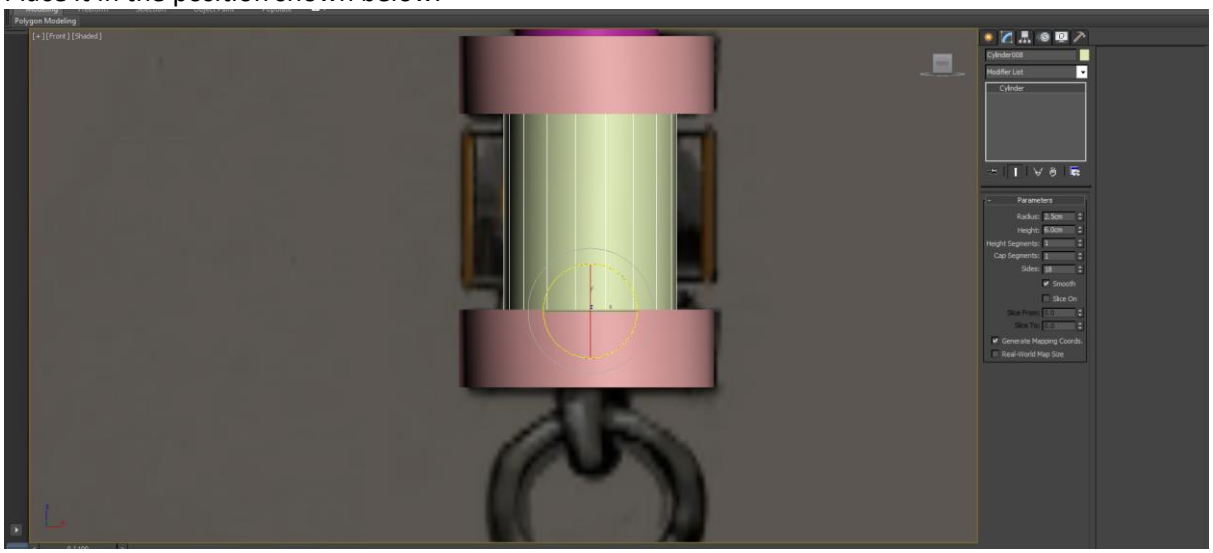
If you rotate the camera (Alt and hold Middle mouse button) this is what your scene should look like. Select all of the small cylinders you just created. To select multiple objects, hold Ctrl and click.



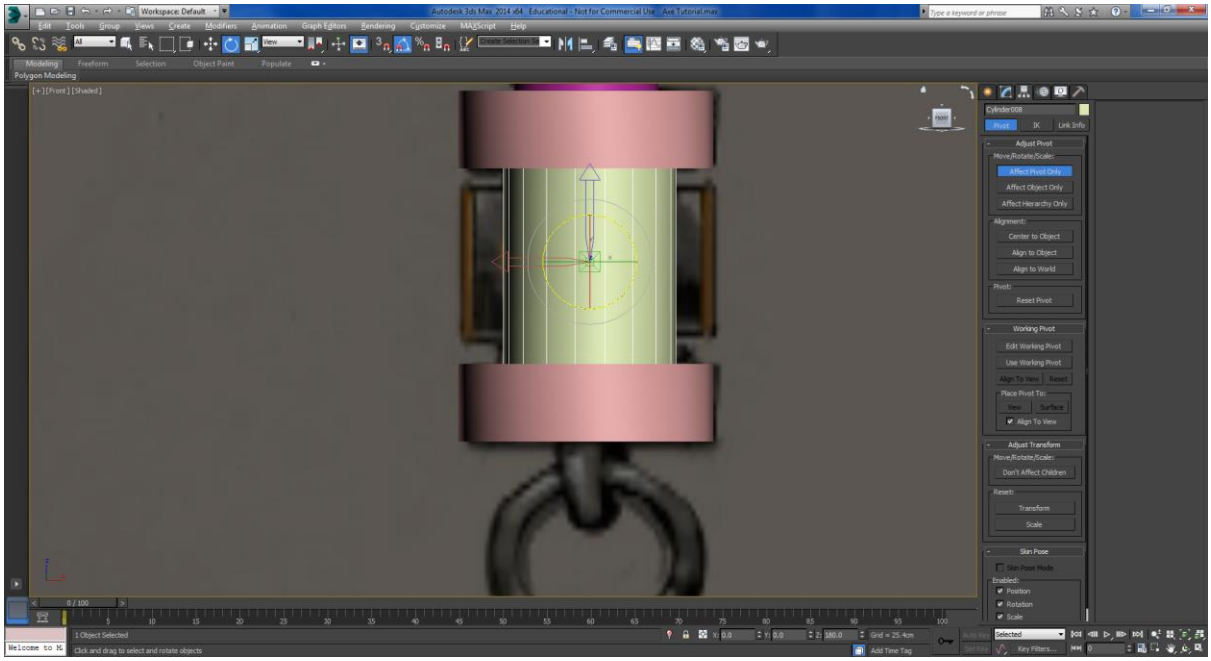
With these selected, and the move tool(W) activated, click on the Align button  . This is found on the top row of controls. Then, click on the large cylinder (the handle) that we created first. This will open a window like the one below. Ensure that you have only X and Y ticked. Z will move the objects up and down, and this is not what we want. (Note: These options are dependent on which view you are in and may alter.)



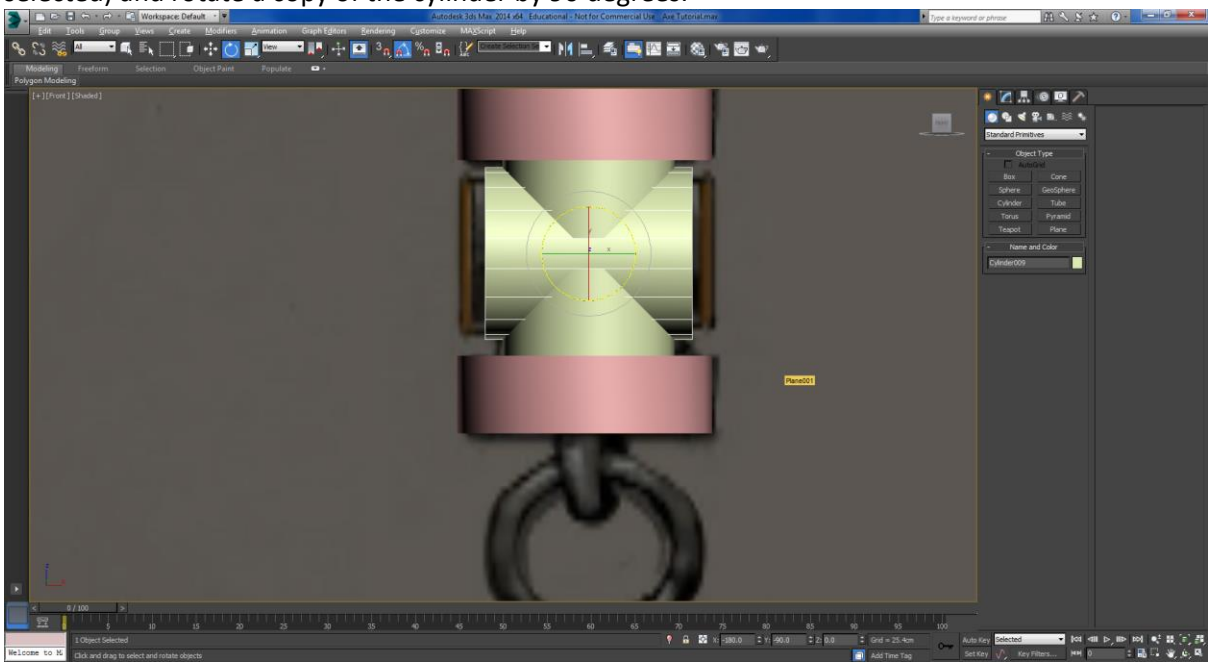
Go back to the Front view, which is F on the keyboard. Create another cylinder and follow the same rules as before. Set the sizes to –
Radius: 2.5cm
Height: 6 cm
Place it in the position shown below.



We must then centre the pivot of this new object. Make sure the cylinder is selects and click the Hierarchy panel  and then on ‘Affect pivot only’ and then ‘Center to object’. This places the pivot at the centre of the objects physical mass. Click ‘Affect pivot only’ once again to exit that function.

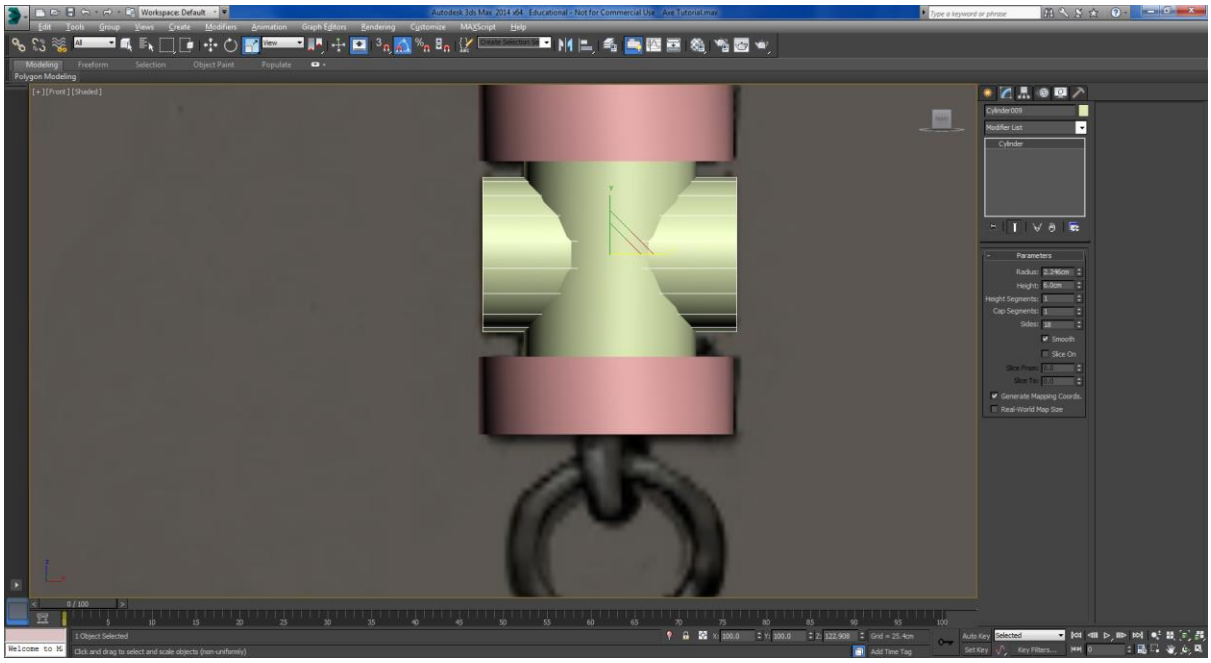


Press E and hold SHIFT. Then click on the circular blue line on the Gizmo (this will turn yellow when selected) and rotate a copy of the cylinder by 90 degrees.

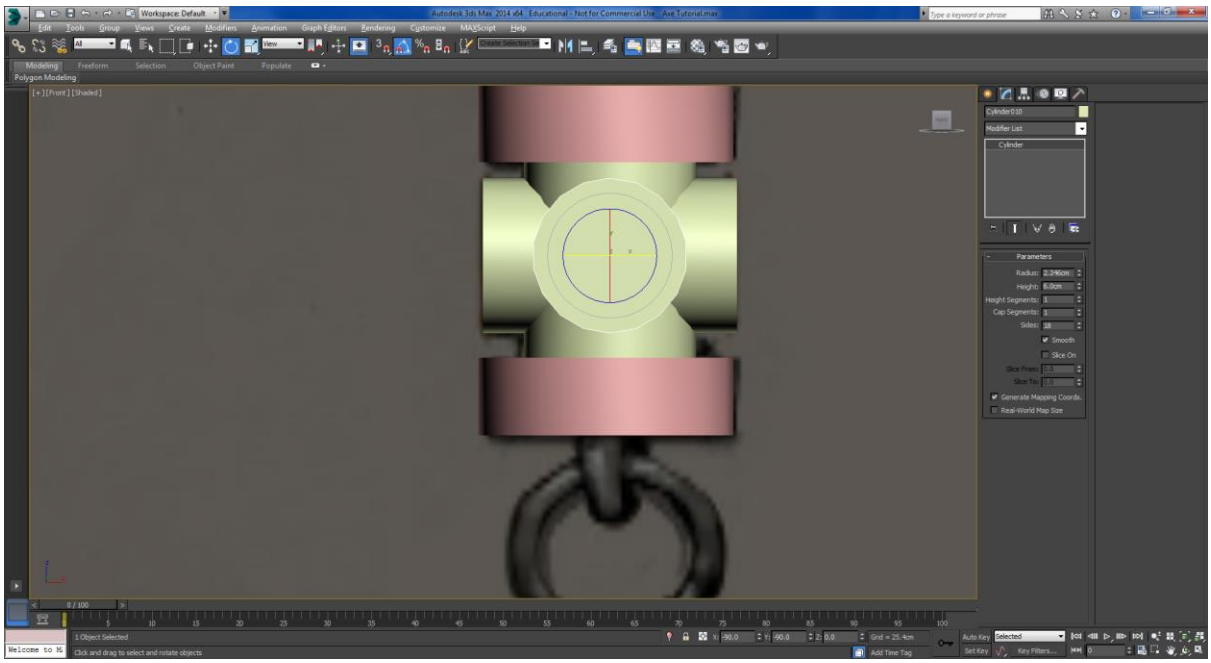


Press R on the keyboard to enable the scale tool. Make sure that the ‘Scale Type’ is set to uniform.

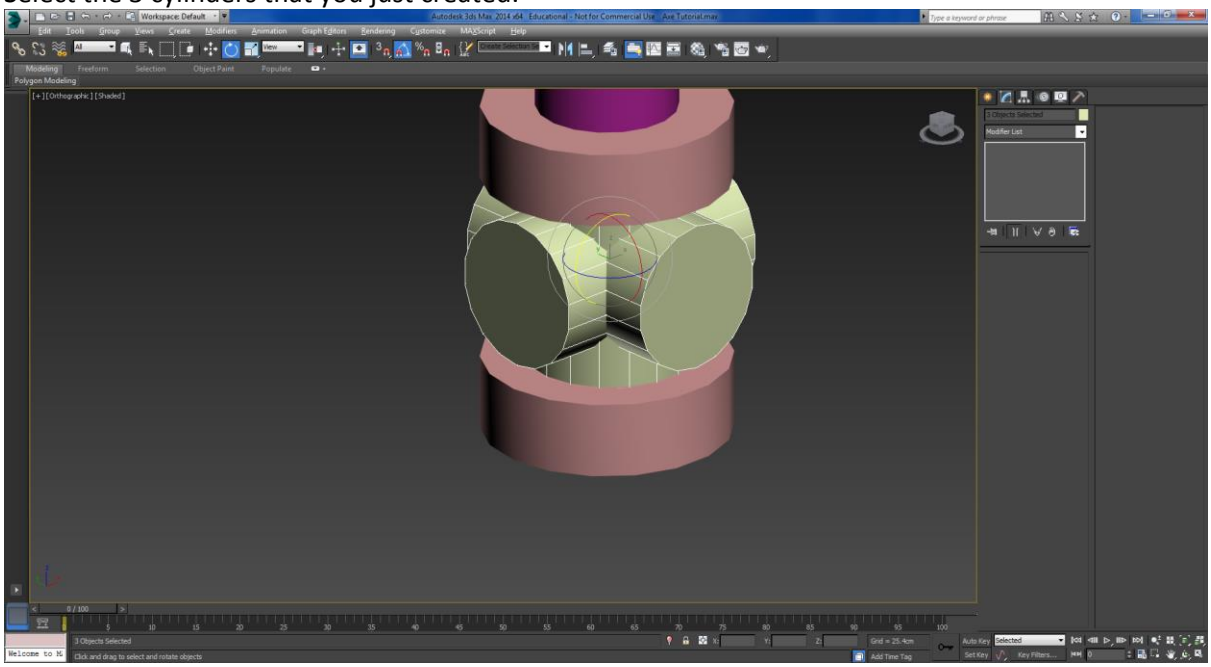
Scale the new cylinder so that it matches the reference. Remember to scale it by clicking the centre of the gizmo and dragging. This will ensure that your cylinder stays round and is not stretched.



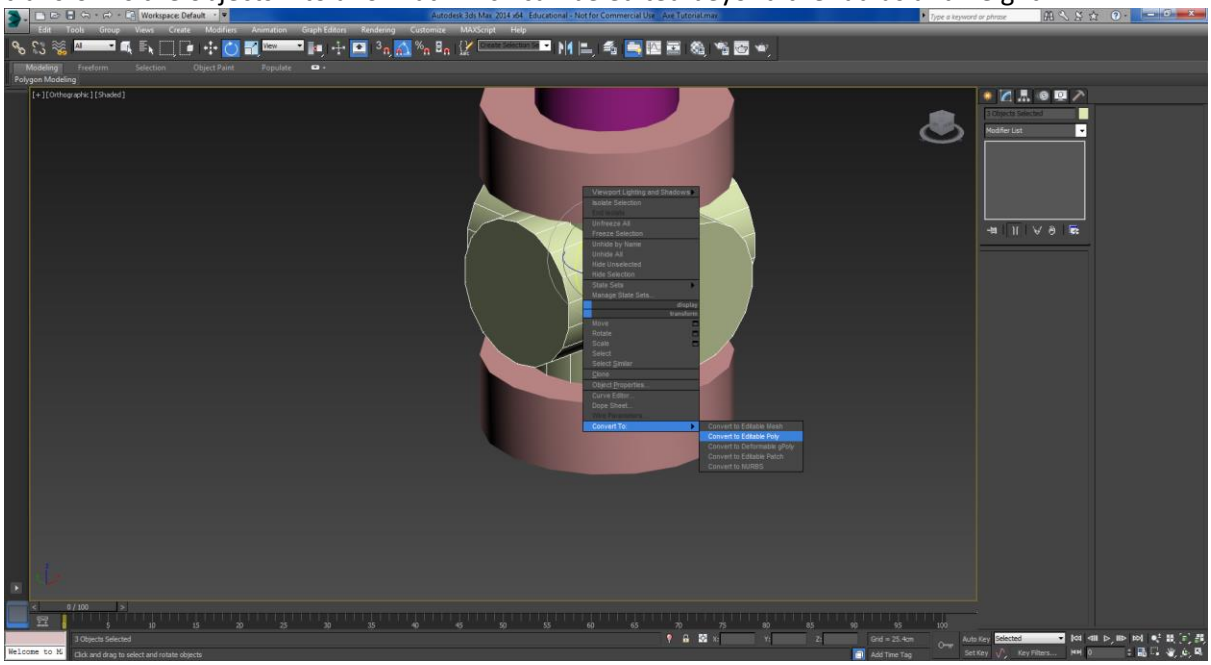
SHIFT rotate the cylinder again, but this time so that the round end points towards you, as shown below.



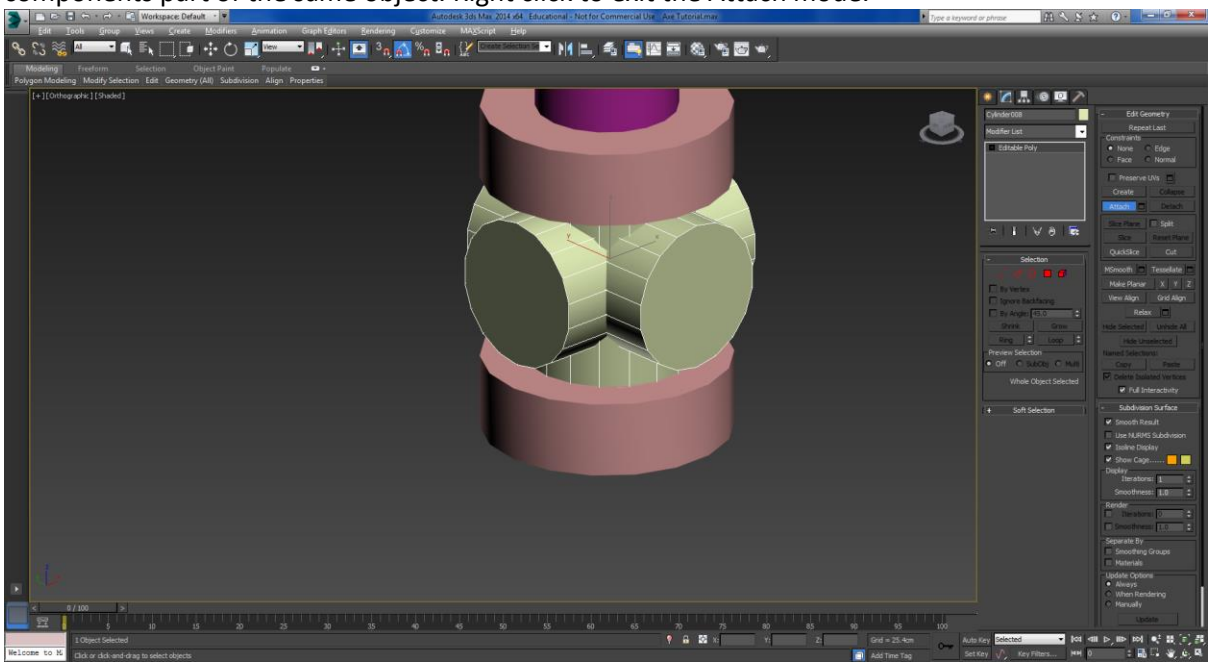
Select the 3 cylinders that you just created.



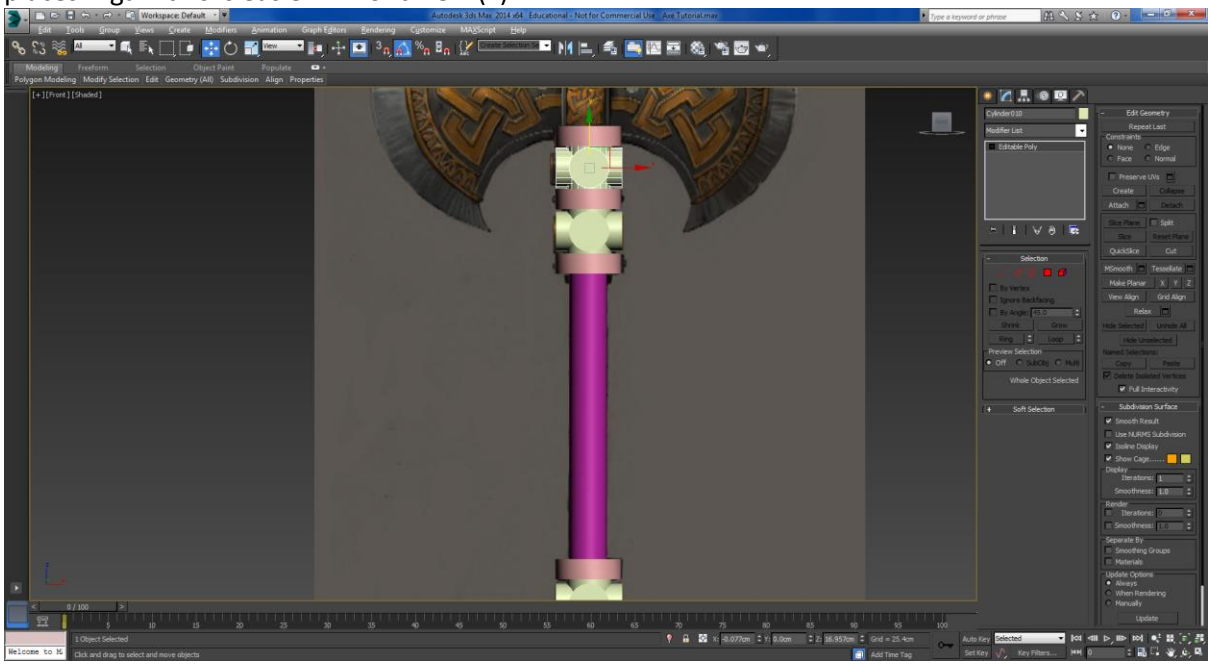
Right click anywhere in the viewport, and select Convert to > Convert to Editable Poly. This transforms the objects into a format which can be edited beyond the radius and height.



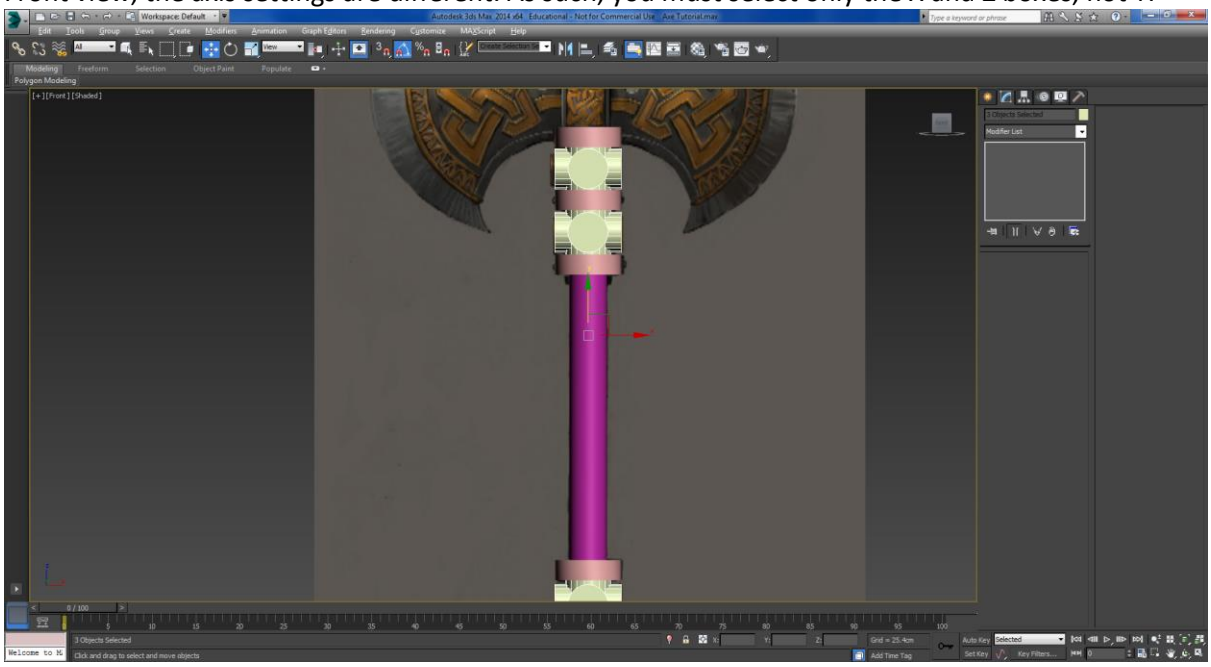
Now click only the middle of the 3 cylinders. Click on the Modify panel and click ‘Attach’. With this option highlighted blue, click on the other 2 cylinders that you converted. This will make all of the components part of the same object. Right click to exit the Attach mode.



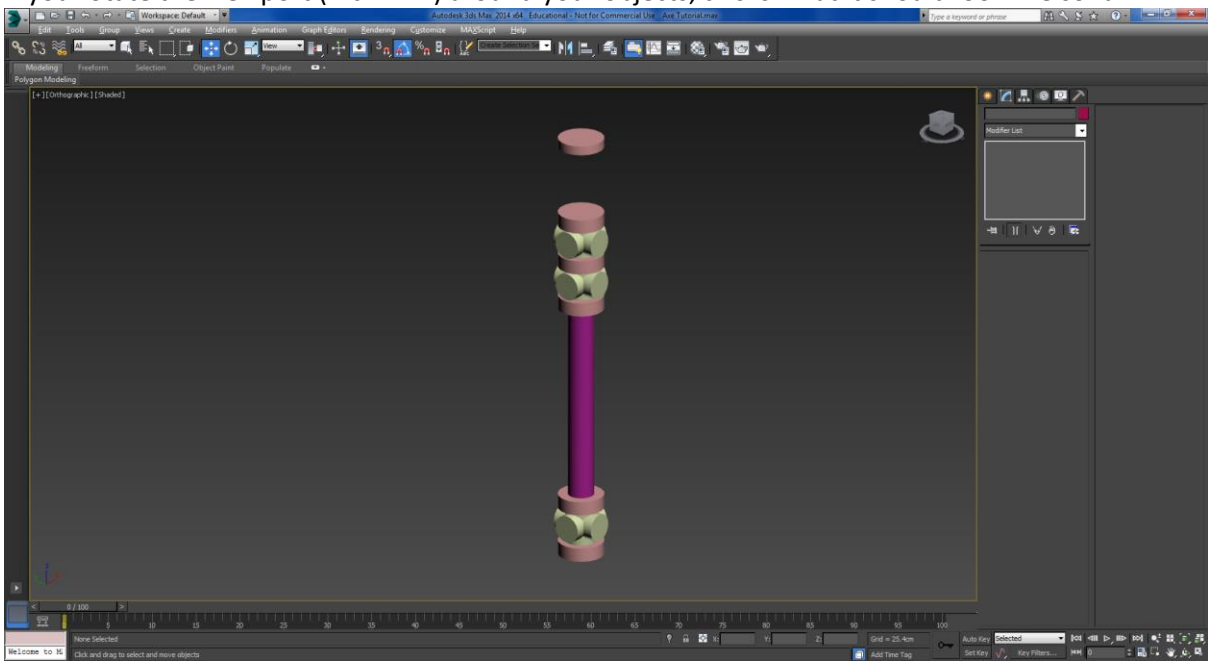
Using the Shift and move method, the same as earlier, create copies of these object in relevant places. Again this is easier in front view (F).



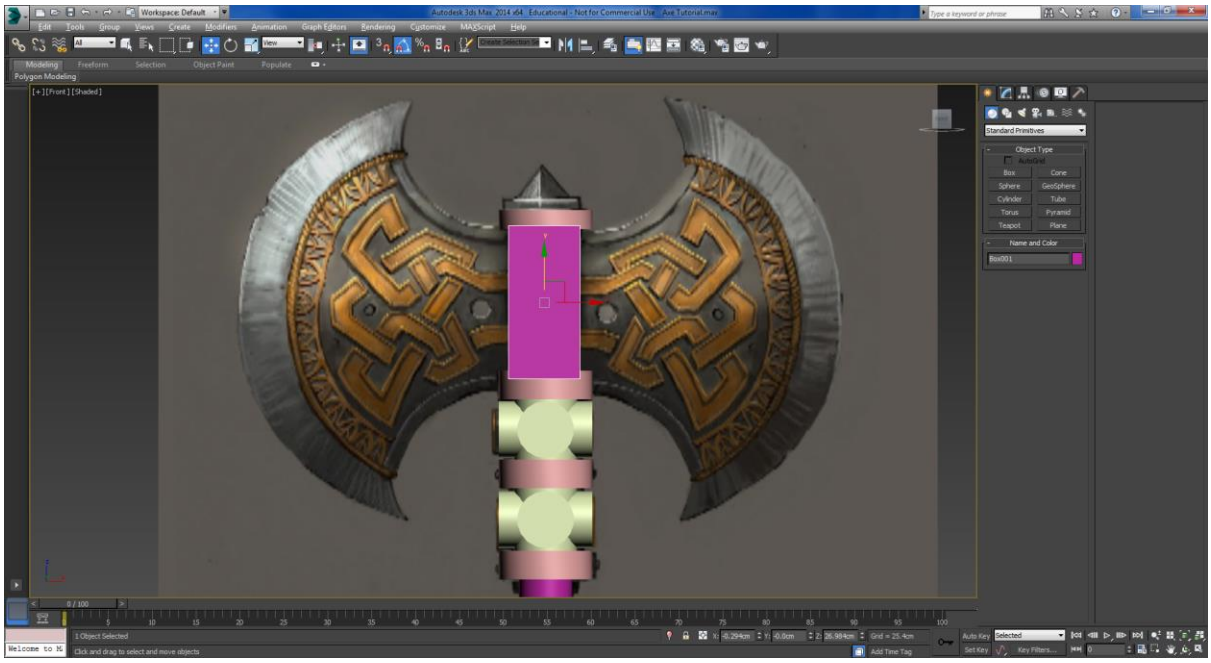
We must now align these 3 sets of cylinders to the handle. Again, using the same align method as before, select the 3 sets, click ‘Align’ and then click the handle. However, since we are now in the Front view, the axis settings are different. As such, you must select only the X and Z boxes, not Y.



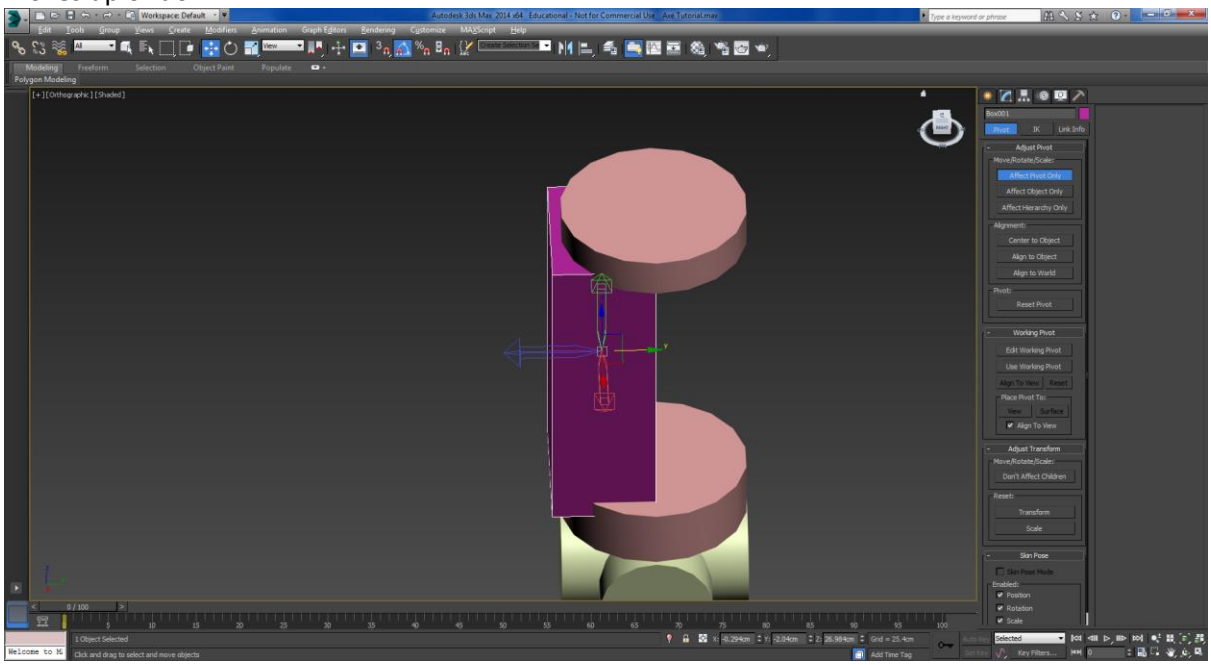
If you rotate the viewport (Alt MMB) around your objects, this is what it should look like so far.



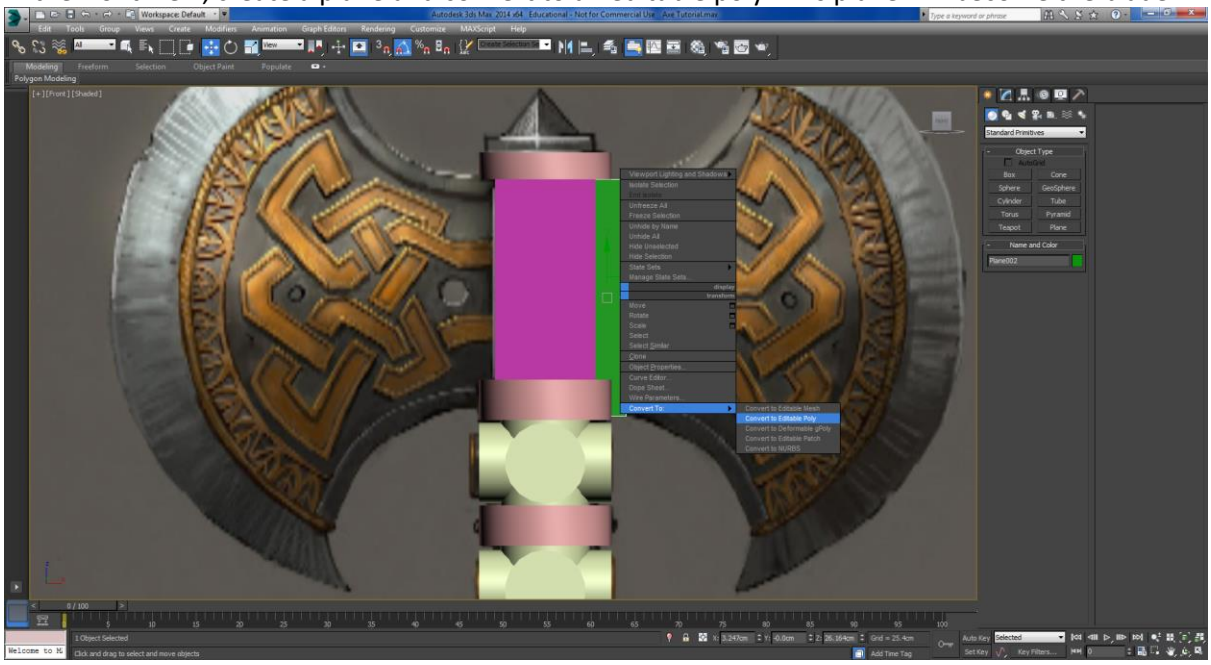
Back in the front view, create a box which is 12 x 5.6 x 4.1. Make sure that the segments are set to 1x1x1.

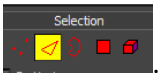


Centre pivot the pivot of the box, as we did before. Remember to click ‘Align pivot only’ to exit the adjustment mode. Then, align it to the handle. But remember not to align it in such a way that it moves up or down.

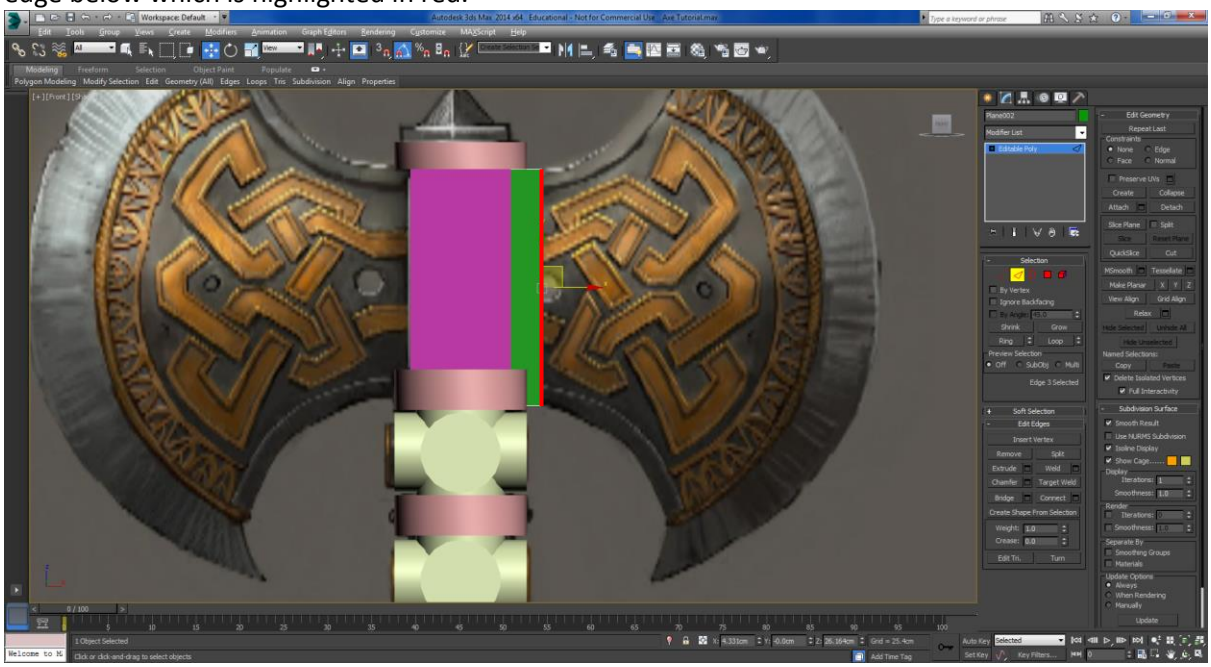


In the front view, create a plane and convert to an editable poly. This plane will become the blade.

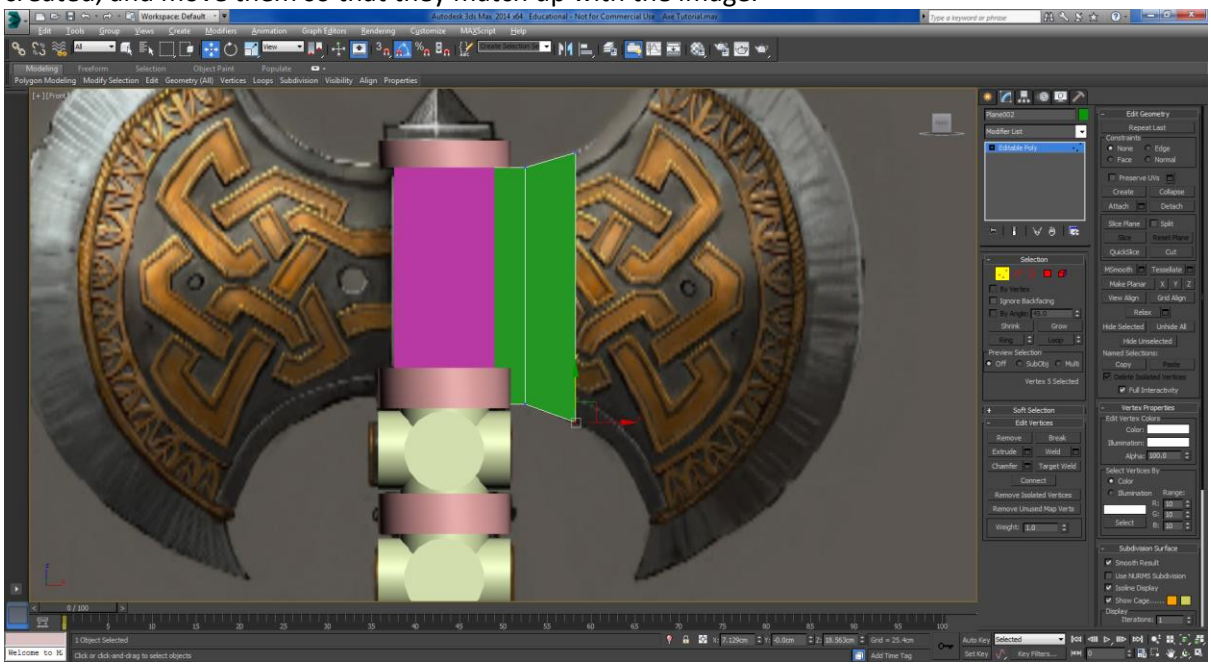


In the Modify panel and with the plane selected, click on the Edge selection option 

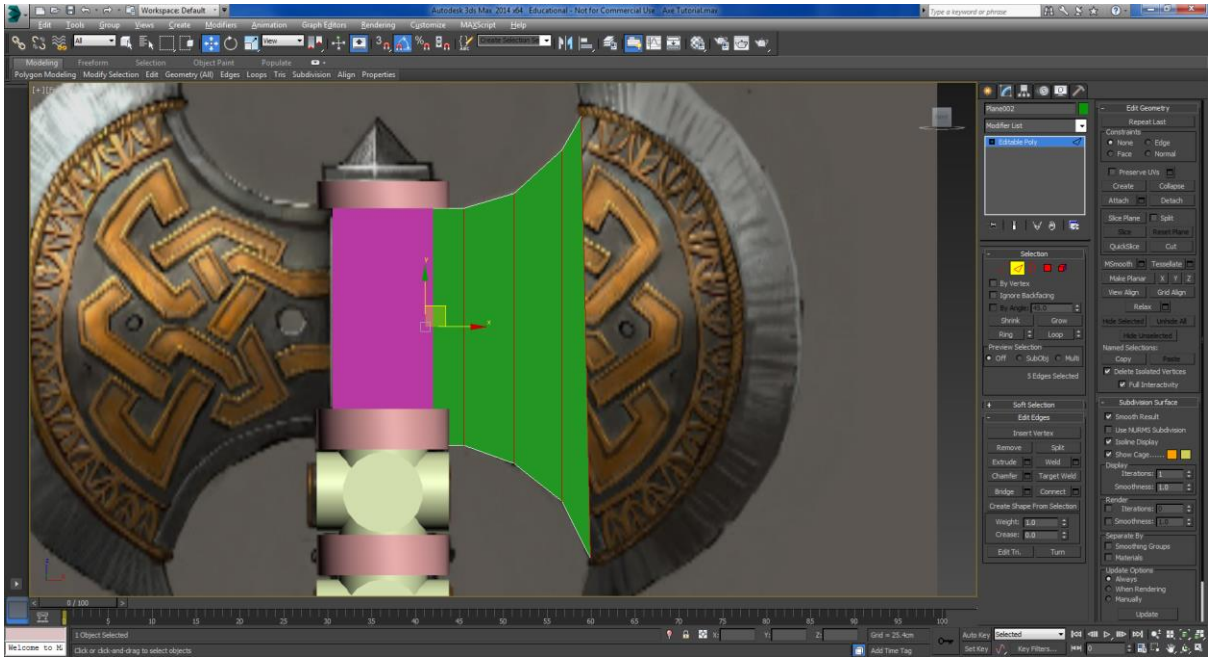
. This will allow you to select individual or multiple edges on your objects. While in this mode, click on the edge below which is highlighted in red.

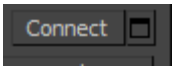


While in edge mode, if you hold SHIFT while moving, rotating, or scaling an edge, it will extrude it, creating more geometry. In this step, you will be extruding by using the move tool. Click ‘W’ on the keyboard, hold SHIFT and drag the edge out by clicking and dragging the red arrow. Then switch to Vertices mode (the 3 red points next to the edge mode). Click on each of the new verts which were created, and move them so that they match up with the image.

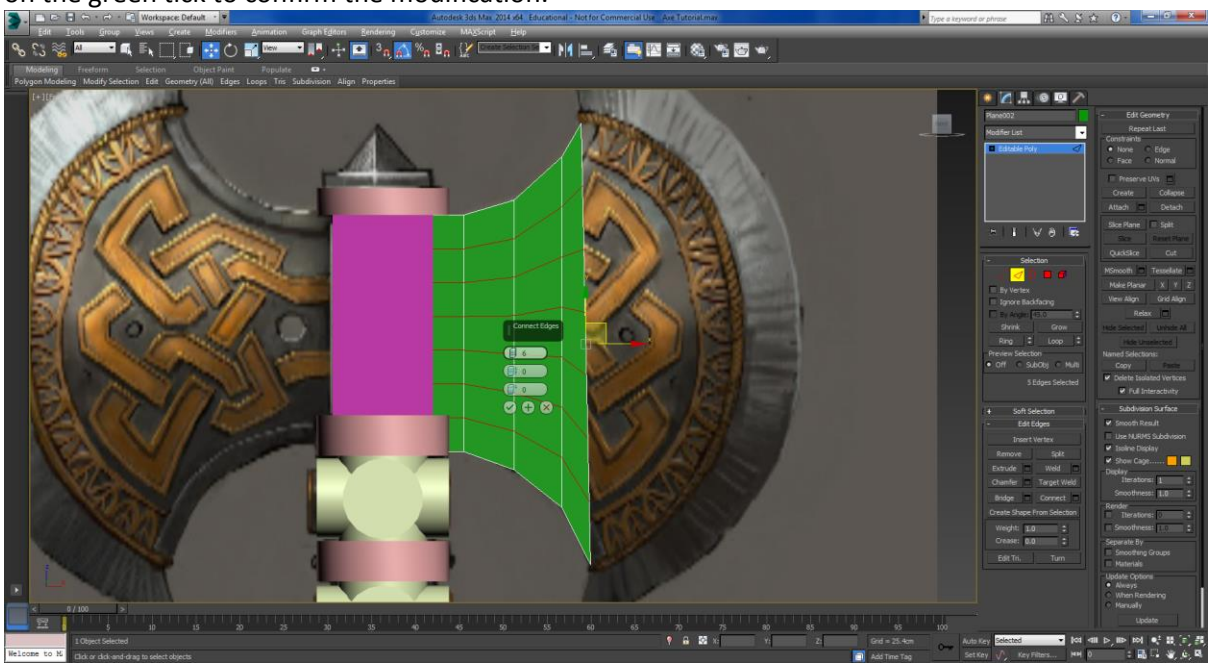


Repeat the steps above until your result looks like this. Then, in Edge mode, highlight the edges shown in red.

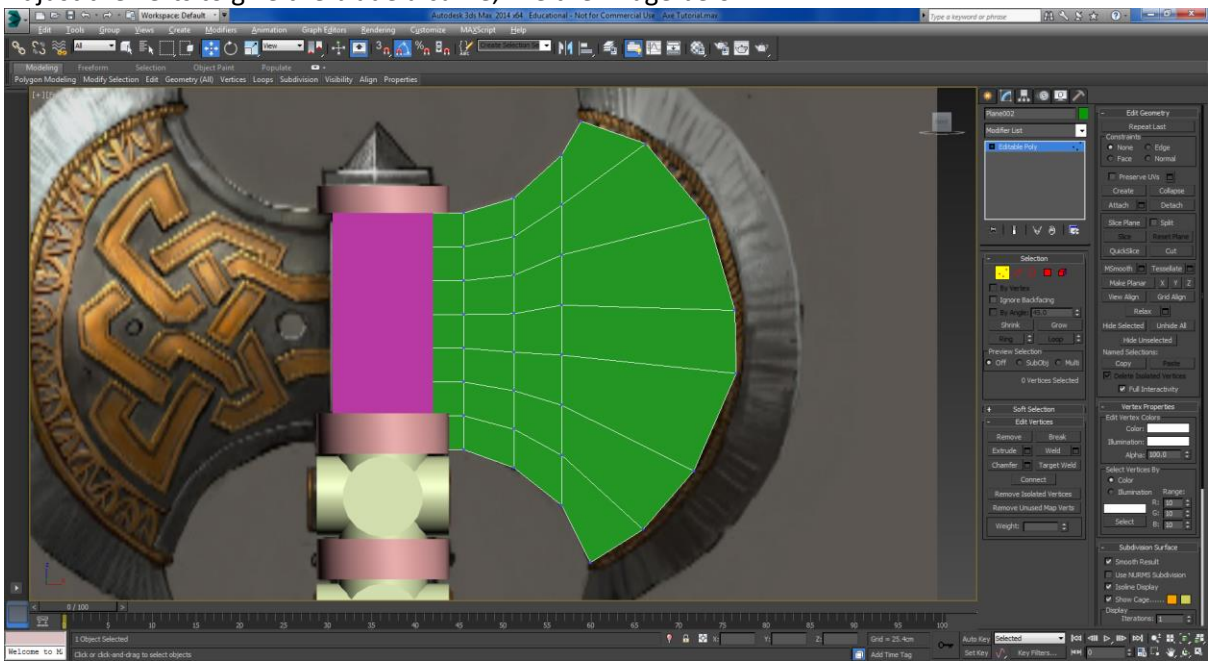


With these edges connected, click the small black button next to Connect 

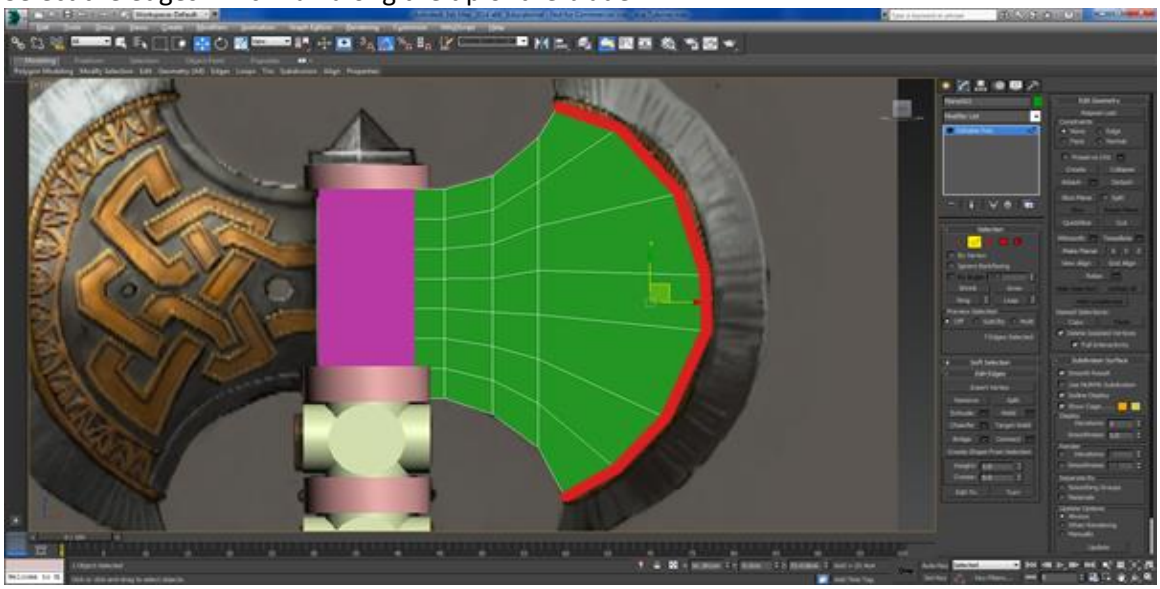
to bring up the connect options. Set the connections to 6 and your result should look like the image below. Click on the green tick to confirm the modification.



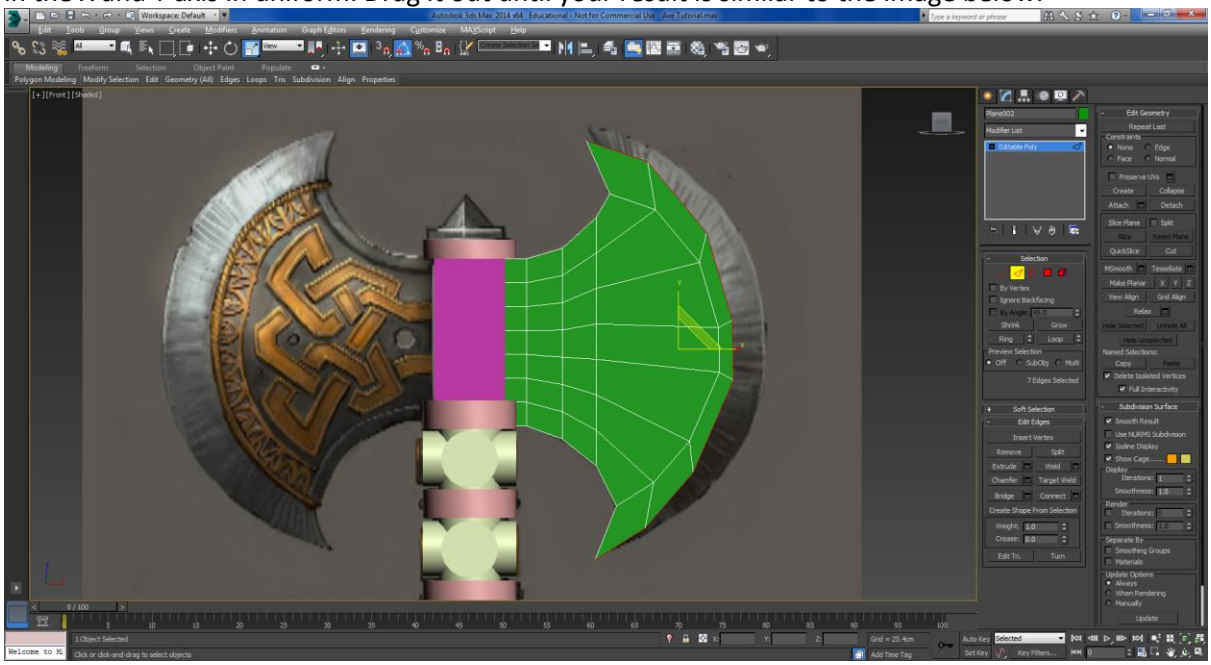
Adjust the verts to give the blade a curve, like the image below.



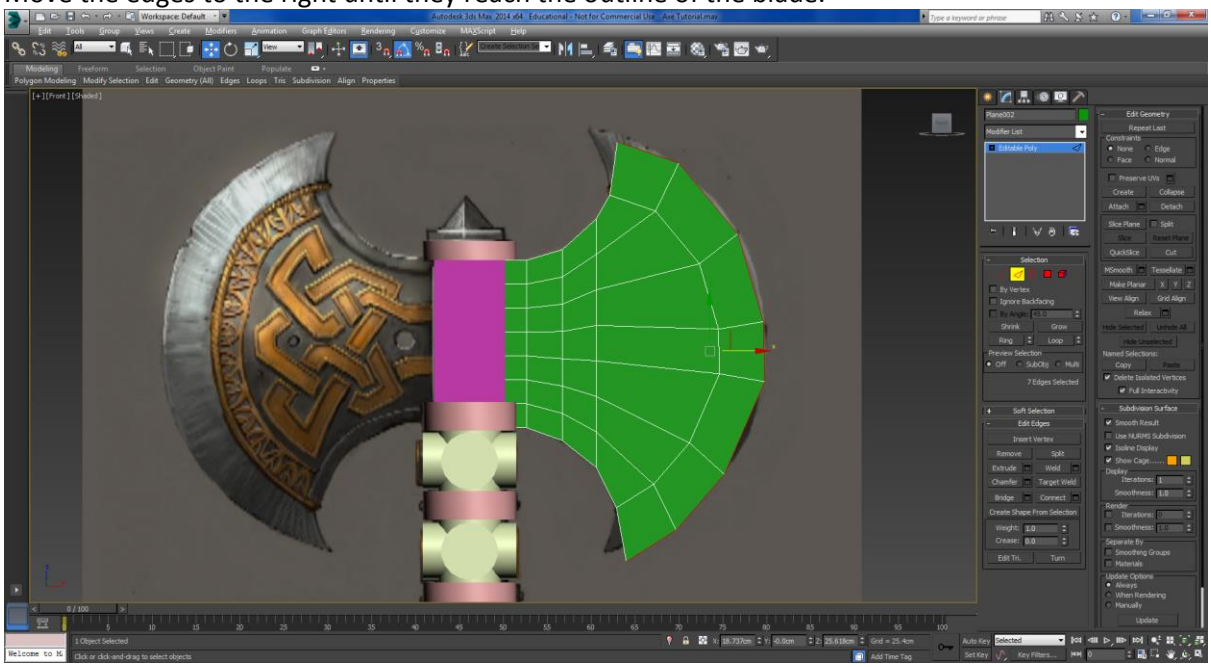
Select the edges which run along the tip of the blade.



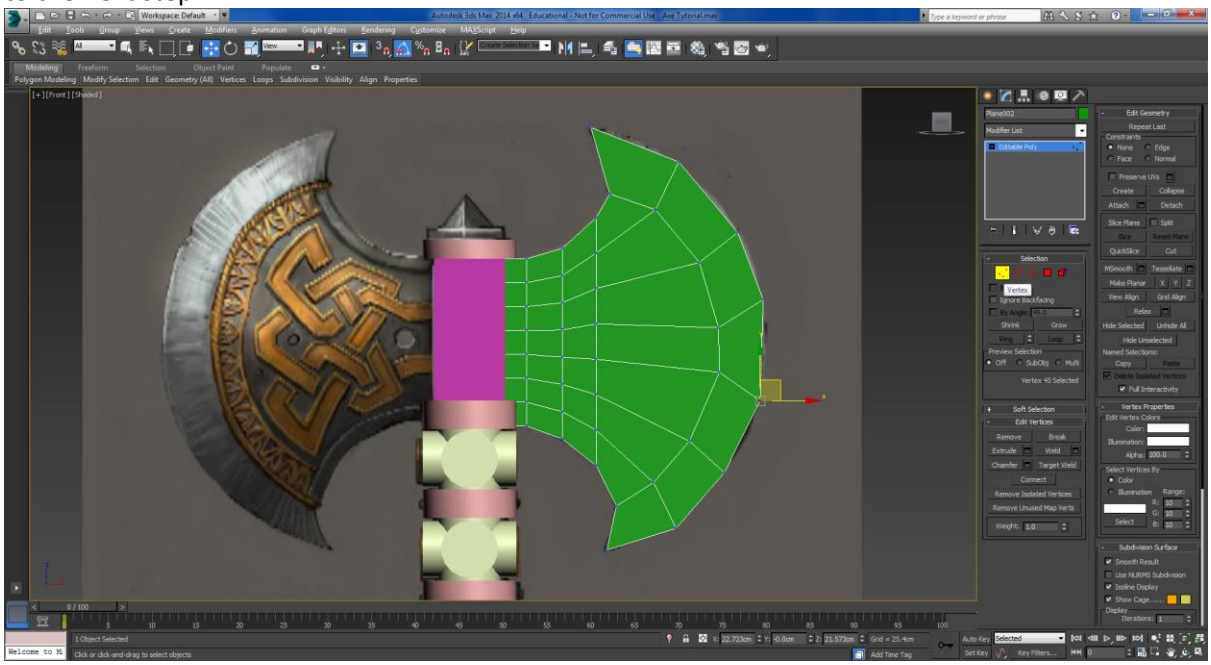
Press R to enable the scale tool. Then hold SHIFT and click in the diagonal bar of the gizmo, to scale in the X and Y axis in uniform. Drag it out until your result is similar to the image below.



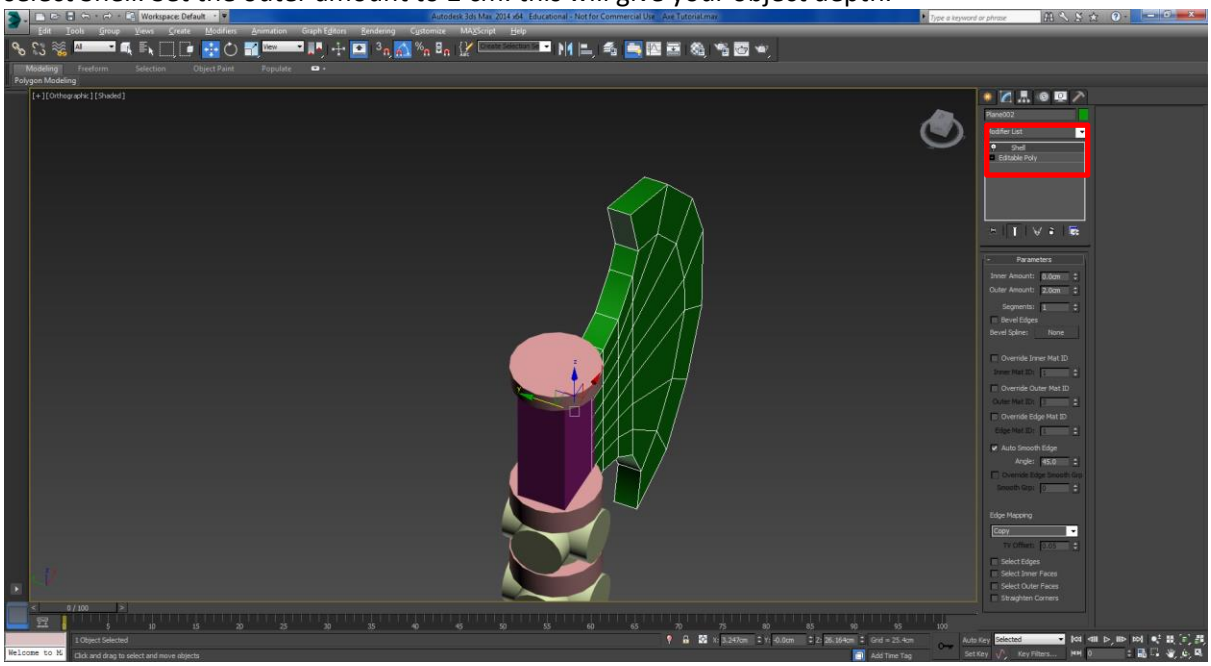
Move the edges to the right until they reach the outline of the blade.



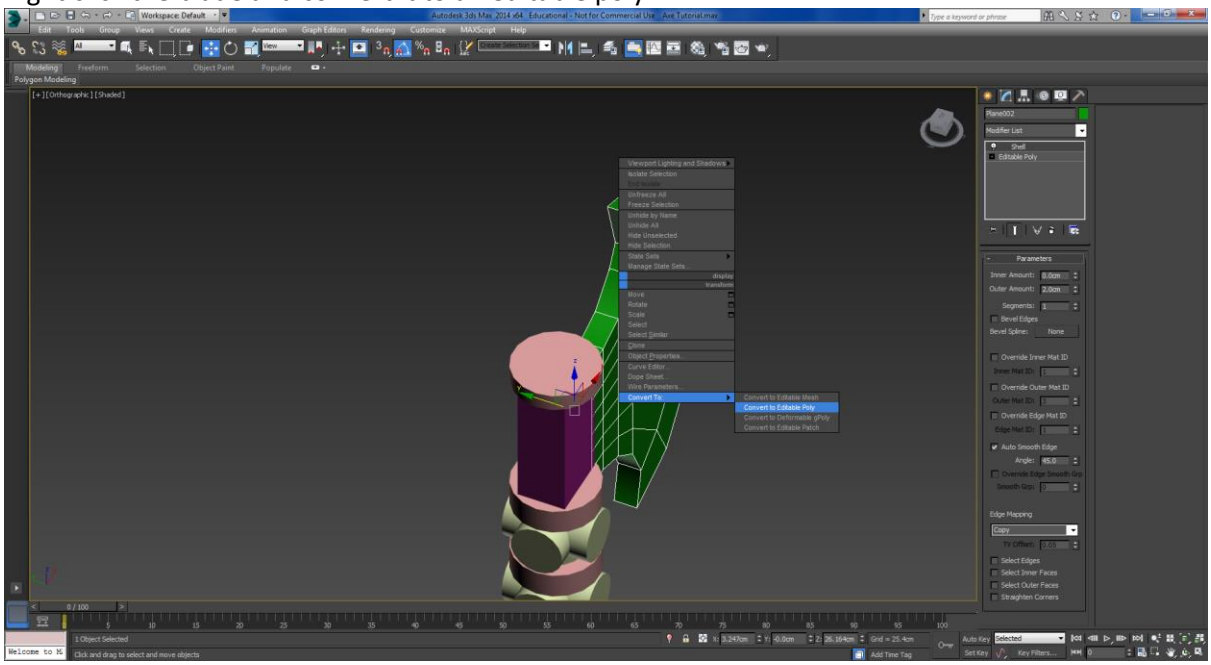
Move the verts so that they match the image. When your model looks like the one below, continue to the next step.



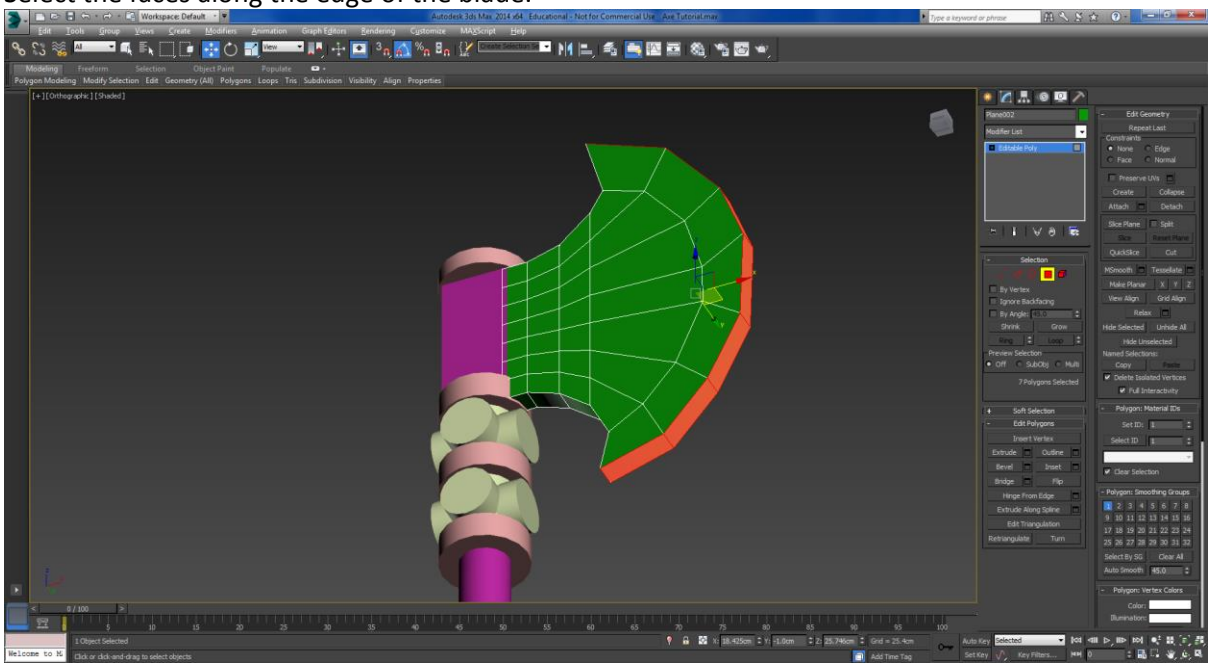
Click on the vertices selection icon once again to exit the editing (or whichever selection you are currently in). Then ensure that the blade is still selected. In the dropdown list of the modify panel, select Shell. Set the outer amount to 2 cm. this will give your object depth.



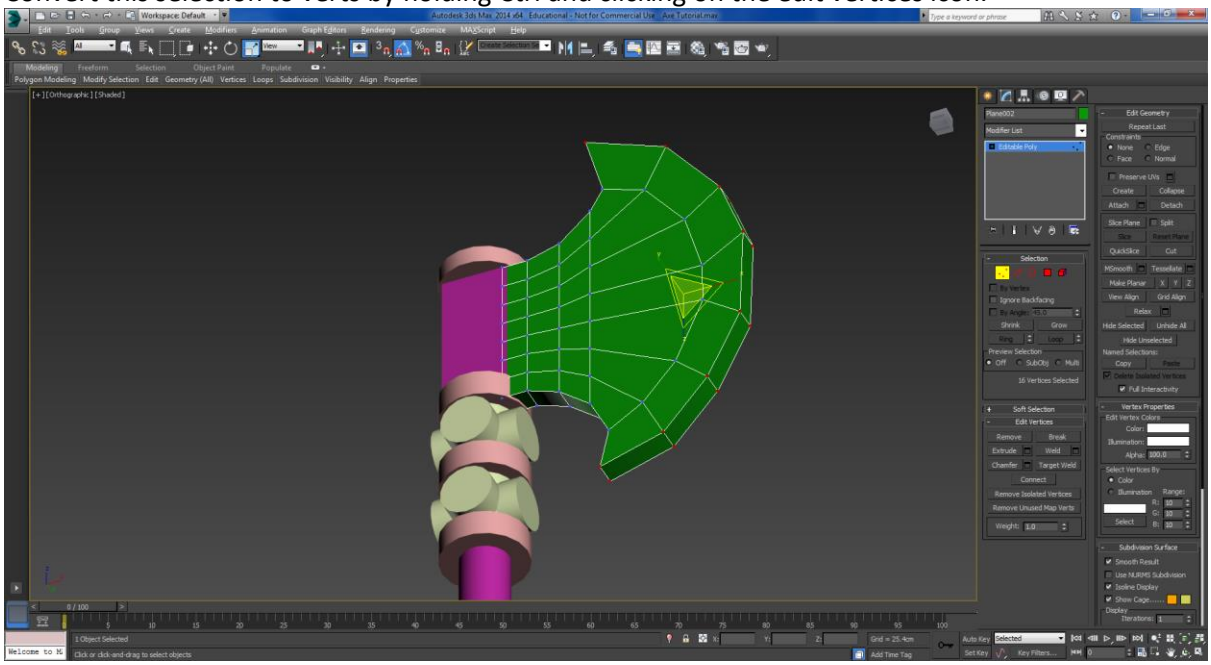
Right click the blade and convert it to an editable poly.



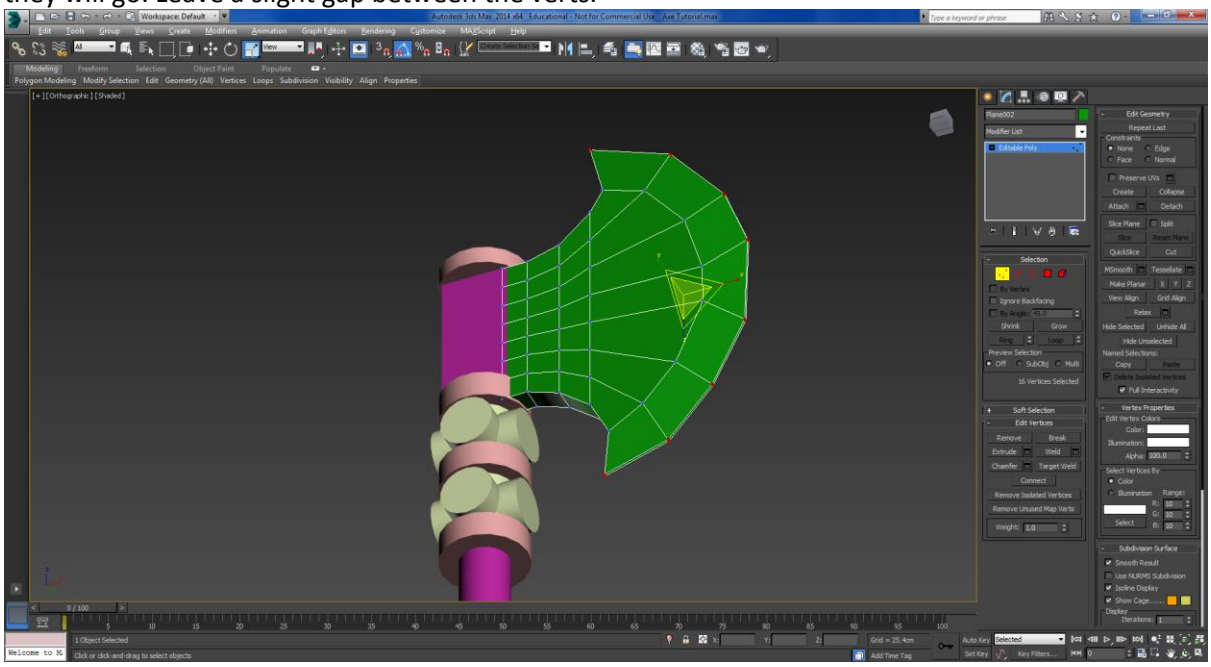
Select the faces along the edge of the blade.



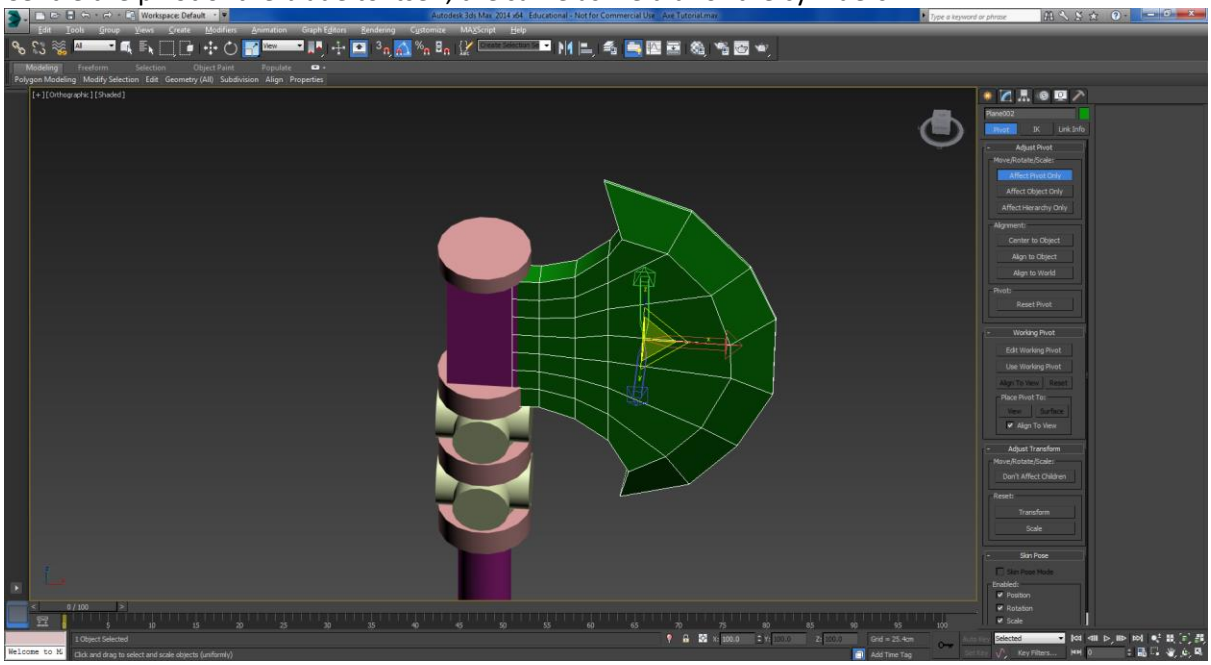
Convert this selection to verts by holding Ctrl and clicking on the edit vertices icon.



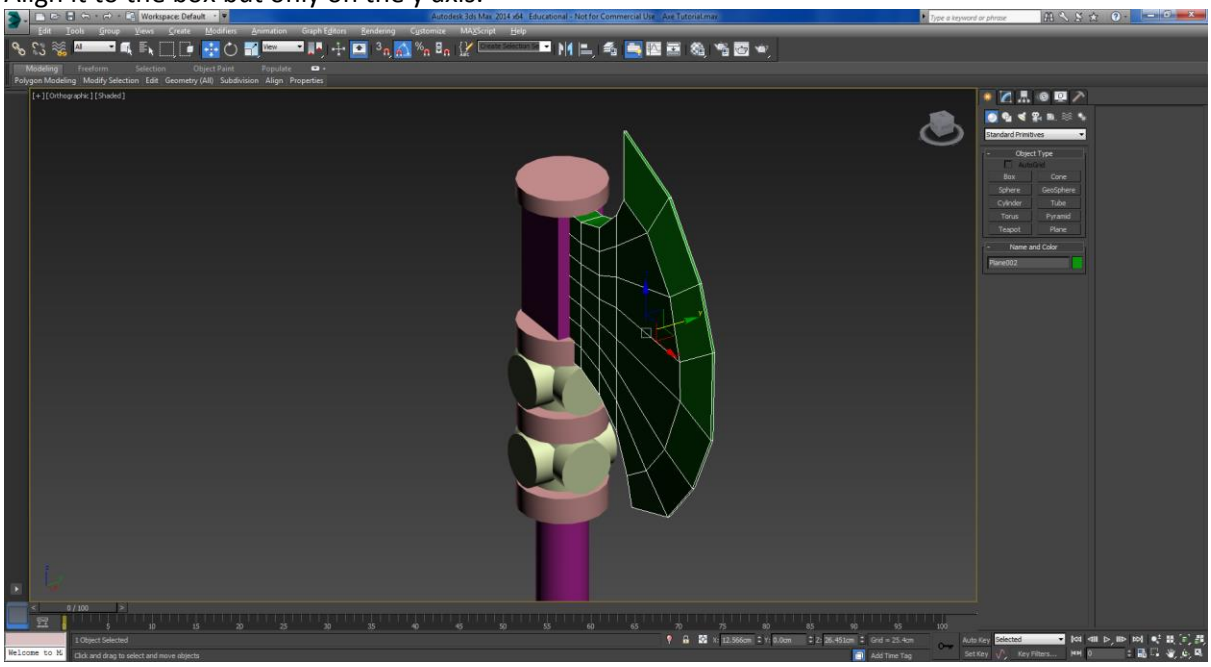
Scale the points in the Y axis to make the blade thinner at its edge. Do not scale these in as far as they will go. Leave a slight gap between the verts.



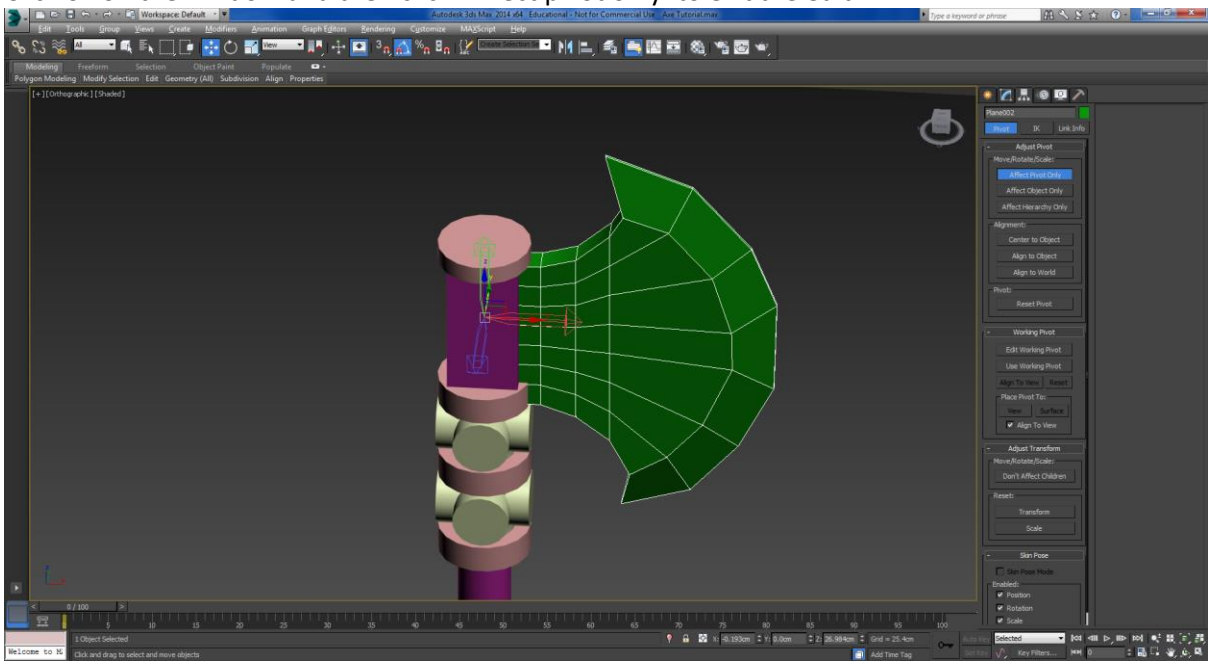
Centre the pivot of the blade to itself, the same as we did for the cylinders.



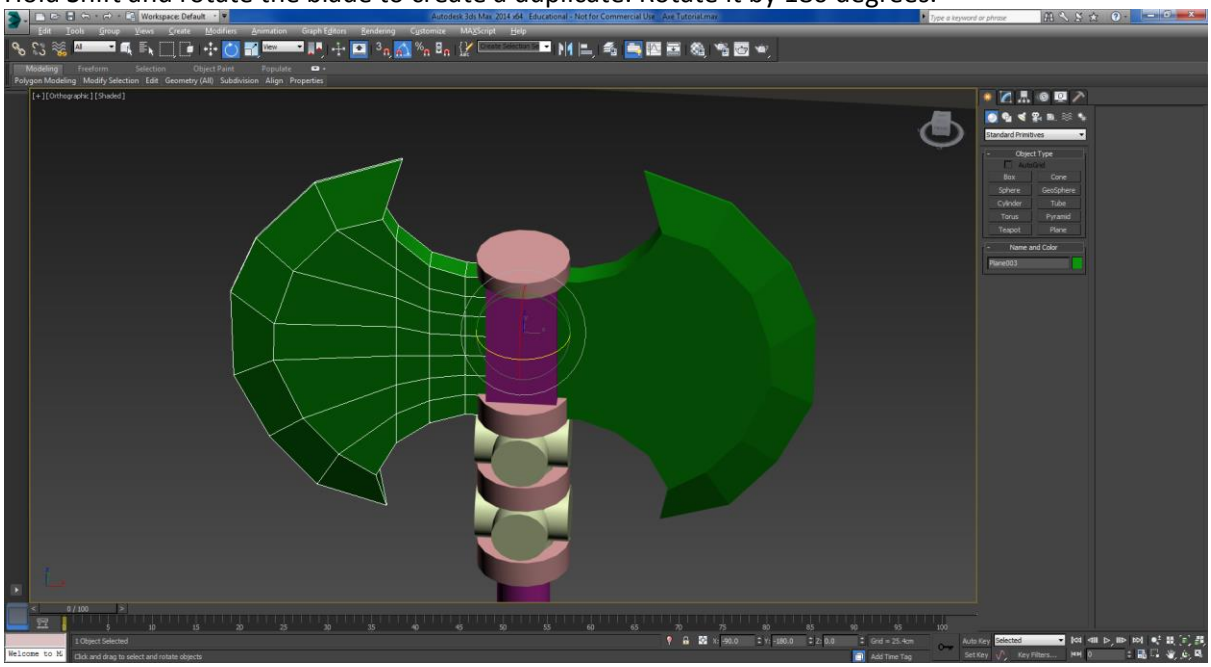
Unlike previous,ly, we only want the blade to move backwards and forwards, only in 1 dimension. Align it to the box but only on the y axis.



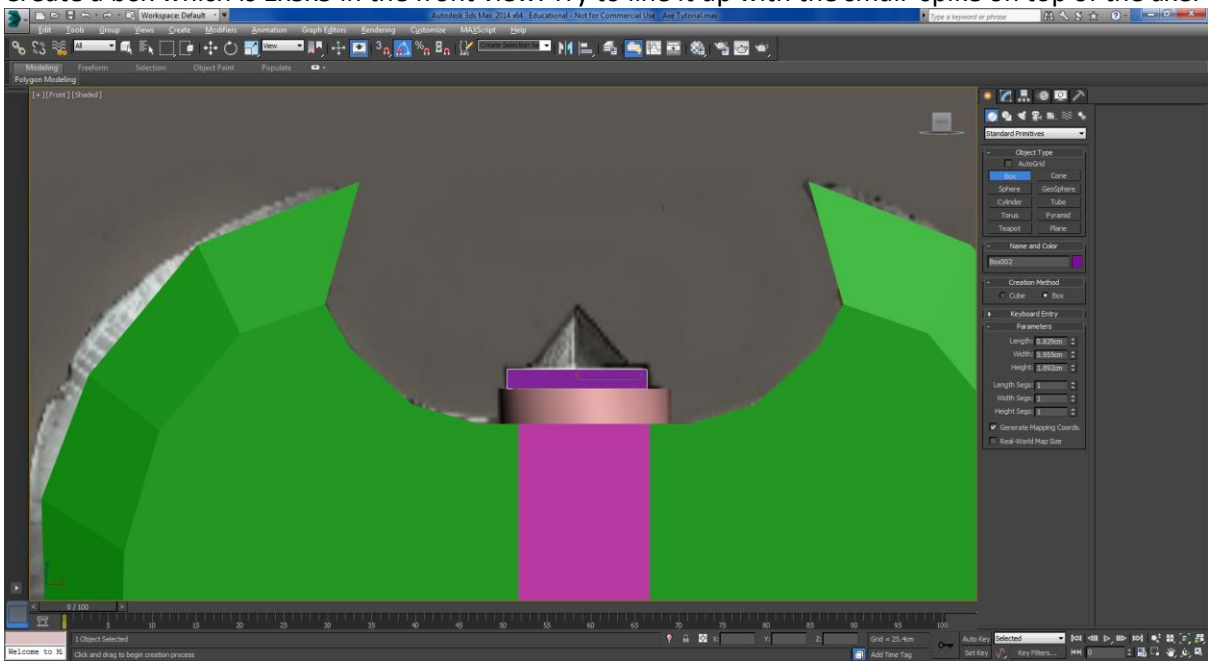
Now, we want to align the pivot of the blade to the centre of the box. To do this we must combine 2 tasks which have been covered in this tutorial. First, go to the Hierarchy panel and click ‘Affect pivot only’. Then, click on the align tool along the top toolbar (the same option we used to align various cylinders to one another). Click on the box, next to the blade, and align it in all of the axis, x, y and z. Click ok on the window and then click ‘Affect pivot only’ to exit the edit.



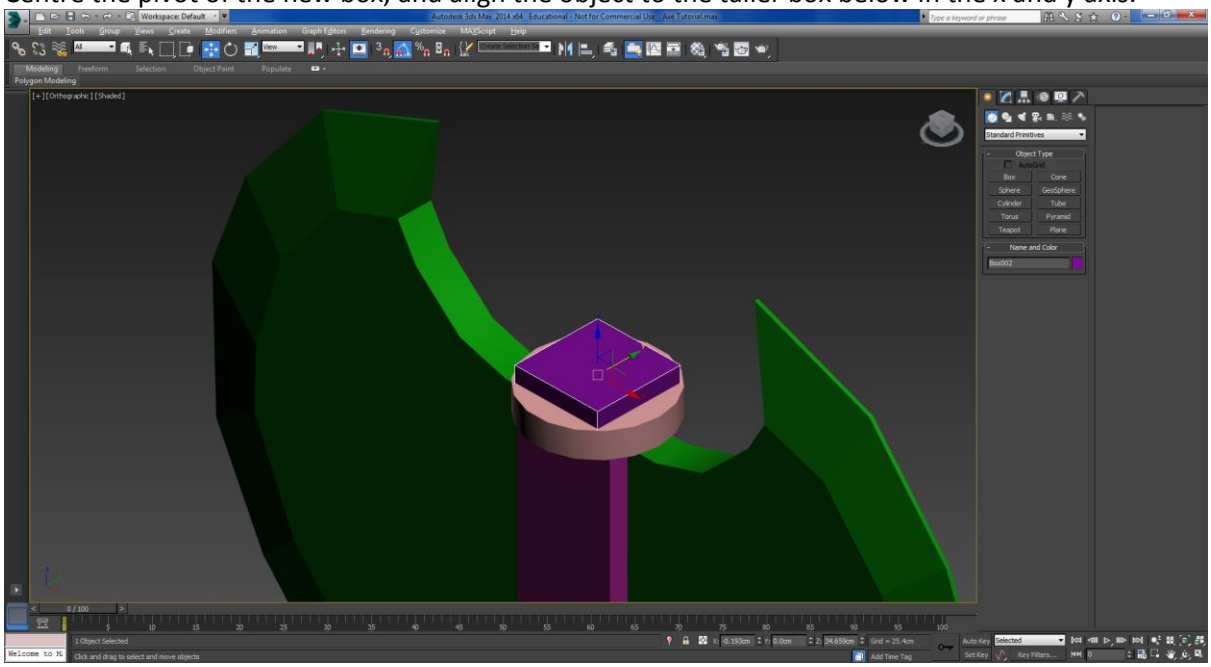
Hold Shift and rotate the blade to create a duplicate. Rotate it by 180 degrees.



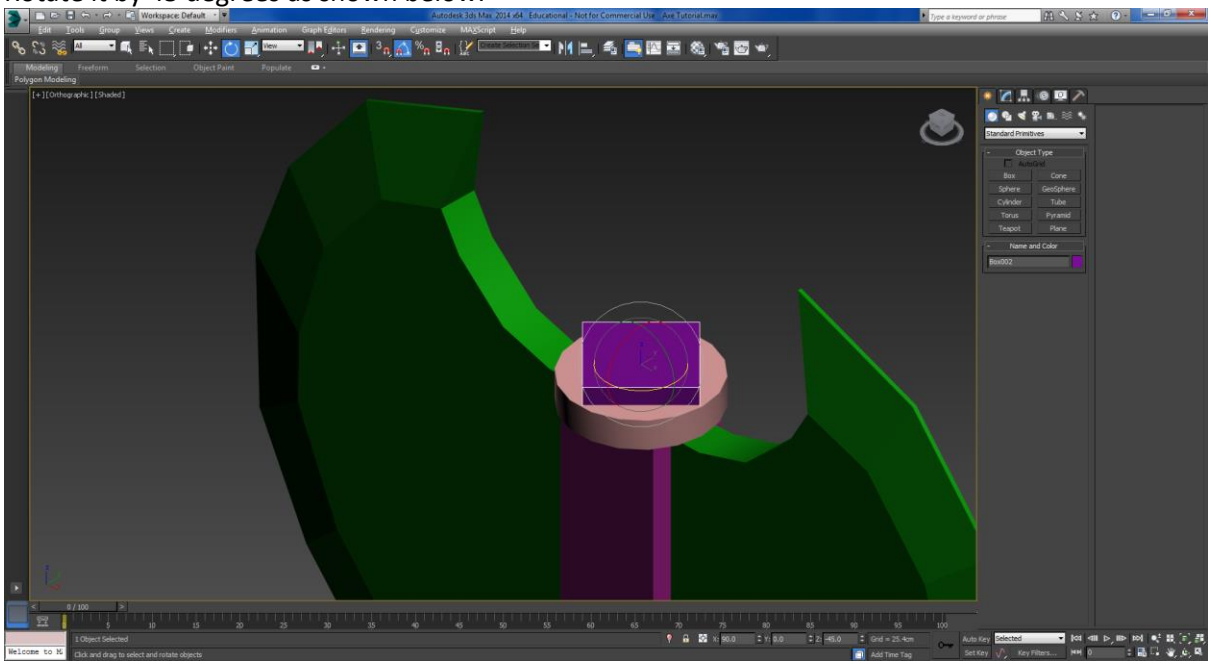
Create a box which is 1x5x5 in the front view. Try to line it up with the small spike on top of the axe.



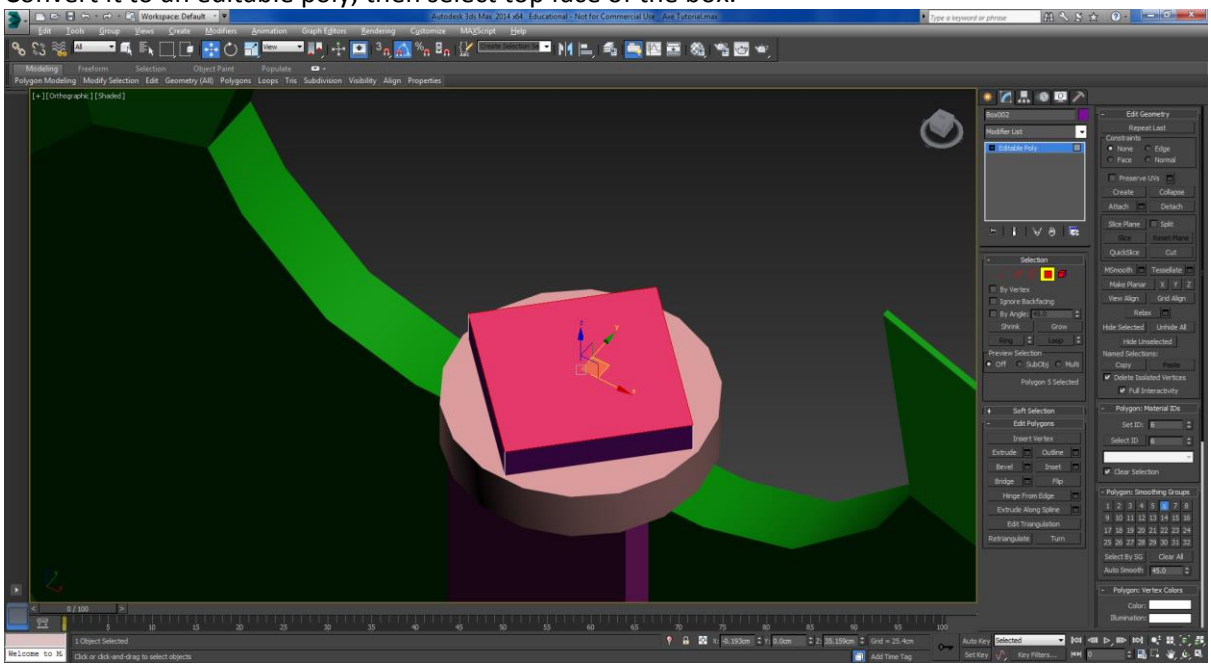
Centre the pivot of the new box, and align the object to the taller box below in the x and y axis.



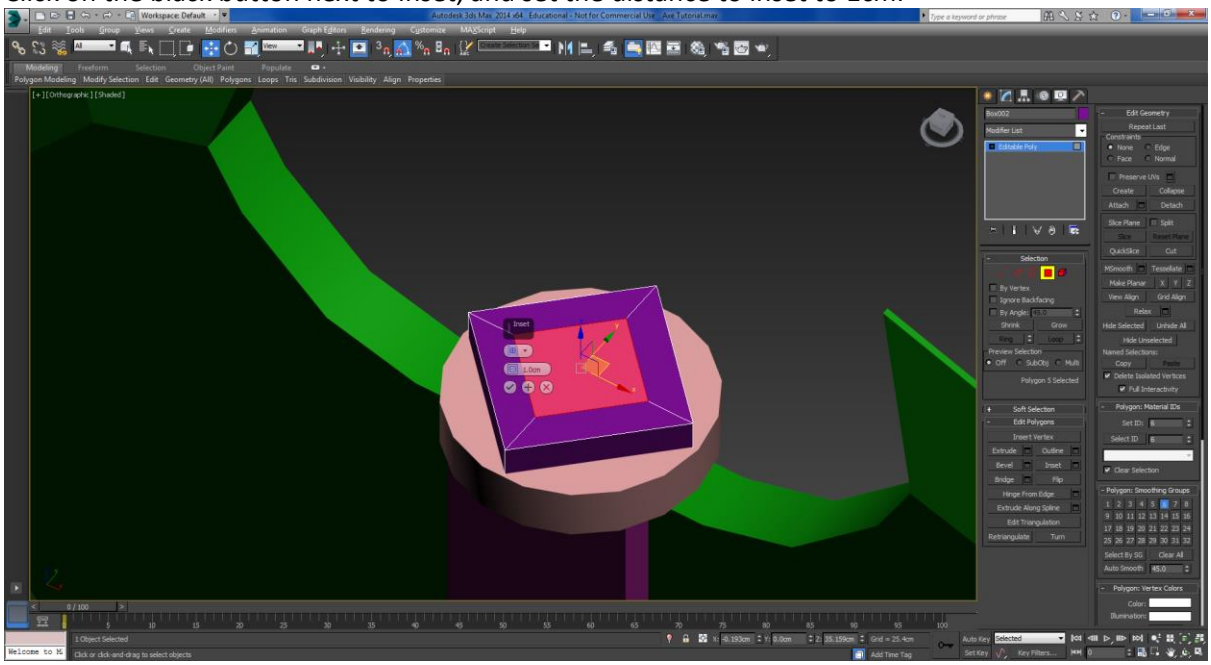
Rotate it by 45 degrees as shown below.



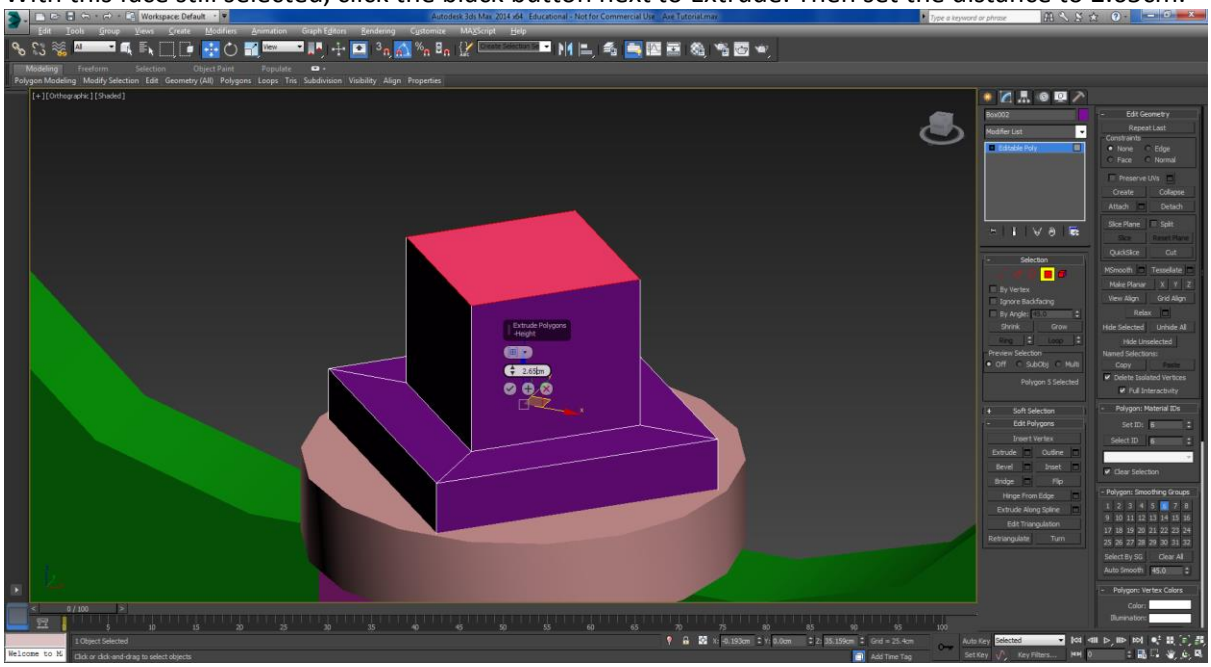
Convert it to an editable poly, then select top face of the box.



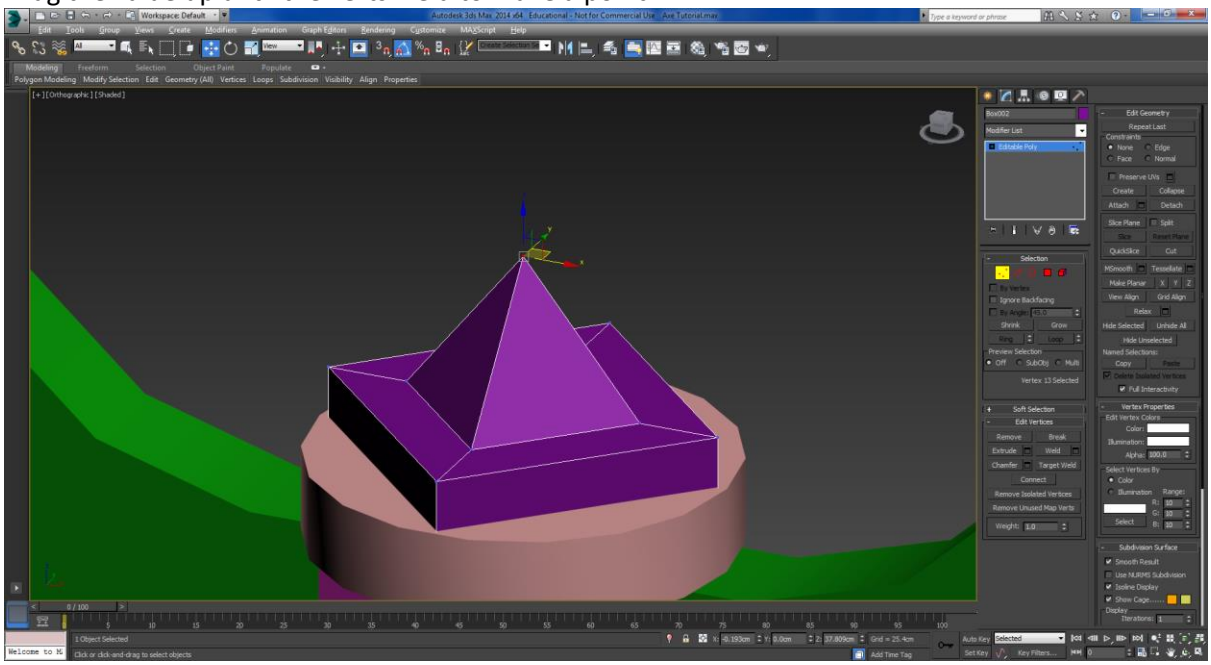
Click on the black button next to Inset, and set the distance to inset to 1cm.



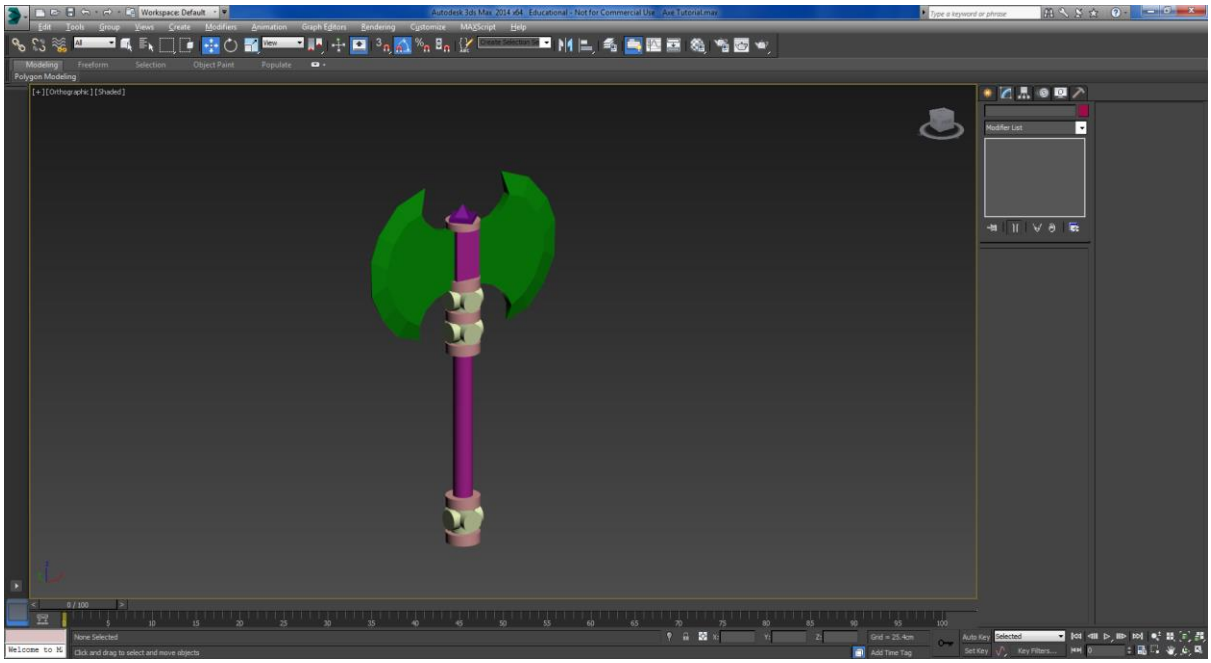
With this face still selected, click the black button next to Extrude. Then set the distance to 2.65cm.



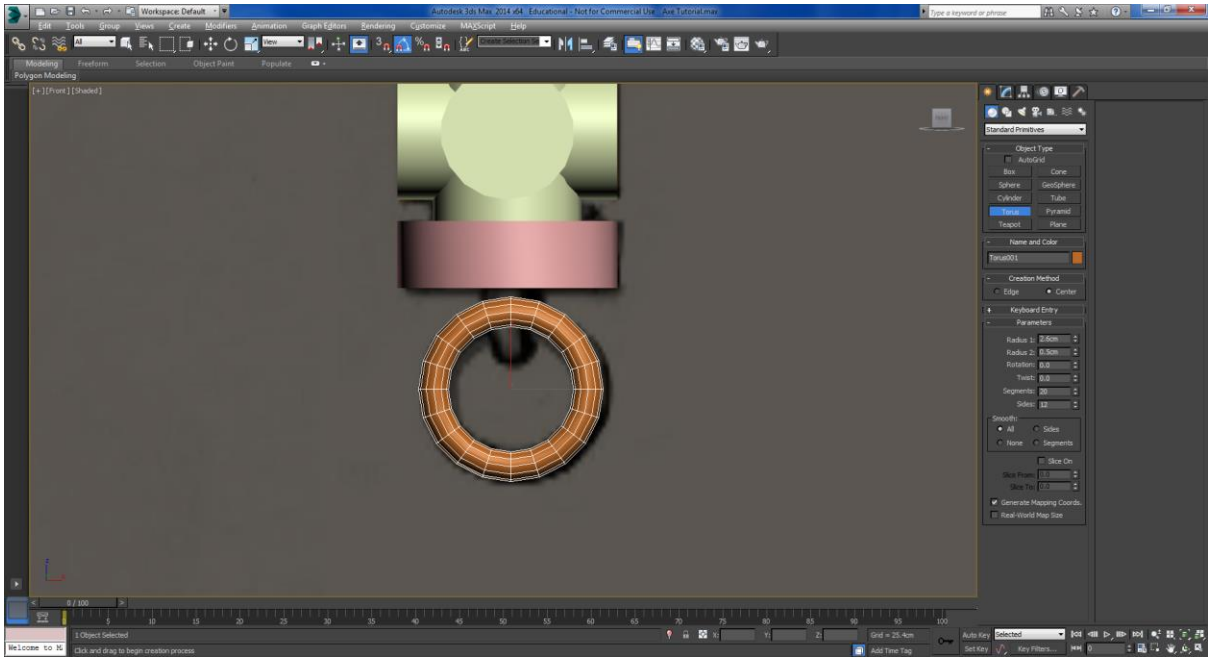
Convert the selection to verts (Ctrl click verts icon) and then click the black button next to Weld. Drag the value up until the verts weld to make a point.



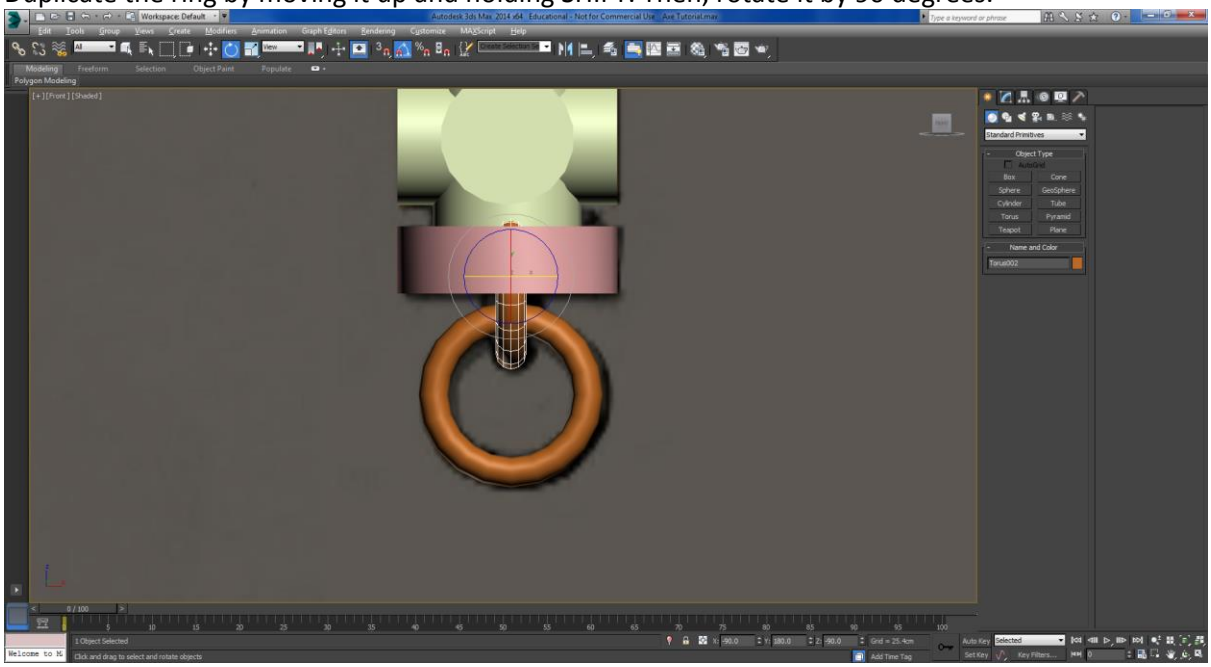
This should be the result so far.



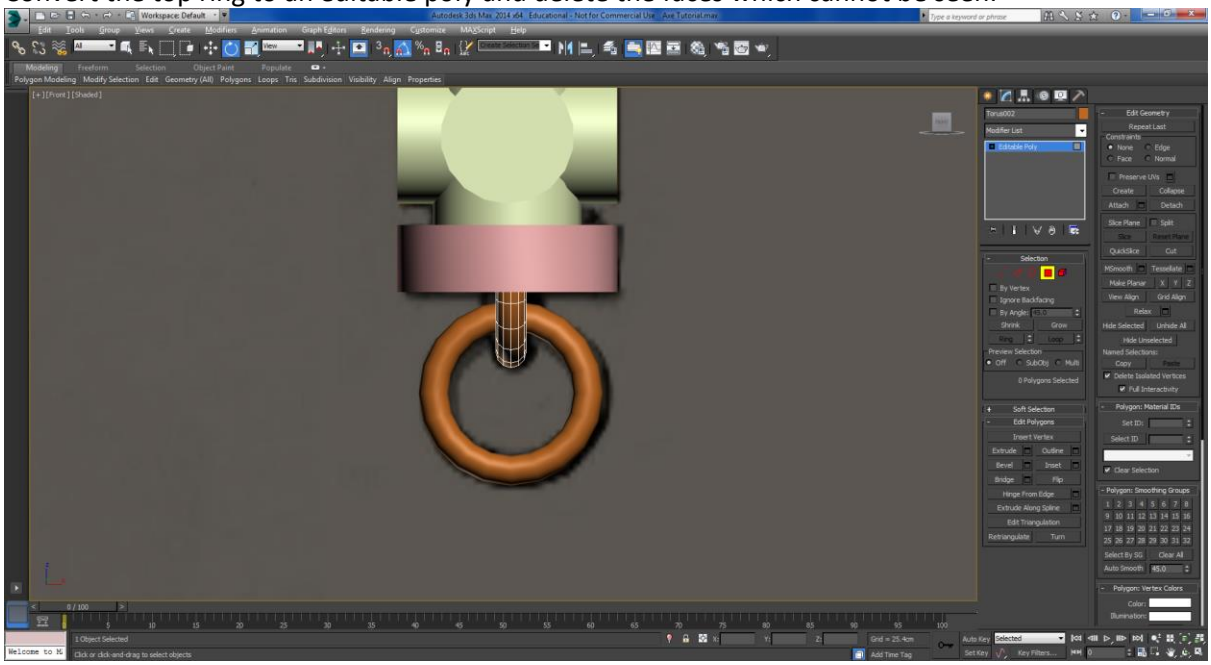
To create the ring at the base, click F to go to front view, then create a torus with the following –
Radius 1: 2.6cm
Radius 2: 0.5cm
Segments: 20
Sides: 12



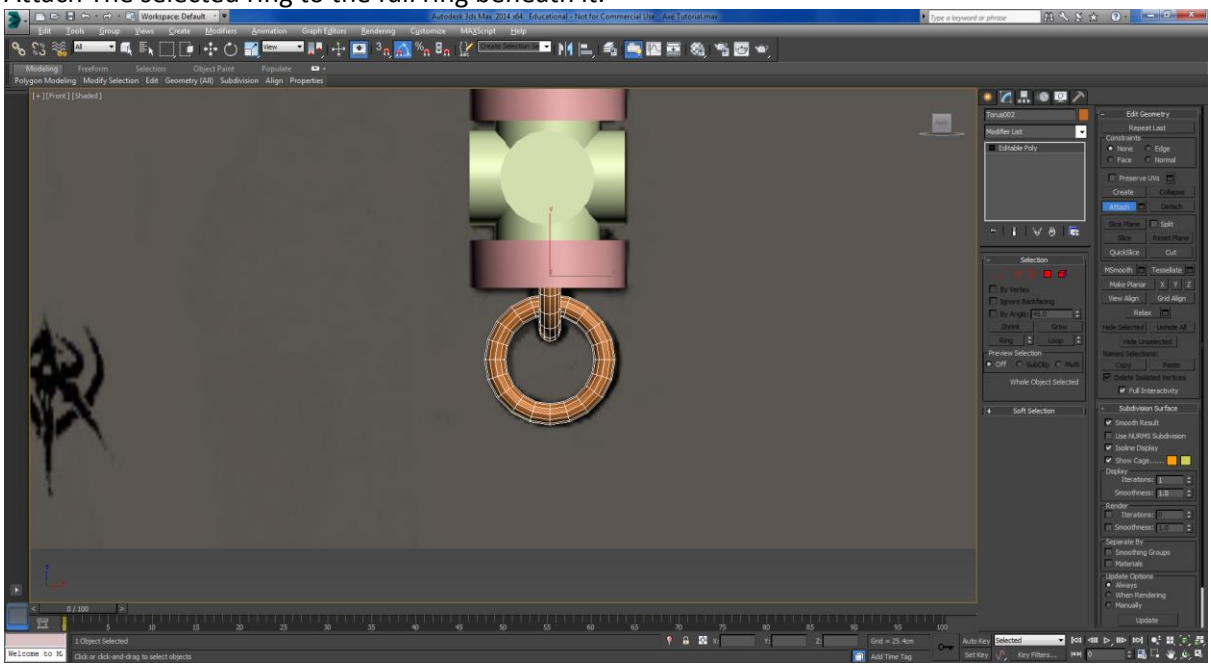
Duplicate the ring by moving it up and holding SHIFT. Then, rotate it by 90 degrees.



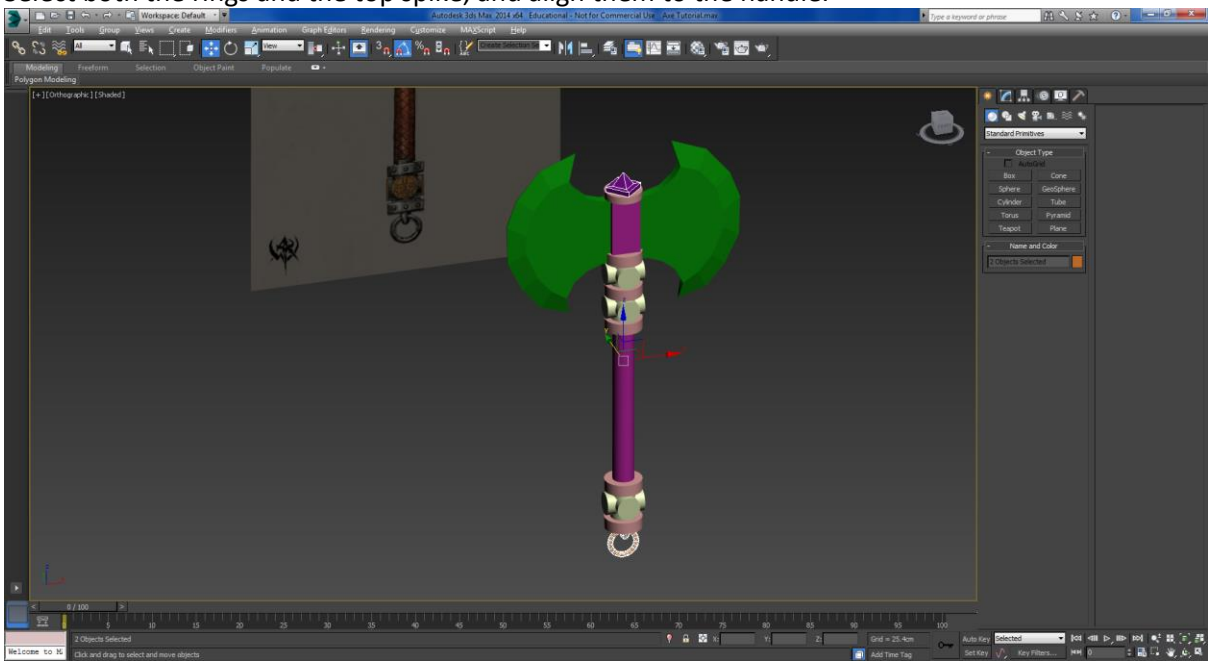
Convert the top ring to an editable poly and delete the faces which cannot be seen.



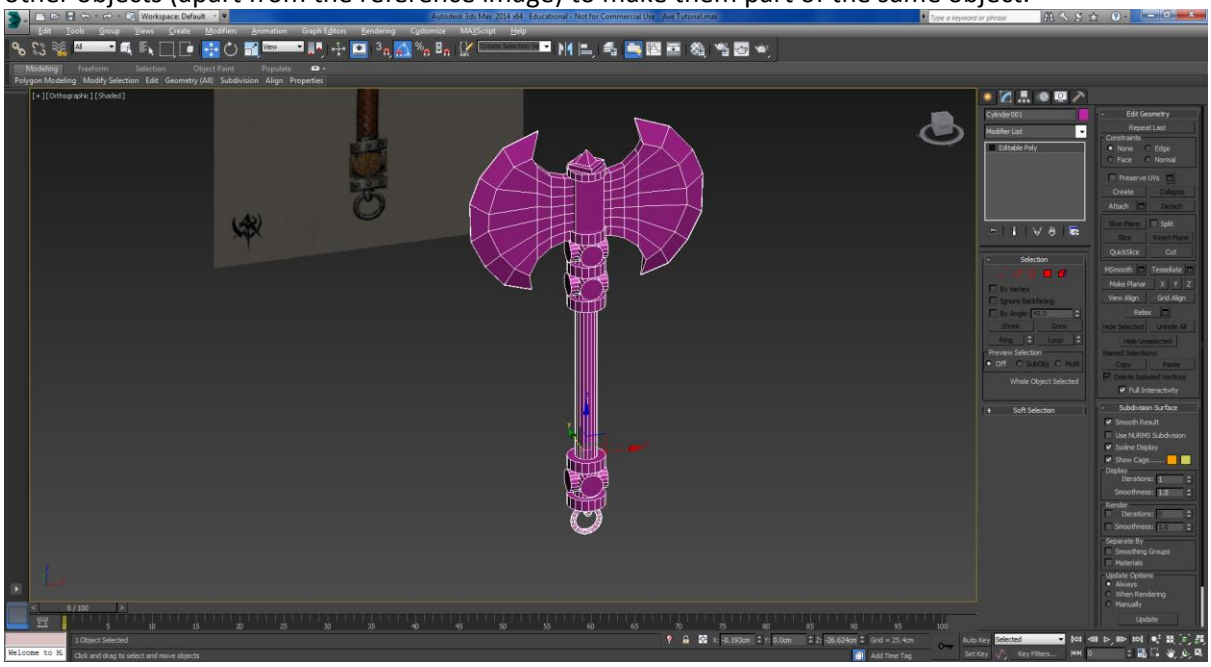
Attach The selected ring to the full ring beneath it.



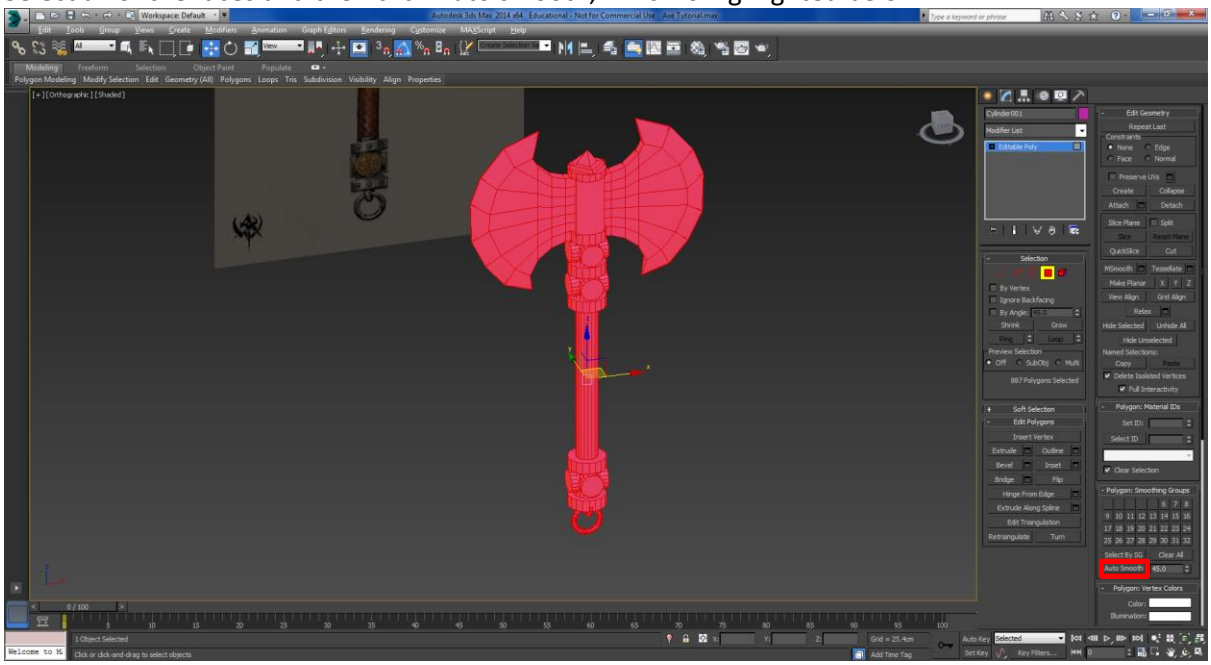
Select both the rings and the top spike, and align them to the handle.



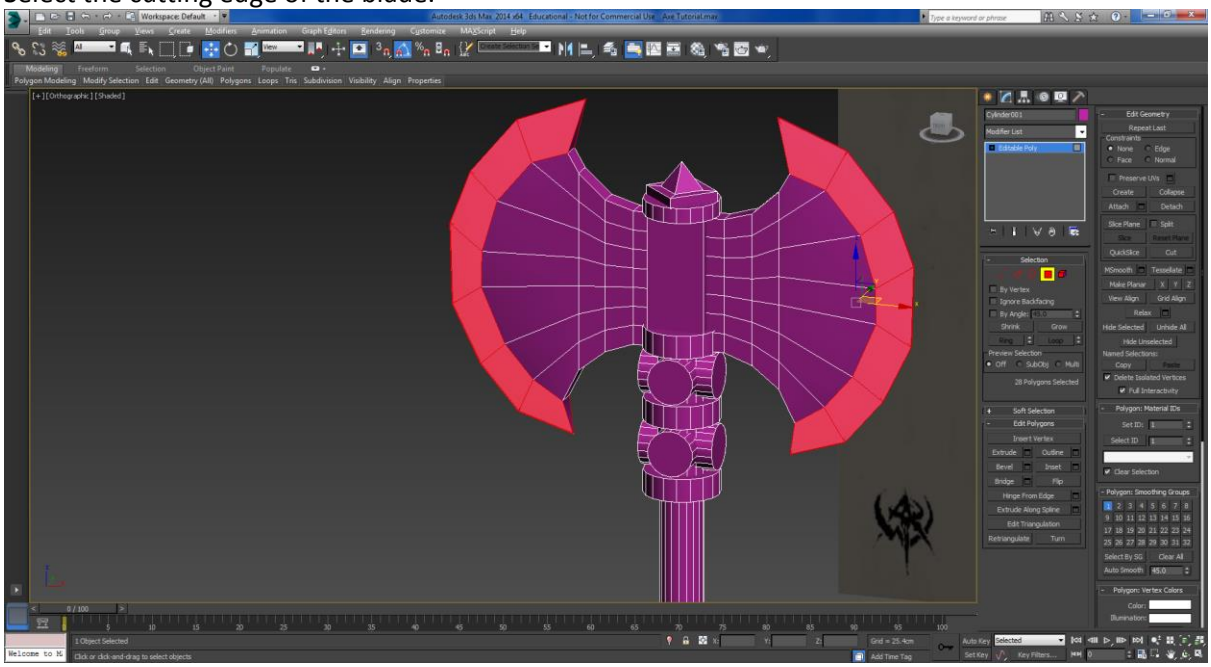
Select the handle and convert it to an editable poly. Then click ‘Attach’ and individually click the other objects (apart from the reference image) to make them part of the same object.



Select all of the faces and then click Auto smooth, which is highlighted below.



Select the cutting edge of the blade.



Then clear all smoothing by clicking ‘Clear all, located near auto smooth. After this, click the number 32 to change the selected faces smoothing group.