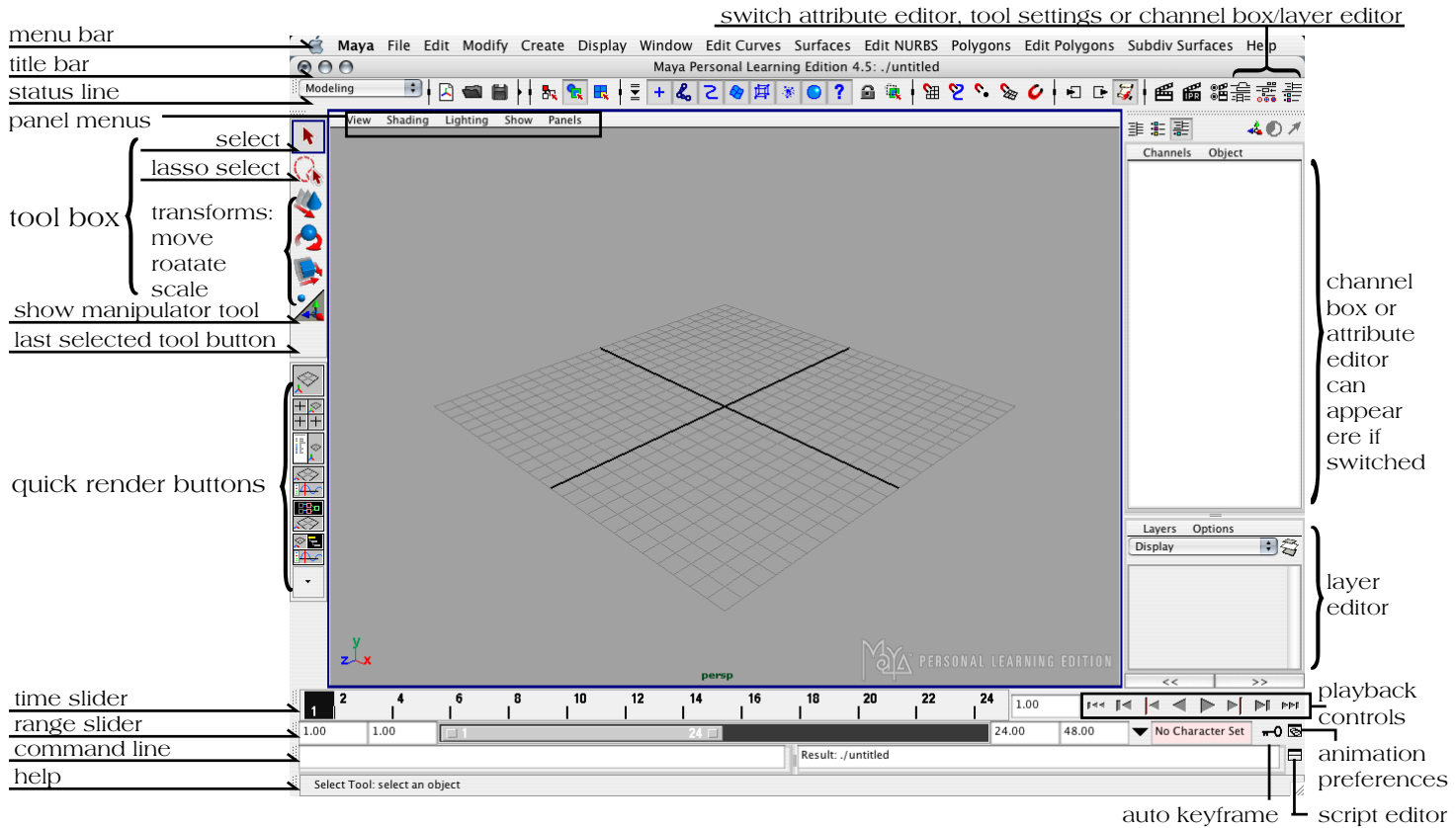


Maya Complete 4.5

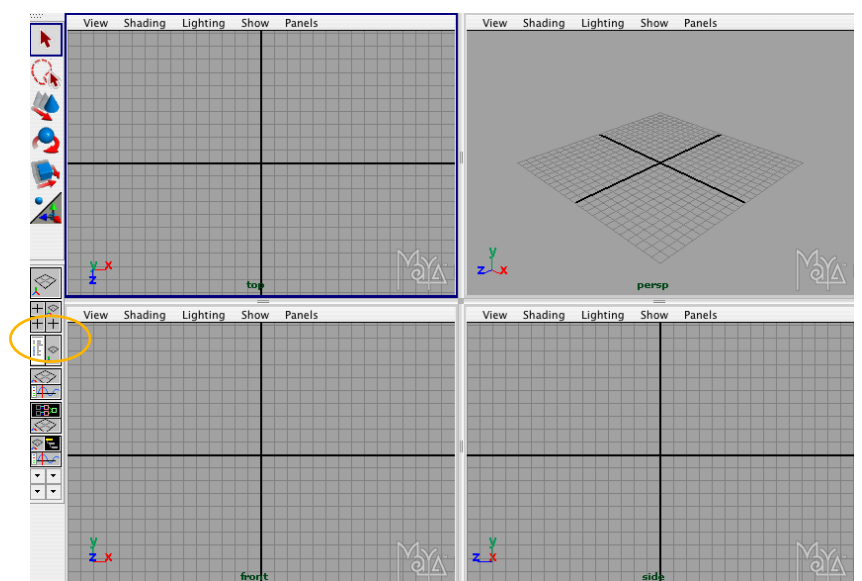
UI (User Interface)

This term refers to the display (as shown below) and is a term commonly used in any computer application programme to describe the workspace displayed on the screen. The image below of Maya's UI is the default display that appears when the programme is first opened up. It can be completely customised to a users particular requirements but we'll be staying with the default setting.



The display above shows the perspective viewport. This is 3 Dimensional space which means objects/shapes can be moved UP/DOWN, LEFT/RIGHT, FORWARD/BACKWARD, or any other angle but working in this view can be confusing to an inexperienced user so by clicking on the Four View button circled below we can bring up three additional viewports that move objects/shapes in 2 Dimensional space i.e. UP/DOWN, LEFT/RIGHT or diagonally.

These three additional viewports are called Orthogonal views and show objects/shapes in proportion to each other in scale but not depth as the latter is perspective. In the bottom left corner of each viewport is the axis symbol, this indicates which direction/s the viewport is looking at i.e. Top, Front, Side. When an object/shape is created it is then assigned its own individual axis that relates it to the surrounding environment when it's moved.

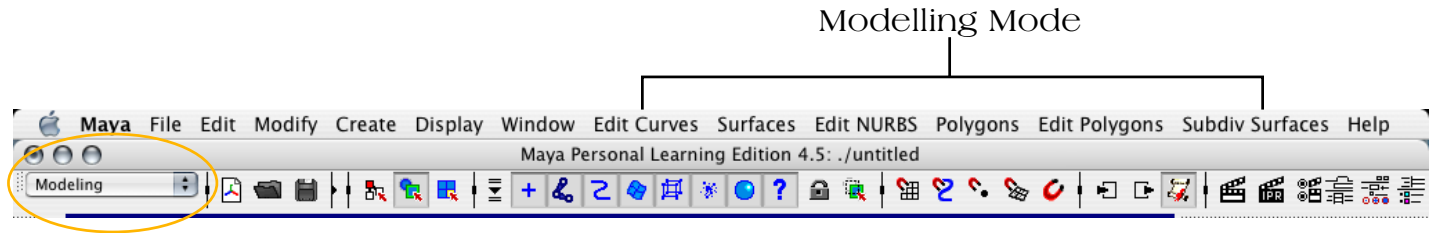


X = Horizontal (Left and Right). Y = Vertical (Up and Down). Z = Depth (Forward and Backward).

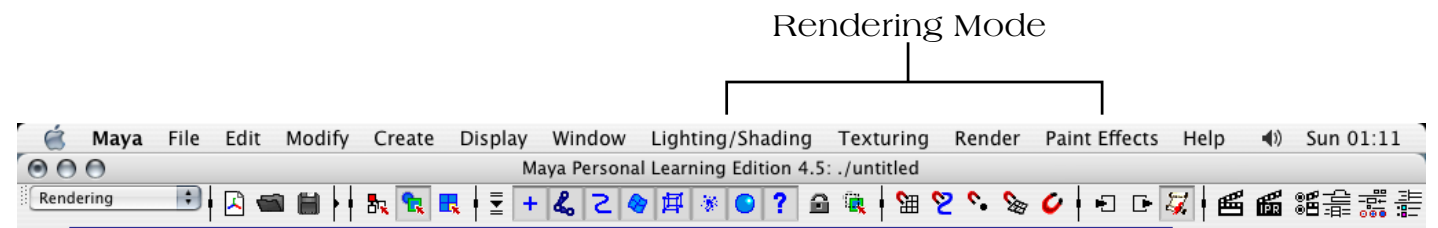
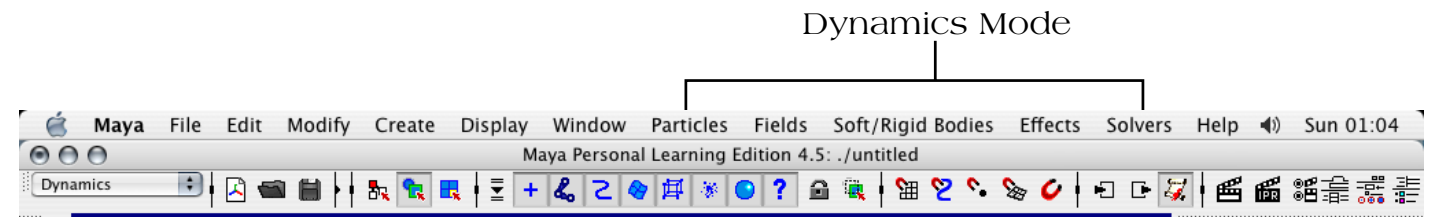
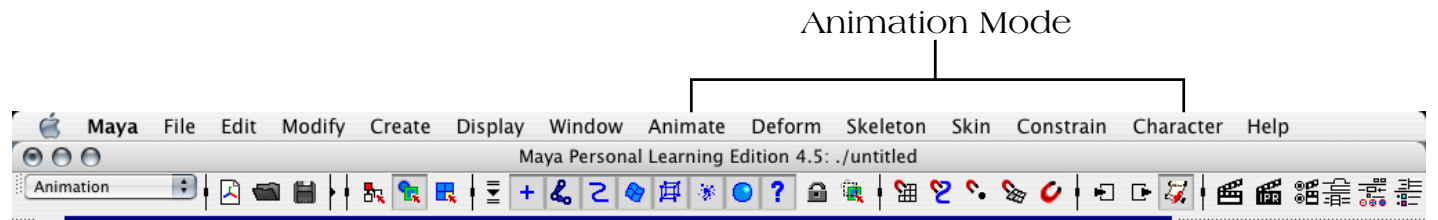
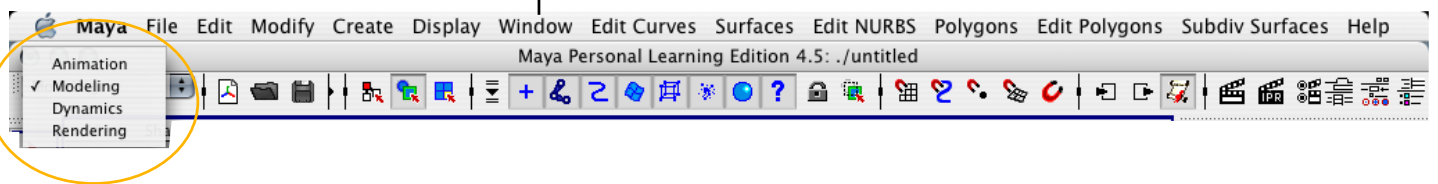
UI (User Interface)

When you begin a project it will dictate a procedure that you will invariably have to follow. These are the different stages from the start of modelling, to animation and then the final output render. Therefore you will be switching between various modes to display the menu bars that will apply to the stage you're at within the project.

The modes, circled below, can be selected from the drop down menu when you click on the arrows in the right hand side of the box.

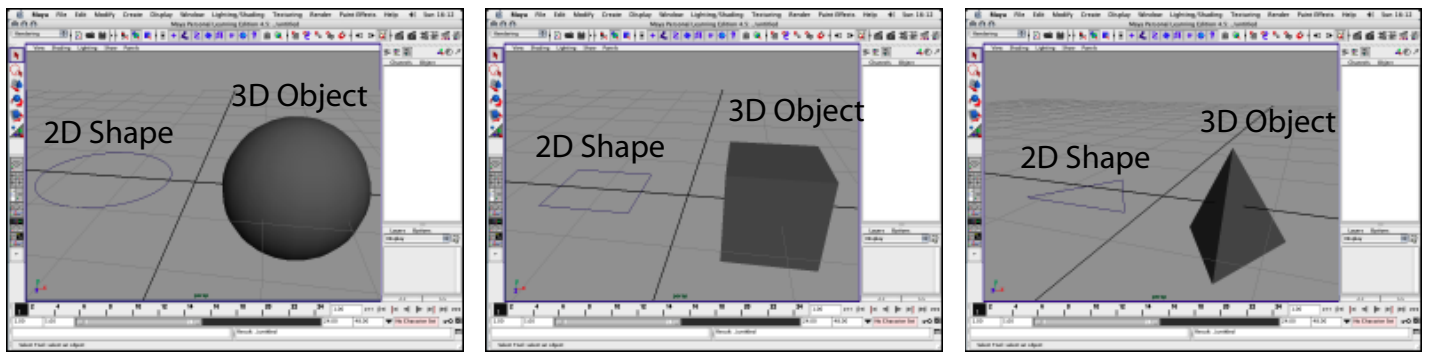


The different modes will only change the last six editing options after "Window" (excluding "Help").



Modelling a simple chess piece.

We'll learn a lot more about the interface and navigating in 3D space by doing a simple tutorial, in this case we'll make a pawn chess piece out of primitive objects. It's useful to define the difference between 2D and 3D categories, which is not as complicated as it sounds. We refer to Shapes i.e. Circles, Squares, Triangles as 2 Dimensional. The equivalent to these shapes in 3 Dimensional objects are Spheres, Cubes, Tetrahedron (a Pyramid with a triangular base instead of a square).

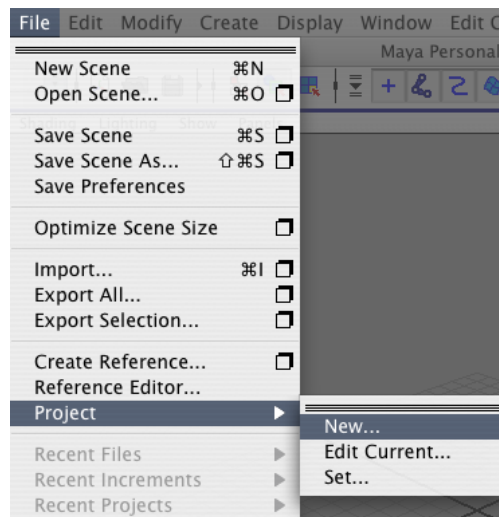


Primitives shapes or objects are basic Geometrical forms that we use as a starting point to create our model and so if we are to build a 3D model of a Pawn chess piece we can break down its components into primitive parts that combine to form the whole Pawn.

Setting a project.

The first step when working in Maya is to set your project. This is a folder that will contain all the information that Maya uses as the model takes shape. Therefore all the files generated in the modelling process will be stored in one place as opposed to being scattered over the hard drive.

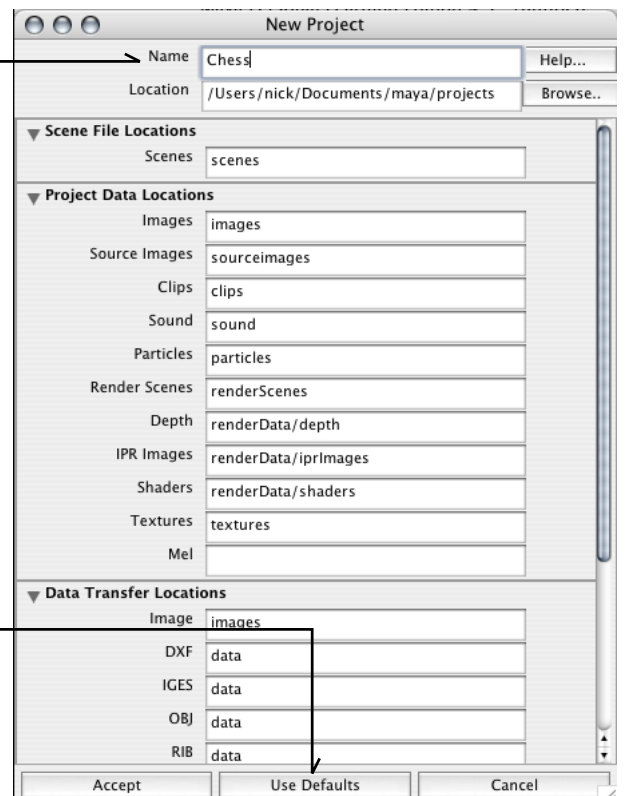
Open Maya and click File>Project>New and follow these steps:



1. Type "Chess" in the Name box

2. Click "Use Defaults"

3. Click "Accept"

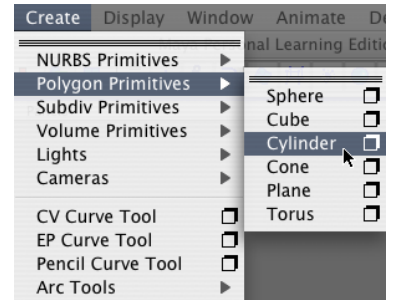


Modelling a simple chess piece.

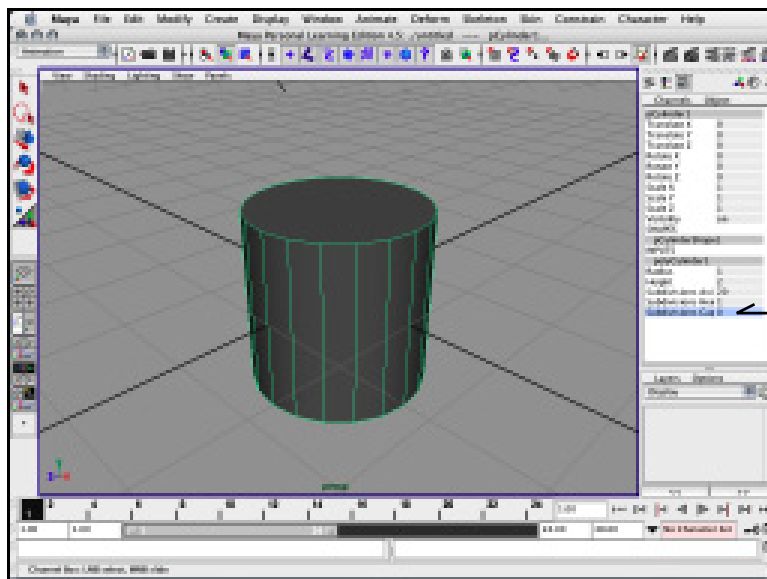
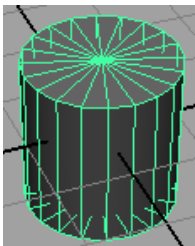
Maya has now created a project folder with sub - folders that it will store all information pertaining to this project. This is particularly useful if the original file is asked for by a potential employer as it can be transported to another computer complete with all the scene information and you won't be embarrassed when Maya asks where to find different Bitmaps, Bumpmaps (Texture Files), for example. The procedure you have just carried out is termed "File Structure" and shows you know how to organise your work.

Let's start modelling.

1. In the Menu Bar click>Create>Polygon Primitives>Cylinder.
After it has been created press 5 (short cut command for Shaded View) on your keyboard.



2. A Primitive Cylinder has been created, if it looks like this...



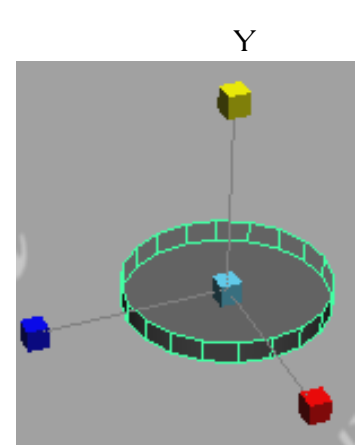
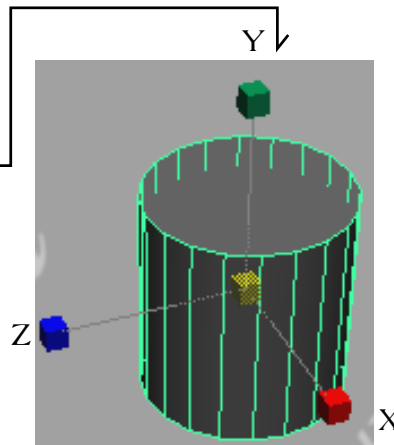
next, go to the Channels box (with the Cylinder selected), look at the bottom of the column, click "PolyCylinder1". At the bottom of that column, in "Subdivision Caps" type "0" in the numerical box and it will look the same as the example.

3. Click on the scale tool and scale your object down in the "Y" direction (the Green box) to about one sixth of its original size (Scale Y= 0.107 in the Channels box)



scale tool

"Y" direction



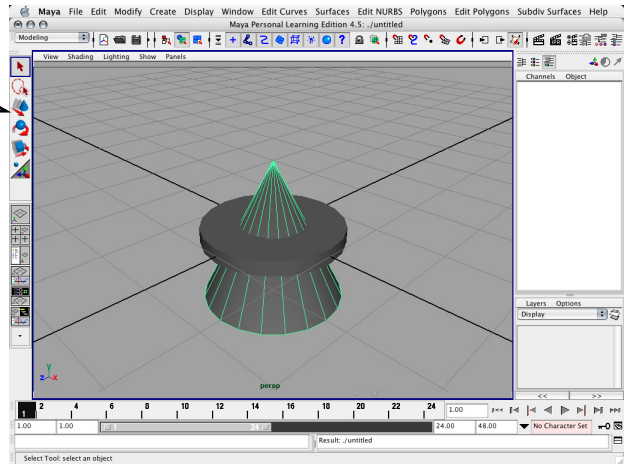
Maya Complete 4.5

Modelling a simple chess piece.

4. Back to the Menu Bar, click Create> Polygon Primitives> Cone.

Your viewport should look like the image on the right. If your objects look far away, with an object(s) selected, press "F" on the keyboard. This a short cut that will frame or zoom to the selection in your scene.

Go to the toolbar and select the Move Tool

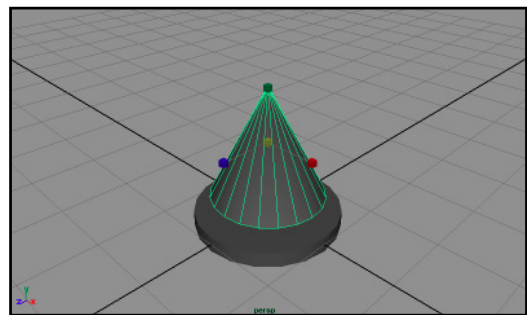
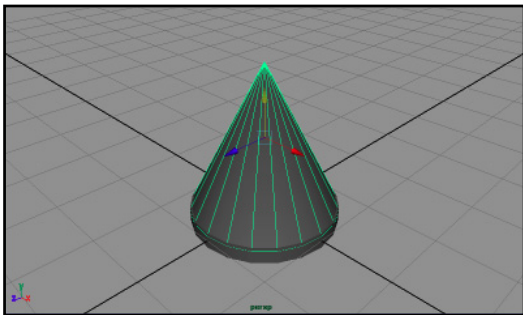


5. Move the cone up in the "Y" axis (Translate Y= 1.074 in the Channels Box) so it just intersects the top of the cylinder.

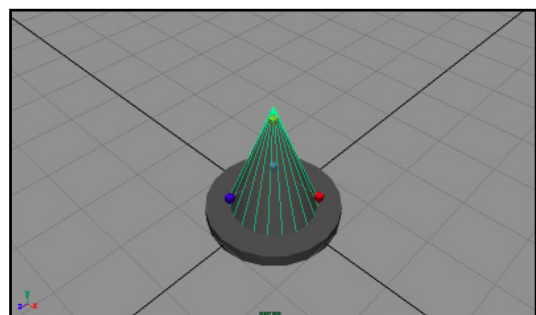
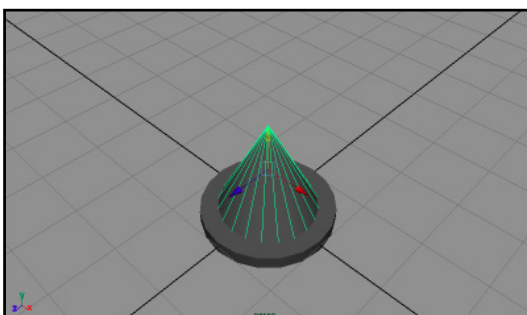
6. Back in the Tool Bar click on the the Scale Tool



In the centre of the tool, in the Viewport, click and drag to scale down your Cone (Scale X=0.788, Y&Z=0.767 in Channels Box).

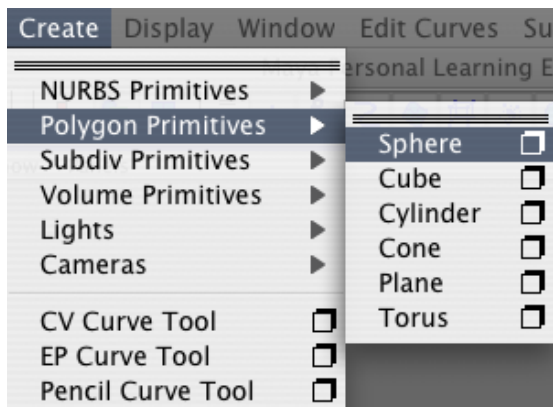


7. Repeat the techniques you' ve just applied to Scale and Move the Cone back into the position when they intersected.

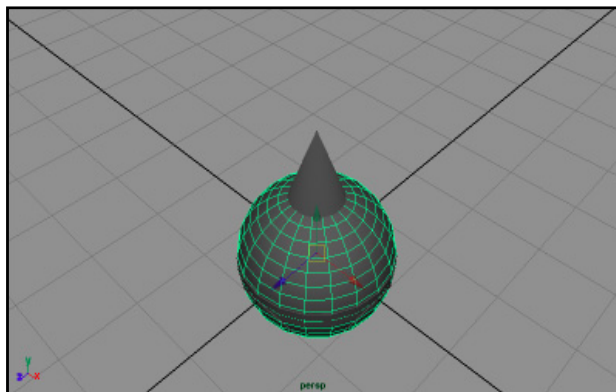


Modelling a simple chess piece.

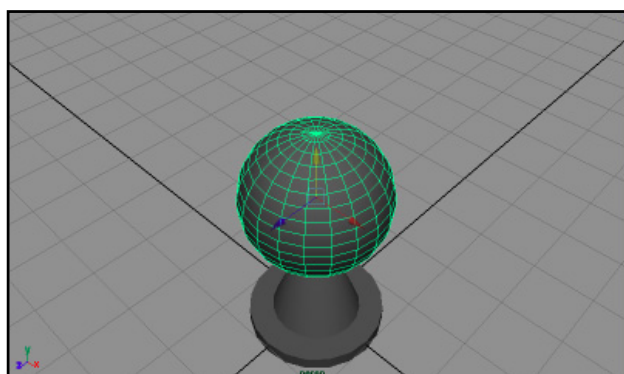
8. Go to the Menu Bar and click on Create>Polygon Primitives>Sphere



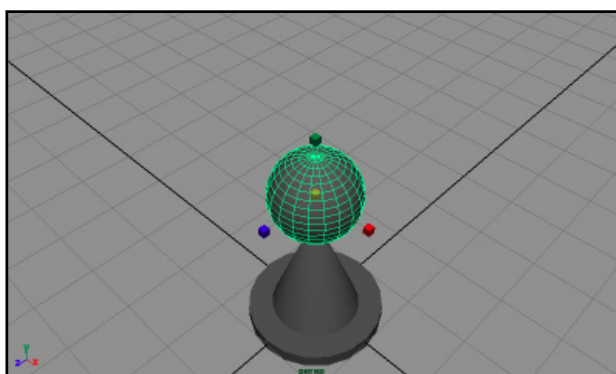
9. As before when you created the Cone, a Sphere is created exactly in the same spot on the Grid (X,Y,Z=0 in the Channels Box).



10. Move the Sphere up in the "Y" (Y=2.268 in the Channels Box).

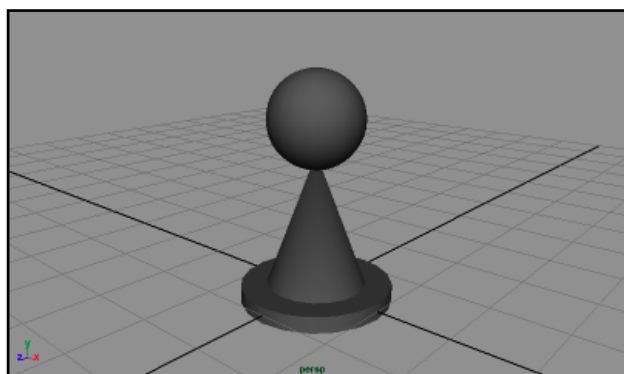


11. Placing the Mouse Cursor in the centre of the Scale Tool, scale the Sphere down uniformly (Scale= X,Y,Z=0.624 in the Channels Box).

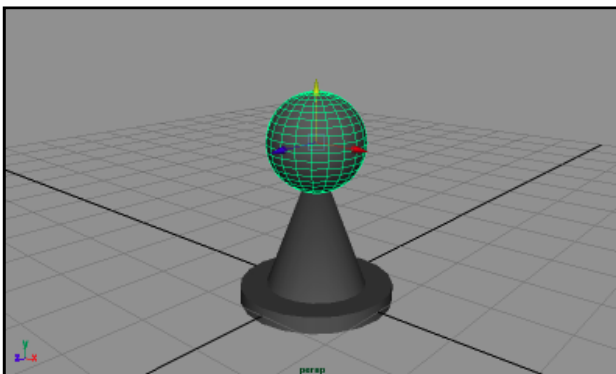


Hold down the Shift key and Right Click Button and move the Mouse to rotate your view. Click anywhere in the viewport away from the objects, then press "F" on the keyboard.

12. The Sphere looks a bit too high when seen from this angle.



13. Use the Move Tool to pull the sphere down in the "Y" axis (Translate Y=1.966).

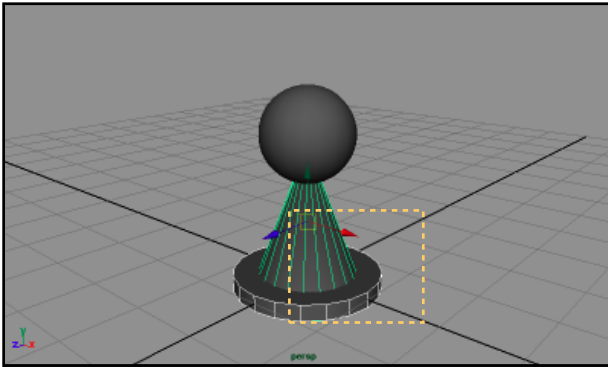


Maya Complete 4.5

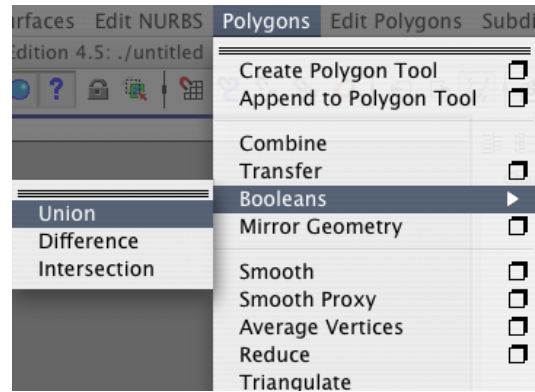
Modelling a simple chess piece.

The models component objects now look in proportion in terms of scale and position. The final stage is to combine them and make a single object.

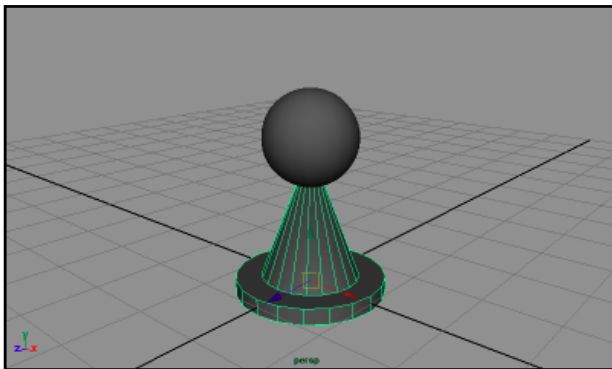
- 14. Click on the Select Tool and marque select the Cylinder and Cone.



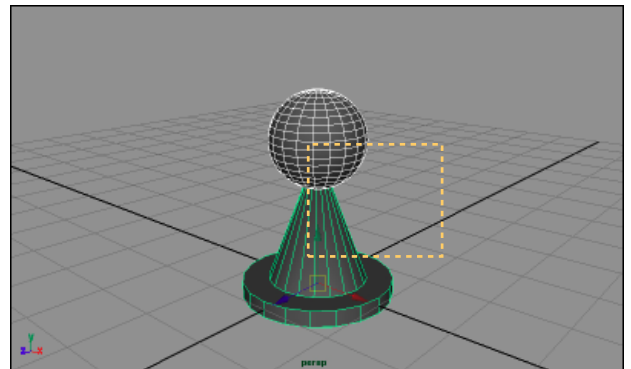
- 15. In the Menu Bar go click on Polygons>Booleans>Union.



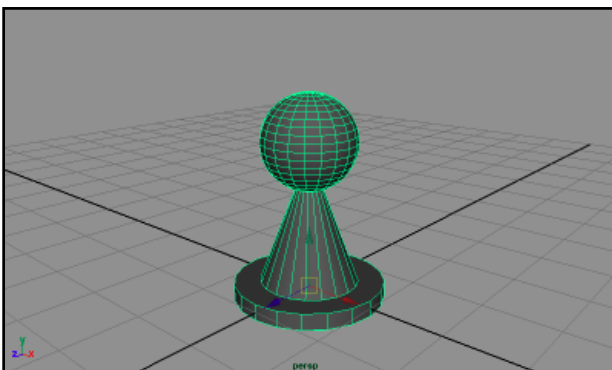
- 16. Boolean operations compound two objects into one. There' re different, and more complex techniques but this is the simplest method to perform such operations



- 17. Now select your Boolean object and the Sphere, then press "G" on the keyboard.



When you press "G" in Maya you' re instructing the programme to repeat the last function that was performed, in this case Polygons>Boolean>union. Therefore it applies to other operations and is a quick way of working when your doing repetitive actions.



- 18. Your Pawn Chess Piece is complete as a single object. We have covered this exercise in brief but there' re important points that will be covered in the class.

I strongly recommend that students bring a pad and make their own notes during the lesson.