***A beginners guide to using blender:***

Most features are never used. Hence, we would use the 80/20 rule, where 80% of the results comes from the features.

Understanding the features common to a lot of people using blender:

* Modelling
* Lighting
* Create materials

Area we look through is called the 3D viewpoint. The properties panel is to the right of the viewpoint which contains a lot of buttons to control the properties of your models.

By clicking on the mesh, then going to the material properties, you can change some of the features including the colour or the texture of the mesh.

**\*\*Required: a mouse\*\***

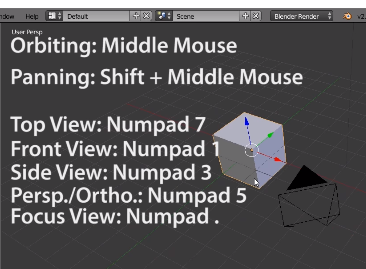
**You can change your user preferences to emulate a numpad, as this has shortcuts that are otherwise unable to repulicate.**

**\*\*Required: a numpad\*\***

Go to file, user preferences (Control alt u), input and check emulate numpad and change the mouse settings to click from left, as their default is right.

After emulating the num pad, you can click 1 to get the viewpoint of the x and the z axis (front view), 3 to get the y and z axis (side) and 7 to get the x and y axis (from above)

To move around the viewpoint, press the middle button on the mouse to move in viewpoint direction and hold shift as well act as a scroll from item to item.

The period button is the dot button. To look at any item, you click on it and press period.

By clicking the space bar, it allows you to type in what you what to achieve.

Keyboard shortcuts: <file:///C:/Users/user/college_y2/UnityStuff/BlenderHotkeyReference.pdf>

To scale an mesh, press **S** and the object will start to scale in all directions based on your mouse movements.

Control changes it to incremental steps, while shift makes subtle movements.

After adding a new object, for some objects, you will see an options bar to the side that allows you to determine the resolution of the object by deciding the amount of vertices on the object. A good tip is to have a low res object then modify it later (more below).

You can also fiddle with the position of the object using the axis of the object by clicking on the axis associated with the object and dragging it across that axis.

In blender, the axis represents the following:

Z: height/depth

Y: width

X: length

By clicking g, the object will move according to your mouse. To position it so it stops moving according to the mouse, press g again.

You can also move the object according to the axis by tapping that letter on your keyboard or holding down the middle button on the mouse and push it towards the direction which you want it to go (eg the x axis).

You can also rotate by clicking the r button, and it start to rotate base upon your mouse. The good news is you can rotate, scale and move by the three axis by clicking on the object and clicking the appropriate buttons required for the functionality. The is a widget on the bottom as well for you to do the same stuff, but it is quicker to do via button shortcuts.

On the properties panel, you can click on the screwdriver-looking thingy and add modifiers.

Using the modifier, you can modify your objects in any shape. Because these are extra features, you have full control, where as you din’t by applying similar original features in the beginning of the objects life. To smooth the object out using the the modifier, you use the subdivision modifier.

In regards to software, to play aniamation, you press alt + a.