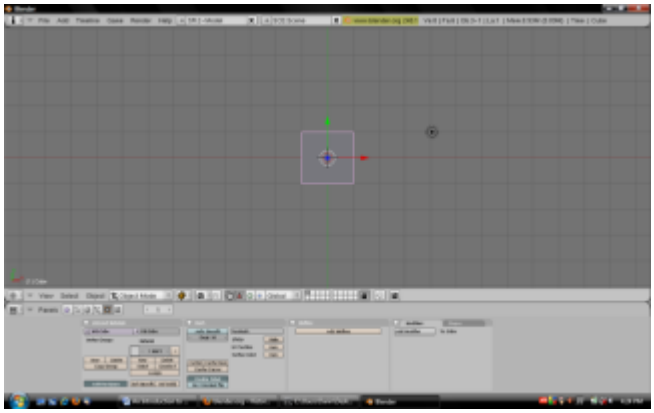
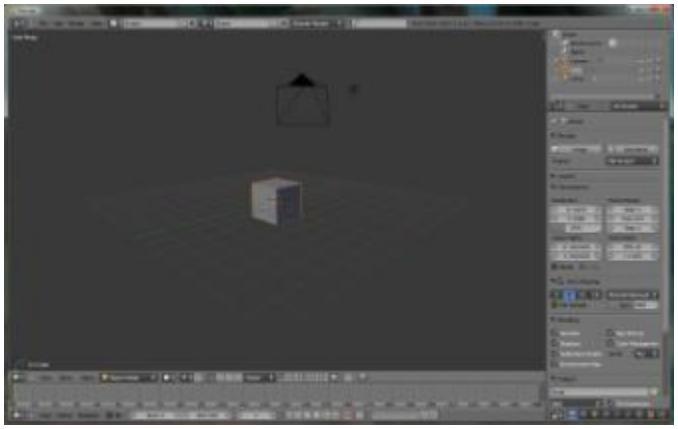
The Blender Interface

At the time of this writing the current version of blender is Blender 2.49. Blender 2.5, which includes several improvements to Blender's interface is expected to be released late October 2009. Many of the techniques, buttons, and functions described here will transition to the 2.5 branch, however their appearance may appear differently. Figures 1 and 2 show a preview between 2.49 and 2.5's default setup.

Figure 1





Using the Blender Interface

Blender's interface and workflow was designed to work around one important element: speed. Unlike traditional 3d modeling software, which locks a user with 4 window views, Blender allows a free range of view with the stroke of a key. Blender's interface has the ability to split it's main window into several to ease the work flow of separate tasks. Figure 3 shows a Blender window which has been split to an Outliner, UV Image Editor, an Action Editor, a Timeline, Material Editor, and a 3d View Window.

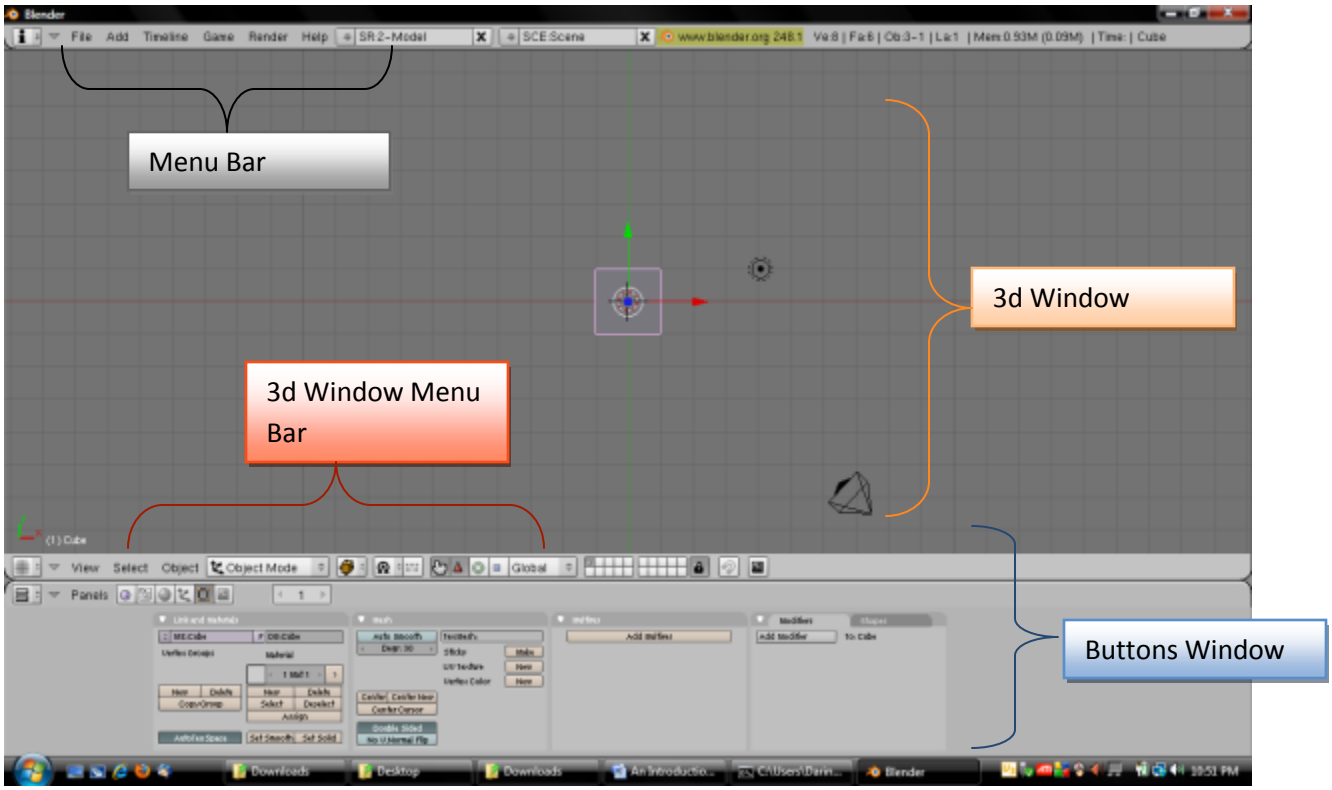
Figure 2

This section aims to show how to use the Blender Interface to

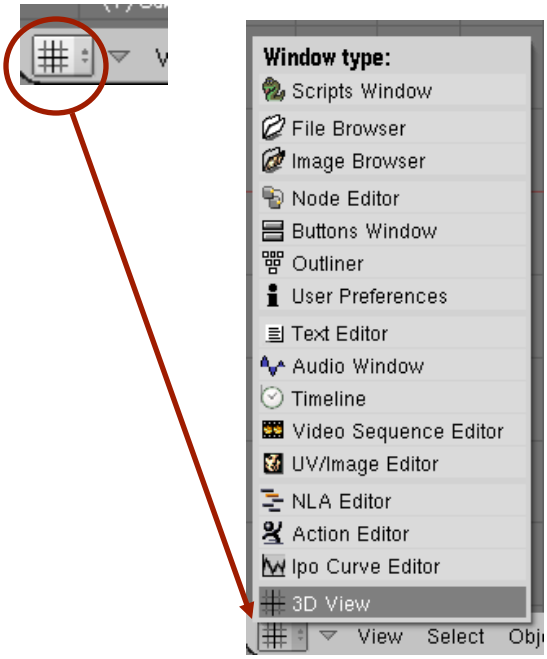
- **Split multiple windows**
- **Mover around in 3d**
- **Objects in 3d Space**

The Diagram below breaks down the default setup of the Blender Interface

Figure 3



Since Blender is a 3d Suite as opposed to simply 3d modeling software it has applications in it that could function as their own programs separately. To access one of these applications, such as the Video Sequence Editor, locate and click on the Window Type Box normally located on the menu bar of any window split.



After the window type button has been selected a list of options appears. Each of these windows will be explained as it comes time to use them (the best way to learn Blender is by using it).

Split Multiple Windows

To split your default layout in to multiple views navigate your mouse to where a window is already split and right click. The mouse cursor will change two arrows normally to indicate you are at a window split.

Figure 4: Right click at window edge

This will bring up a small window with 3 options: (1) Split Area; (2) Join Areas, (3) No Header. Select Split area to proceed in splitting Blender windows. A straight silver line will now follow your mouse till you left click in the window you wish to split. The resulting split window will be the same type

Figure 5: The silver line selecting the top window to split.

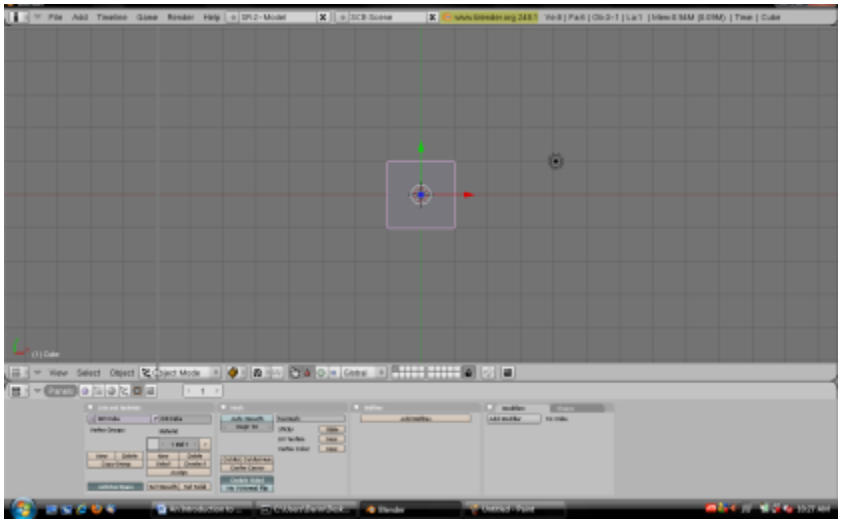
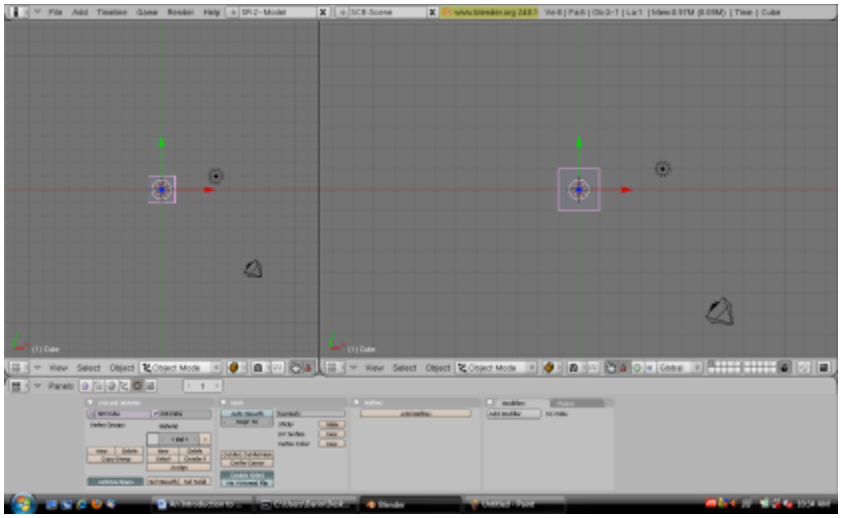


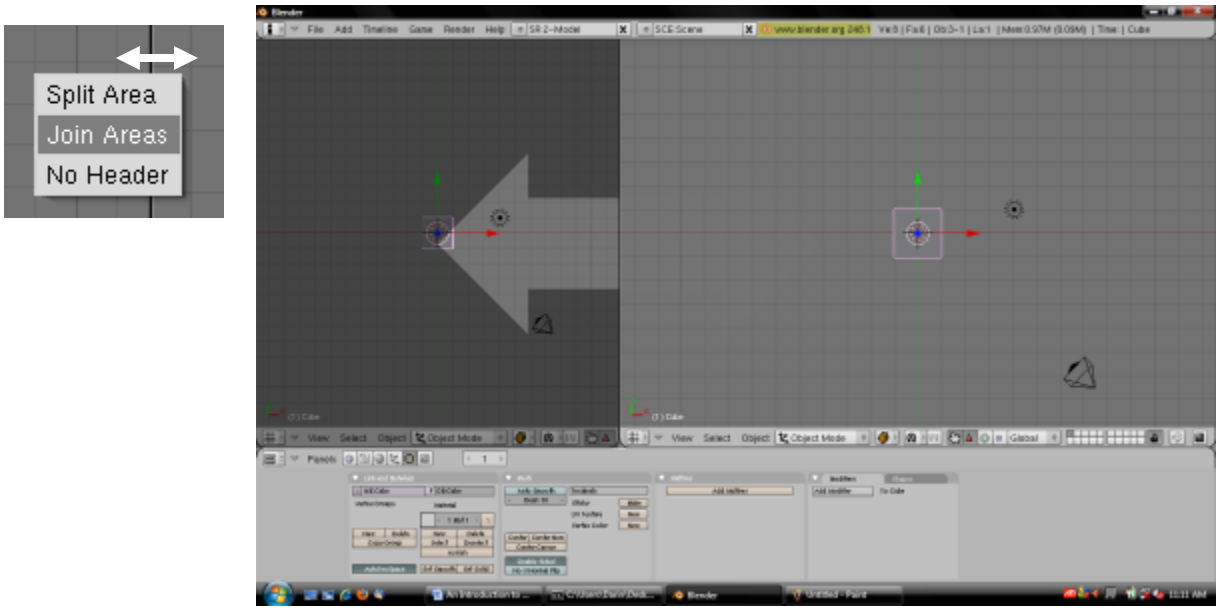
Figure 6: The split window



The line dividing the windows can be moved placing the mouse cursor over the dividing line unit it changes to a doubled arrow cursor and left clicking and dragging to the desired location. Blender is not limited to the number of times a window can be split, so the same method can be repeated to help shape the interface toward what the user needs.

To re-join split windows right click on a split edge and from the familiar window that appear select Join Areas. This will darken one window an arrow will be visible, allowing you to select which window you want to merge with, left click to confirm.

Figure 7



Any split window can be maximized (or made to take up the entire screen) by moving the mouse cursor to the desire window and hit **Ctrl + Up** key on the keyboard. To return the maximized window to its normal size hit **Ctrl + Up again**.

Moving Around in 3d

As mentioned earlier Blender was built for speed, when this comes to moving around in 3d, Blender allows the user to navigate their way not only with a mouse, but a keyboard as well. As mentioned earlier, some elements of Blenders interface have been a deterrent, this is one of them; however, people have overcome this new concept tend find this method amazingly useful. If you are using a Notebook, or a Mac (☹) invest in a mouse with the 3rd scroll button.

Before we begin common expressions used to define keystrokes and mouse clicks in this manual:

Left Mouse Button/ Left Click = LMB

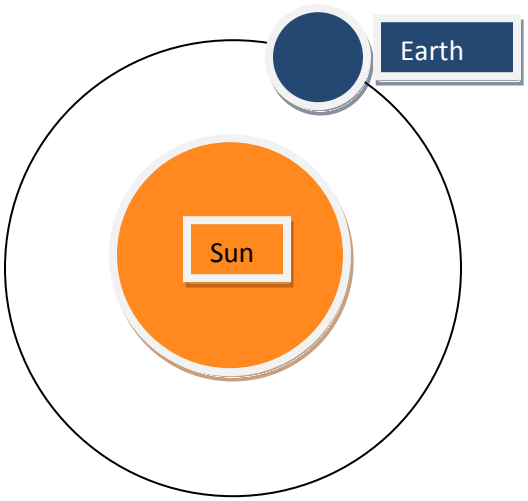
Middle Mouse Button/ Middle Click = MMB

Right Mouse Button/ Right Click = RMB

Keypad # = # is the number on the keypad

When moving round in 3d you are generally rotating your point of view around a point in 3d space. Think of it in terms of planets. There is a point, an object, that the Earth rotates around, and that is the sun.

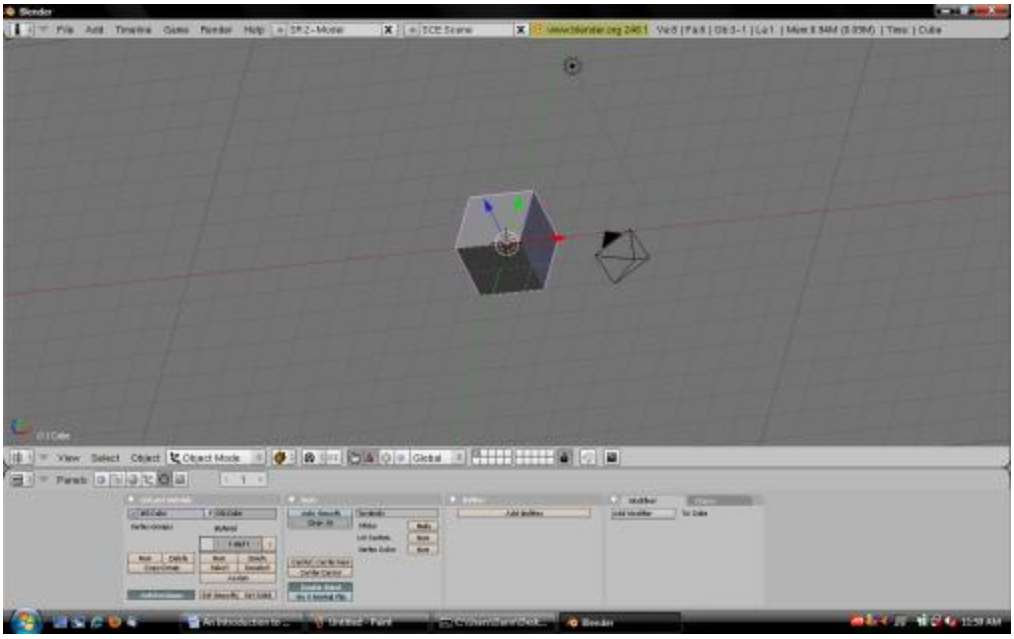
Figure 8



This point of rotation is normally referred to as a **pivot point**. There are many ways that changing the pivot point, or having multiple pivot point can be useful. The default pivot point for Blender's 3d window is the center of the window, or more correctly where all the axis of the graph in Blender meet. For more detailed information on graphs and axis see Graphs & Geometry.

To move around (or rotate around the view's pivot point) click and hold the **Middle Mouse Button (MMB)** and simply drag the mouse. If you are working on a notebook or simply do not have a 3 button mouse you can hold the ALT button on your key board and click with your mouse Left Mouse Button **(ALT + LMB)** to simulate a scrolling mouse button.

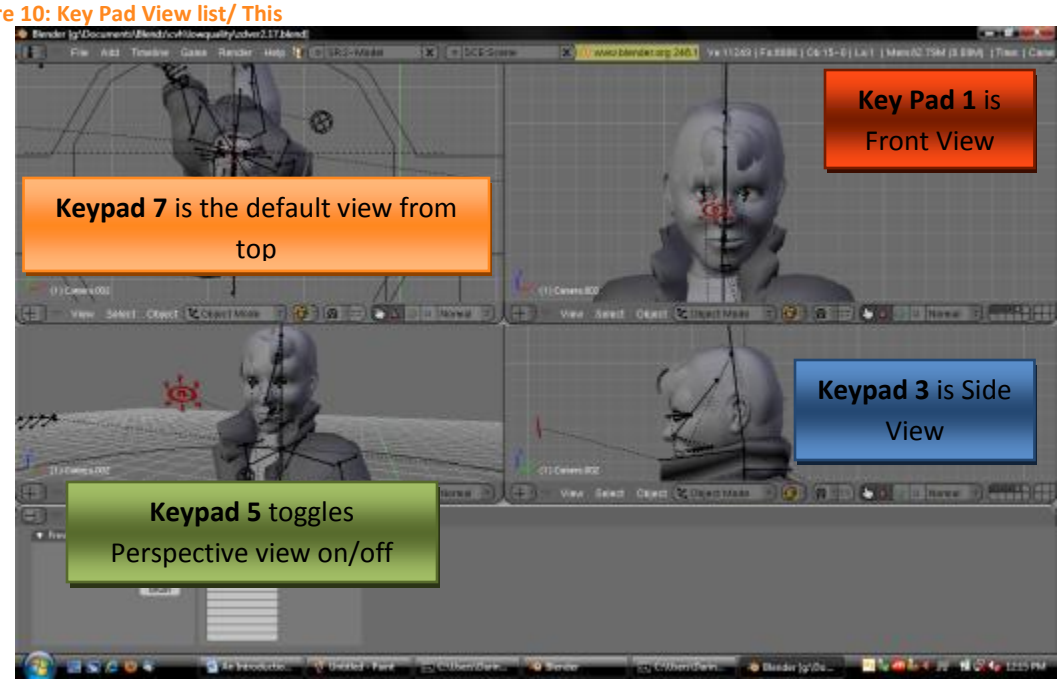
Figure 9: Moving around in 3d.



To return to the view you originally started out with on the keyboard's **keypad/number pad** (located on the left of the keyboard NOT THE NUMBERS ON TOP OF THE KEYBOARD) hit the number 7 (keypad 7). If you are using a laptop that does not have a keypad you can simulate a keypad by turning on your notebook's Number Lock Key (NumLck). This changes certain letters on a keyboard to keypad numbers.

Other 3d software has the main window split into 4 different 3d views, this can be created in blender with the splitting window technique, but the beauty of blender is that it doesn't constrain it's users that way. A view can be switched to on the fly with numbers on the key pad.

Figure 10: Key Pad View list/ This



Holding the Ctrl key while tapping on one of the keypad views will show you the exact opposite view; for example, keypad 1 show you a front view where as **CTRL + keypad 1** shows you a behind view.

Figure 11

To **zoom** in or out in Blender, **scroll** in with your **MMB**. If you do not have a MMB you can fake zooming by holding the Ctrl and Alt keys, while clicking and holding the Left Mouse Button (**Ctrl + Alt + LMB**).

To **pan up and down** hold the shift key while scrolling with the middle mouse button (**SHIFT + LMB**). If you do not have a mouse button you can fake this by holding **SHIFT + ALT + LMB**.

To pan left and right hold the Ctrl key while scrolling with the middle mouse button (**CTRL + MMB**). To fake this without a MMB, use **SHIFT + ALT + LMB**.

This table describes the standard Blender hot keys that involve moving around in 3d space.

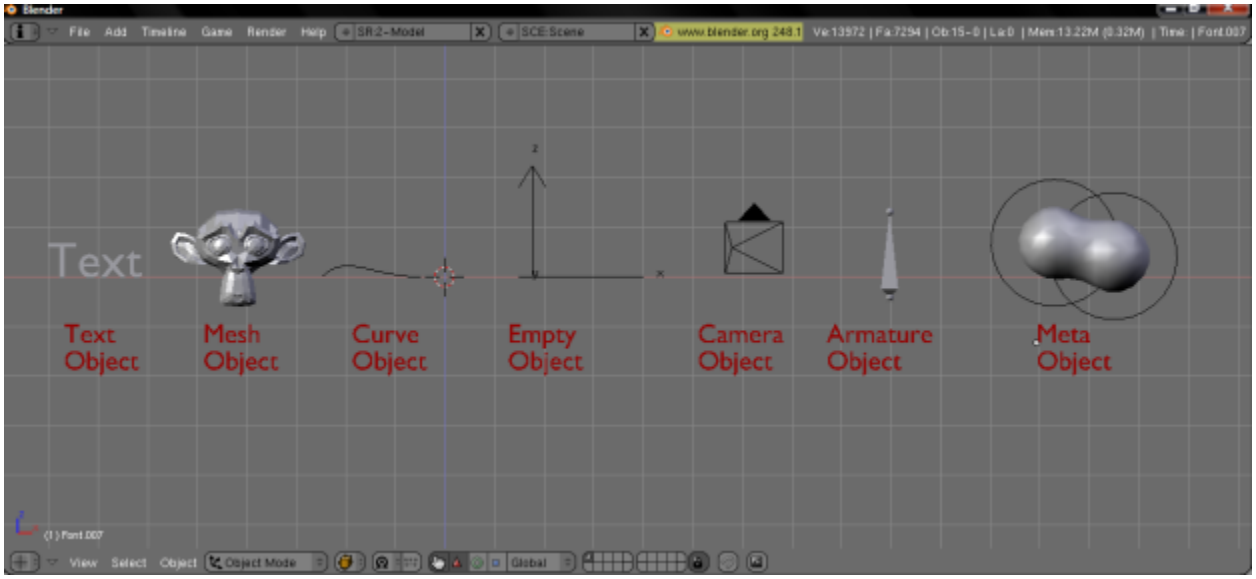
Moving Around in Blender Short Cut List		
Keys/Mouse	**View**	**Description**
Keypad 0	Switches viw	
Keypad 1	Front View	Changes the 3d view to a 3d front view
Keypad 3	Side view	Changes the 3d view to a 3d side view
Keypad 4	Rotates View	Slightly rotates the current view
Keypad 5	Perspective View	Toggles perspective view on/off
Keypad 6	Rotates View	Slightly rotates the current view
Keypad 7	Top View	Changes the 3d view to a 3d Top View
Scroll MMB	Zoom in/out	Zooms in and out
Ctrl+Alt+LMB	Zoom In/out	Zooms in and out
Shift+Alt+LMB	Pan	Pan Left, Right, Up, Down
Ctrl + MMB	Pan	Pan left & right
Shift + MMB	Pan	Pan up and down
MMB	Rotate View	Rotates View around view's pivot point
Alt + LMB	Rotate View	Rotates view around view's pivot point

Many other 3d application accomplish moving around in 3d not by primarily using the keyboard, but by clicking on a menu button to change the way a mouse interact in 3d space. Blender's method is faster, but is a bit hard if you don't know the buttons since they aren't located on menus.

Objects in 3d Space

Before modeling is covered it's important to know about Blender's Objects. An **Object** is any shape, lamp, curve, or other component that can be selected in Blender's 3d window.

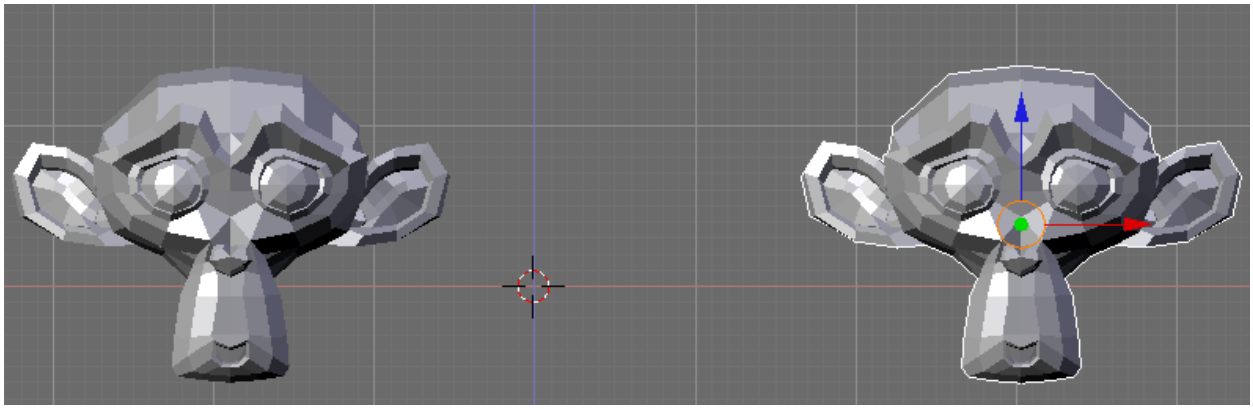
Figure 12



There are several types of objects in Blender (mostly for modeling we'll be working with Mesh objects).

Unlike traditional software, where using the LMB to select something is common, to **select an object** in Blender, **click on the object with the RMB.** An object will have a white or off color outline around it to indicate that it is selected (it may also have a display of multi-colored arrows on it indicating which axis is which, these arrows are apart of the transform manipulator).

Figure 13: Suzanne on the left is not select, where as Suzanne on the right is selected and has a white outline. Also the arrows of the transform manipulator can be seen.



Moving Object in 3d

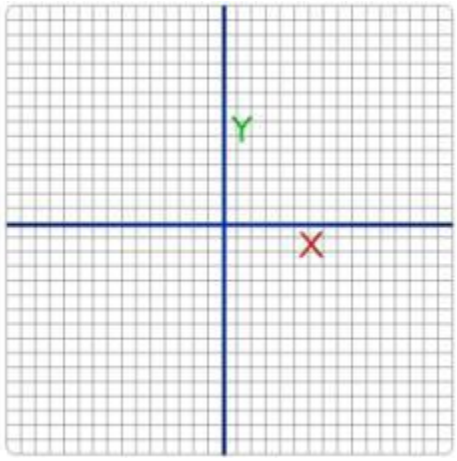
To **Move an object** you can either select with it the RMB and hitting the **G** key on the keyboard. G comically is the short cut for the **Grab** tool, thus G for Grab. Grabbing to move an object can also be accomplished by holding the initial RMB click that selected the object for nearly a second.

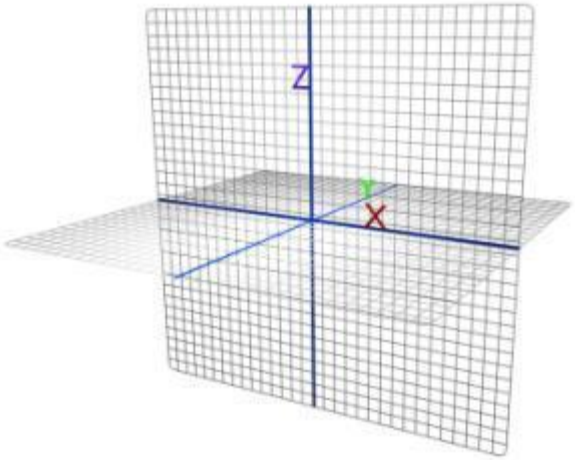
Figure 14

After the object is moved to the desired location click the LMB to confirm the location.

When working in 3d you are actually working in a space that has a 3 dimensional graph: X, Y, Z. Recollecting to the old days of geometry a simple 2 dimensional graph has only 2 axis: X, Y.

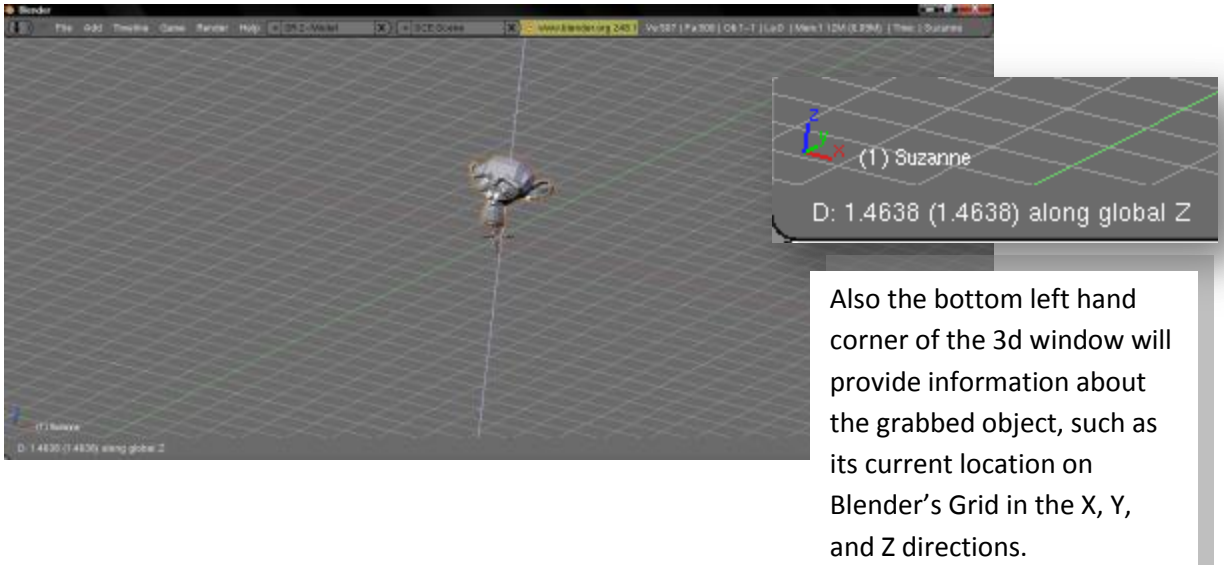
Figure 15





When moving an object in 3d, you can constrain the objects direction along a particular axis by hitting the either X, Y, Z on your keyboard after you hit the G key to grab. (**G + X or Y or Z**). Once a grabbed object's direction is constrained along an axis, a solid visible line (whose color corresponds with the axis color) appears indicating the direction the object's movement is locked in.

Figure 16

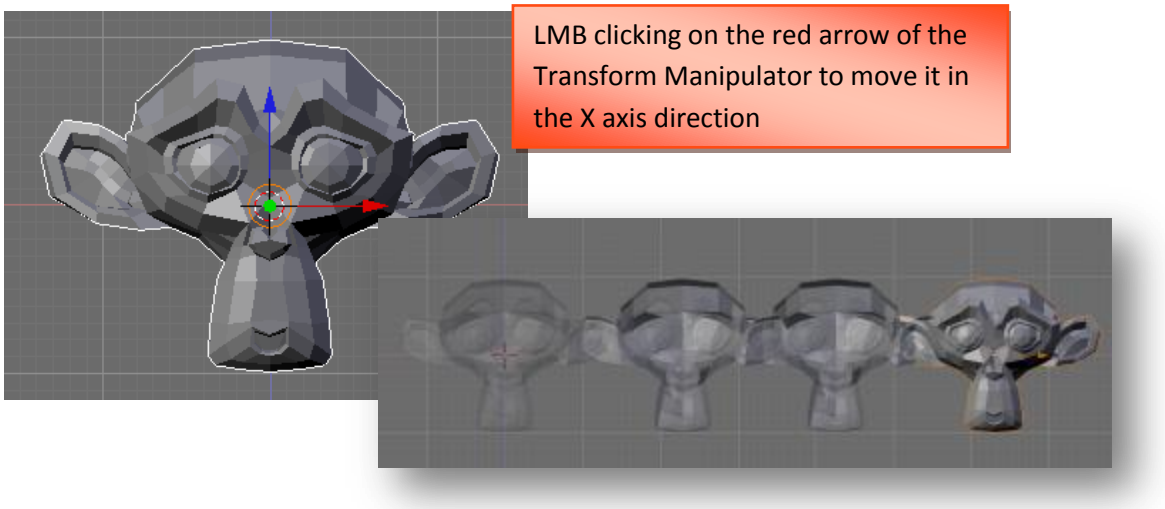


Also the bottom left hand corner of the 3d window will provide information about the grabbed object, such as its current location on Blender's Grid in the X, Y, and Z directions.

To summarize, to move an object RMB on the object, hit G (and X, Y, or Z to constrain it's direction) and LMB to confirm it's new location.

You can also move objects along a certain axis by LMB clicking on the Transform Manipulator Arrows.

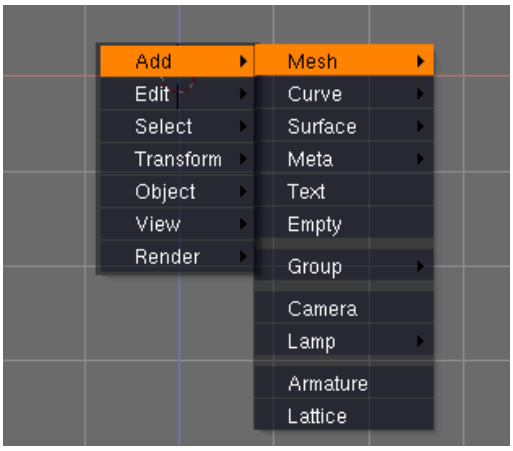
Figure 17



LMB clicking on the red arrow of the Transform Manipulator to move it in the X axis direction

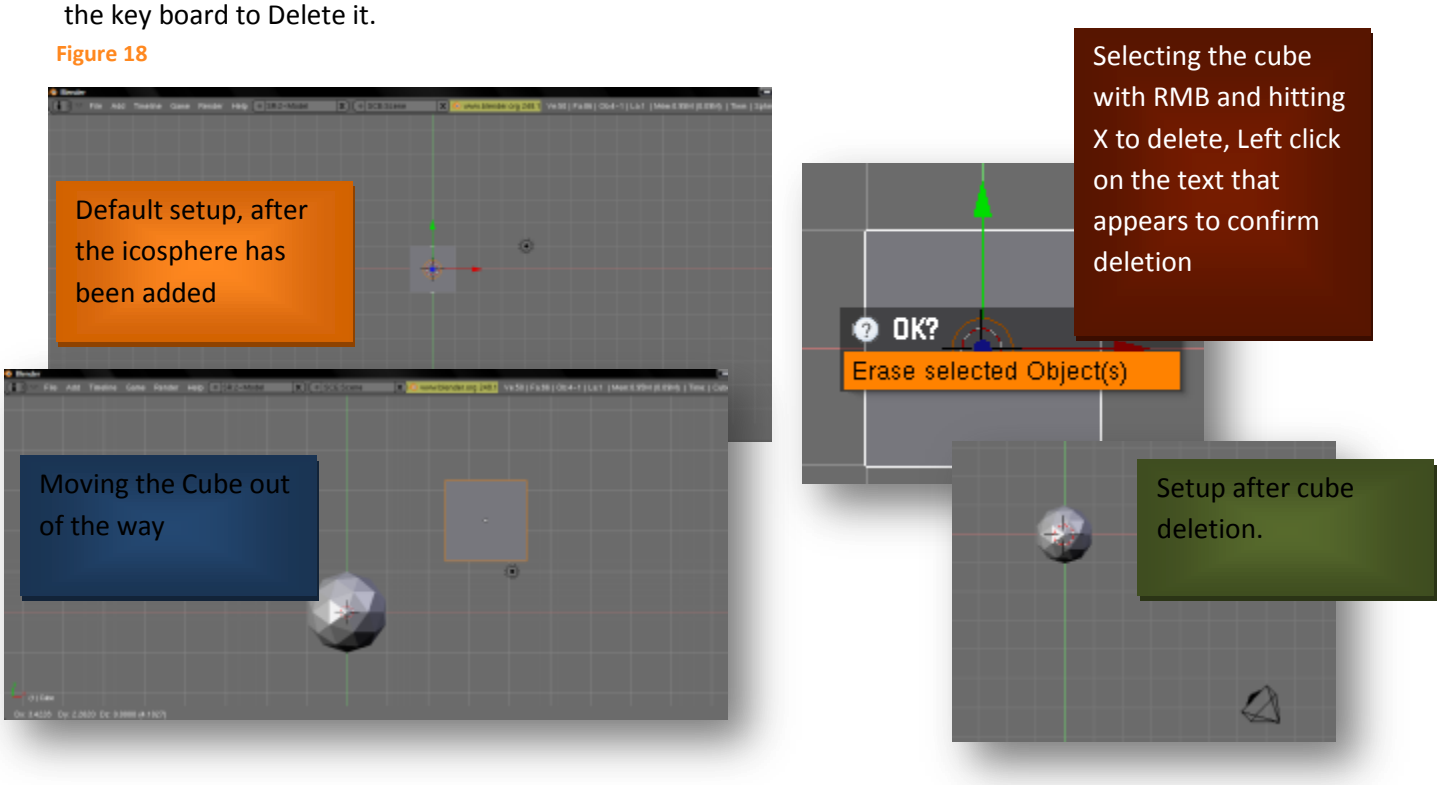
Adding & Removing Objects

There are time you might want to add objects or remove them from the Blender 3d window. In Blender Version 2.48 and above you can add an object by hitting **Shift+A** on the keyboard while the mouse cursor is in the 3d window. This causes a quick menu to appear, to add a mesh object hover the mouse cursor over Add, then Mesh, and LMB click on the type of Mesh object desired to be added. For this example I chose to add an Icosphere. or by going to the **Add** option on the top menu.



If you are following along from the default Blender setup it might seem like nothing has happened yet. An Icosphere has been added, just it's been added in the same place as the cube. You can either move the cube out of the way by **RMB + G** to move it, **or** by **RMB** to select the Cube and hitting the **X** key on the key board to Delete it.

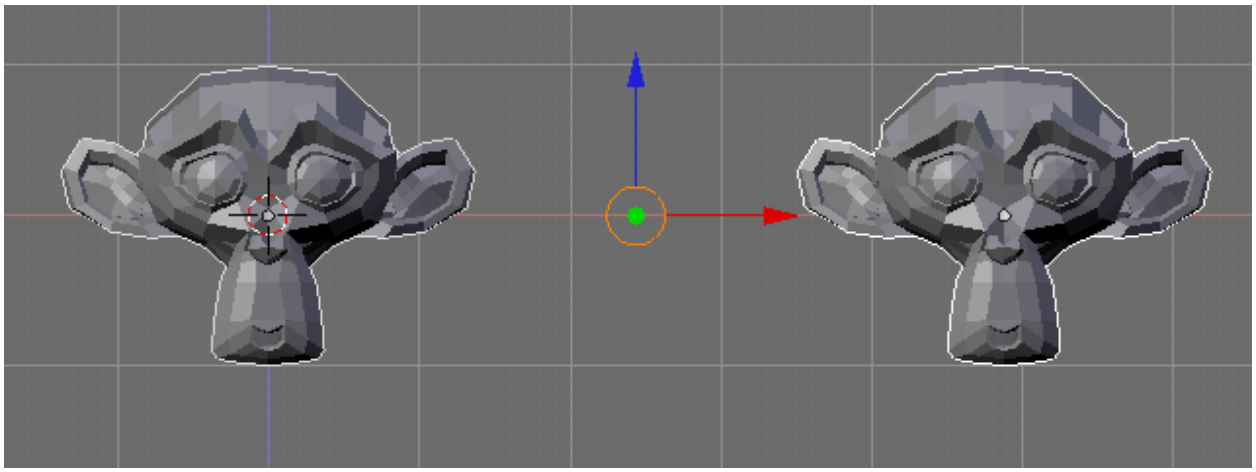
Figure 18



Objects can also be added by using the Add option at the top window.

Sometimes you may want to select, move, and delete multiple objects at once. Just like in a number of other software holding the **Shift** key selecting will allow the selection of multiple things. In Blender hold Shift while RMB clicking to select multiple objects. It's important to note that when multiple objects are select the Transform Manipulator centers itself perfectly between the multiple objects.

Figure 19



All objects can be selected by hitting the **A** key on the keyboard. To **deselect all or an individual** object, hit the **A** key again.

Hot Key'sRecap

To recap the object moving and selecting keys

Key/Mouse	Operation
RMB	Selects an object
SHIFT+RMB	Allows for the selection of multiple objects
A	Toggles the selection of all objects or the de-selection objects
G	Grab/Move the select object in the (LMB to confirm location)
G+Z	Grab/Move the selected object along the Z axis
G+X	Grab/Move the selected object(s) along the X axis
G+Y	Grab/Move the selected object(s) along the Y axis

Tips to Have before 3d Modeling

Once you have the hang of the interface and moving around objects in blender you're just about ready to begin modeling in 3d. But before beginning there are some basic things to know that will make the modeling experience easier in Blender. This section strives to explain some properties about mesh objects and working with mesh objects that will make the 3d modeling experience more enjoyable. This section covers: Saving & Opening, tips for adding mesh objects, the buttons window, and information about an objects center.

Saving & Opening

Saving Blend Files

In order to save a project go to the top menu and select the File Option. From the menu that appears select the Save option.

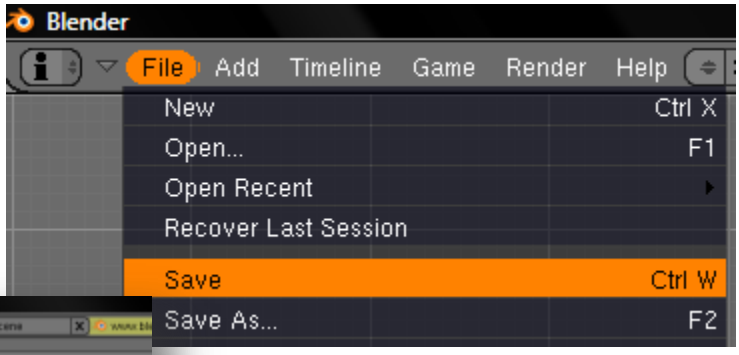
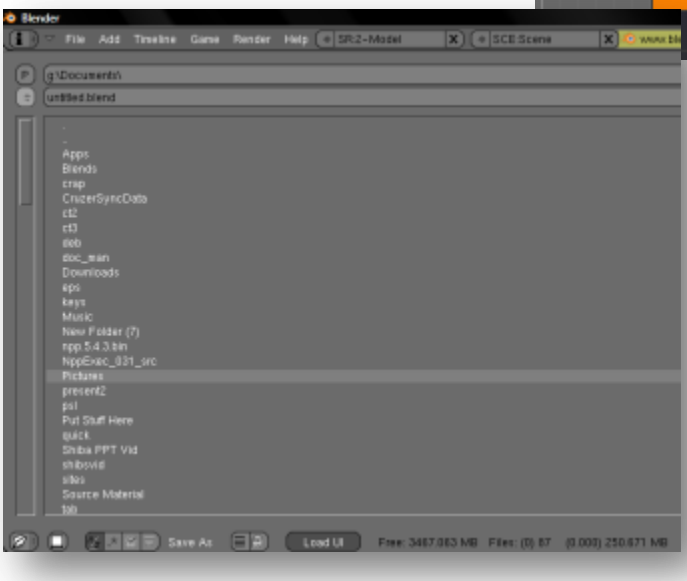


Figure 20: Blender File Browser



This will have one of the windows in Blender change to a file browser window. This file browser is noticeable different from other file browser such as the windows default one.

Figure 21: Windows File Browser for saving

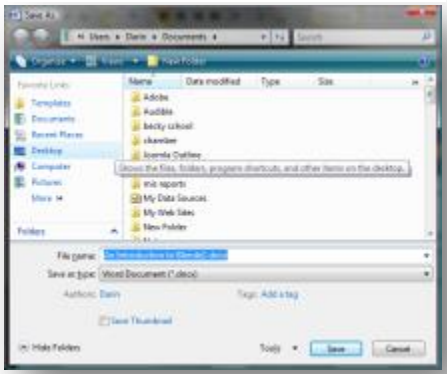
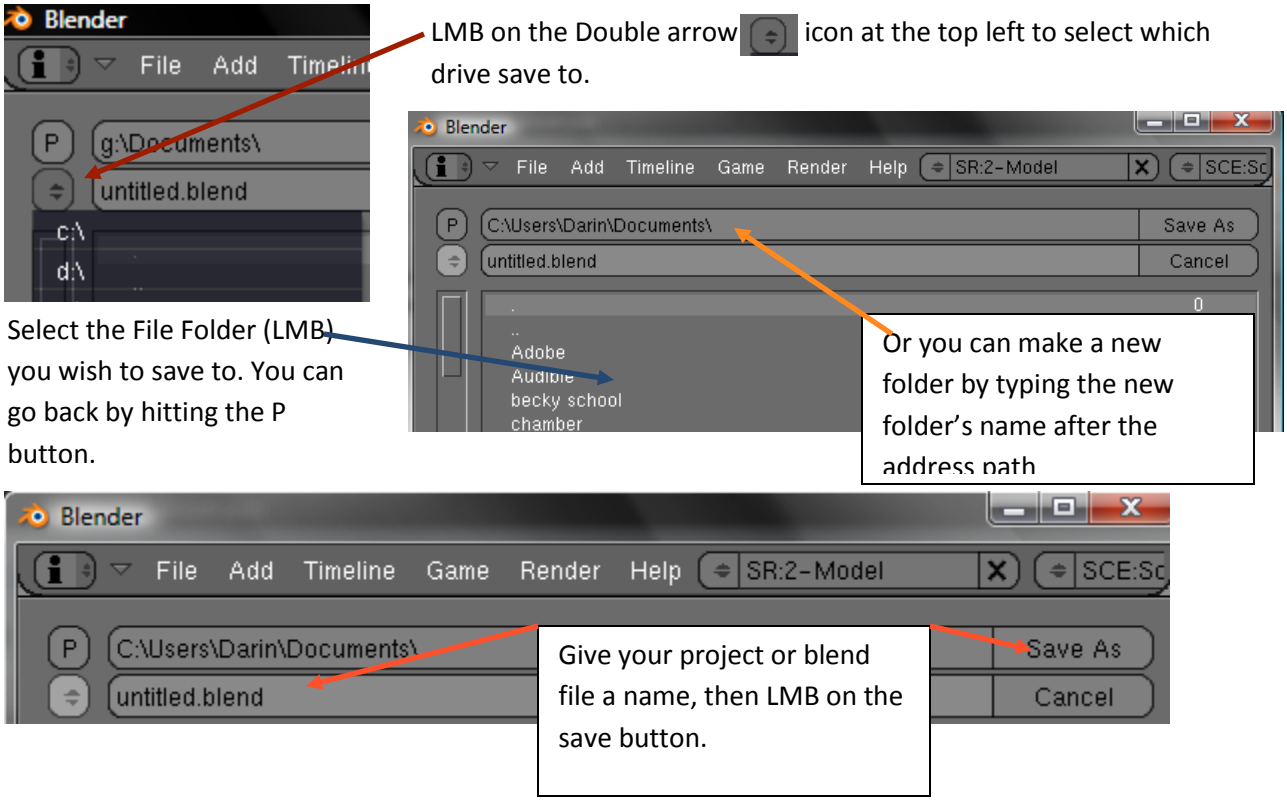


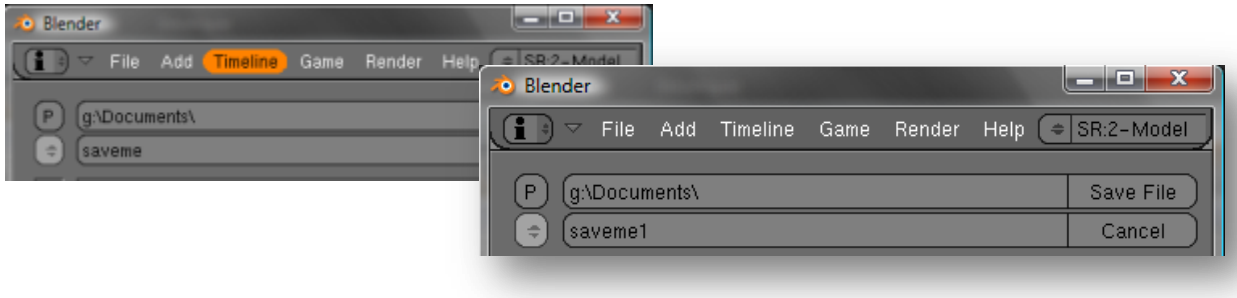
Figure 22



You might have noticed that when you went to File->Save that the short cut key for saving is **Ctrl + W**, it's a useful short cut in Blender, but not in anything else on a Window's machine (Ctrl + W is the shortcut to close window and programs). Another useful short cut for saving is the **Save As** button or **F2.**

Ever run make a project and wanted to save a copy in case you needed to go back? Well several Blender User's and developers have, so they came up with a faster method and naming solution. When saving a blend file, either by Ctrl + W or F2, you can quickly increment the name of your save file by hitting the **+** key on the keyboard. This concept is leaps and bounds over other 3d software.

Figure 23: Using the + sign to add a 1 at the end of the blend file name

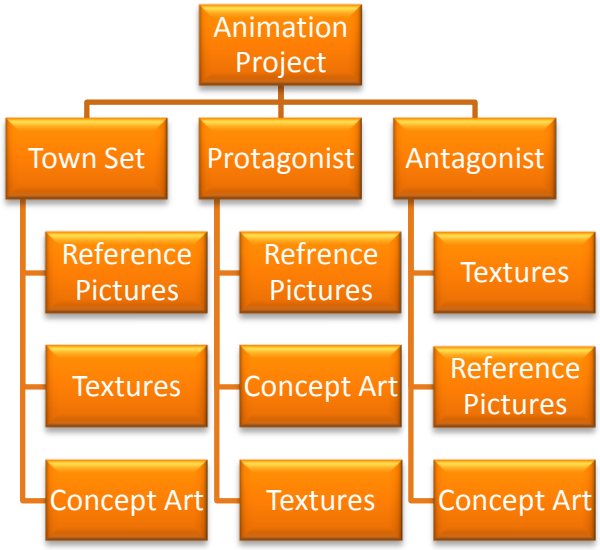


Opening Blend Files

To Open a Blend file either go to **File-> Open** or use the **F1** Key on the keyboard. This brings up the familiar File Browser. After locating the blend file desired (all blend files will have an orange box next to them in the File Browser window.

Figure 25

Figure 24: Sample Folder Hierarchy



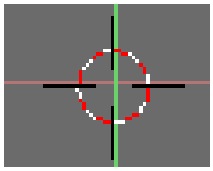
Project Folder Tips

When creating a project it's a good idea to do many things before beginning that involve thinking and planning. One such thoughtful and useful act is creating a sort of file hierarchy for your project. For example see Figure 25.

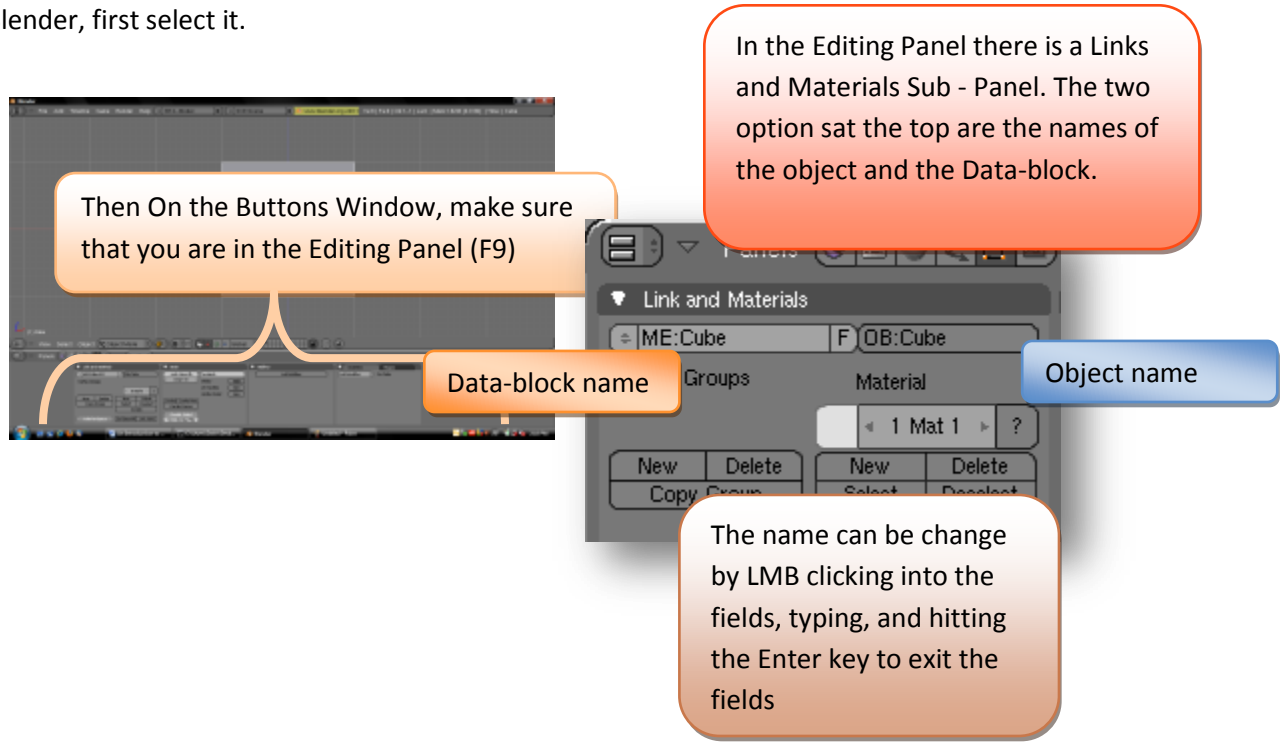
Tips for Adding Objects

Previously it was explained how to add Mesh objects. One of the predicaments the example I used addressed was adding an object in the exact same place as another object. Instead of moving or deleting objects to solve the little predicament, I could have added the object in an entirely different location. **The 3d Cursor (**see figure 26) decides where an object is added. The 3d Cursor can be moved to any location in any view by simply **LMB** clicking to the new location in the 3d window.

Figure 26: the 3d Cursor



Every object has a name and a data-block associated with it. A mesh object's data-block holds important information about the object such as the number of vertices, edges and faces used to make up that object. Multiple objects can share the same data-block name, which can be useful if you have a scene with the exact same door repeating over and over; however, if there are multiple different doors all named: door, door.001, door.002—it can get confusing fairly quick. When and object is added, Blender assigns the object and it's data-block a name, to help clarify things it's best to rename objects after they are added, for example; big_scary_door, nice_friendly_door, zombie_door. To rename an object in Blender, first select it.



The Buttons Window

As just introduced the Buttons Window is where series of paneled menus and tools. On some screens this panel might seem fairly small, but not to worry. The same moving around in 3d methods used in the 3d window apply to the buttons panel with the exception that it's a 2 dimensional window. Thus scrolling with the **MMB** zooms you in and out. **Shift + Alt** pans through the separate sub panels. One of the great things about Blender is that the same button used to move around and grab objects in 3d are used in nearly every aspect of Blender, but more on that later.

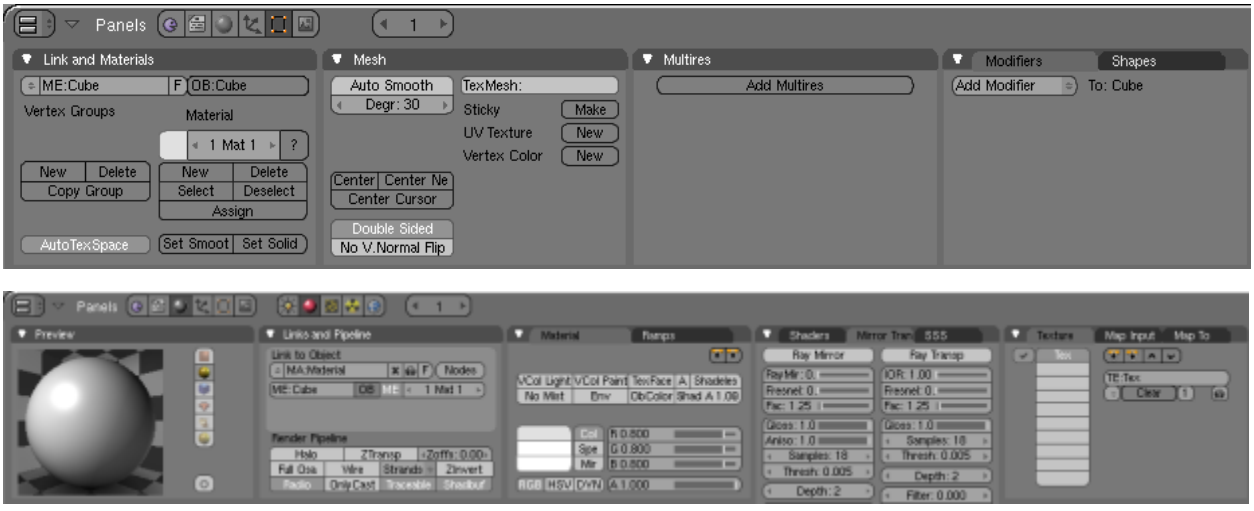
Figure 27

The Panels in the Button Window are broken down to 6 Categories: Logic, Script, Shading, Object, Editing, and Rendering. Some Panels such as the Shading's Panel can have sub categories

Figure 28: Shading Sube Categories

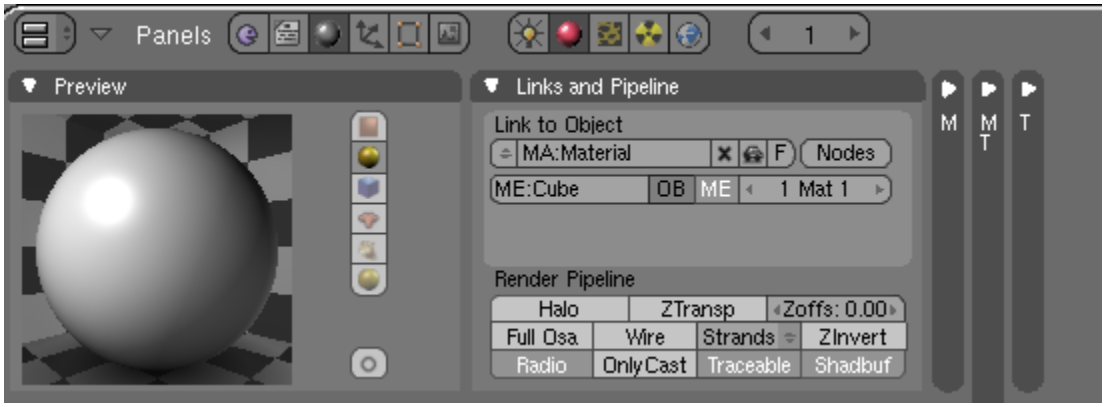
Depending on which category and sub-category is selected certain sub-panels are visible for example the editing panels differ from the shading panels.

Figure 29: Editing Panels vs. Shading Panels

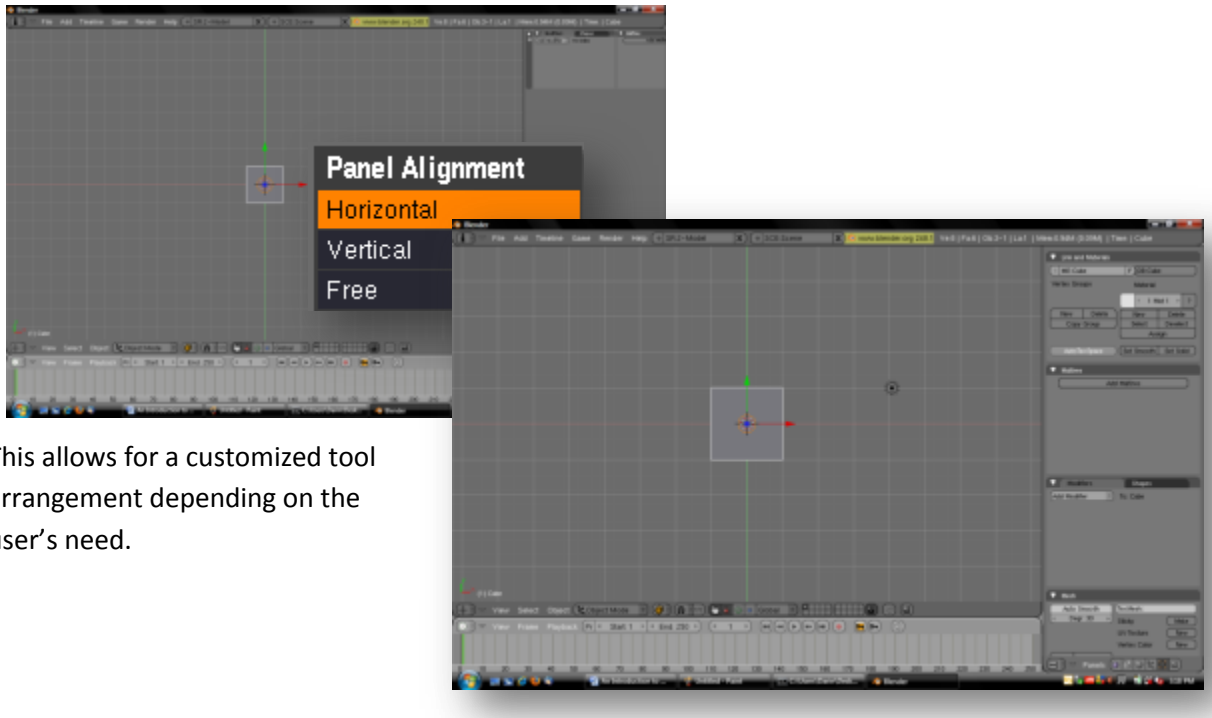


Depending on what exactly is being worked on at the time, certain panels could be, well, annoyingly in the way. Blender offers a viable method forgetting panels not being used out of the way. Click on the white arrow at the top of each panel, will compact the pan.

Figure 30: Shading's Categories Panels Shrunk



The buttons window can be opened up in a side window as opposed to a bottom window split (this can be accomplished using the window splitting technique). Initially the panels will be floating left right. This can be changed by right clicking in the panel's area and from the menu that appears, selecting **Vertical**. This will rearrange the panels vertically to better suite the view.



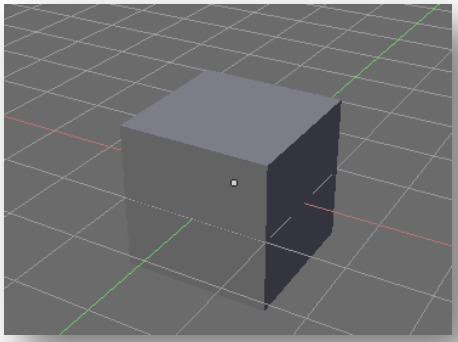
This allows for a customized tool arrangement depending on the user's need.

One More Thing About Objects and Themes For Modeling

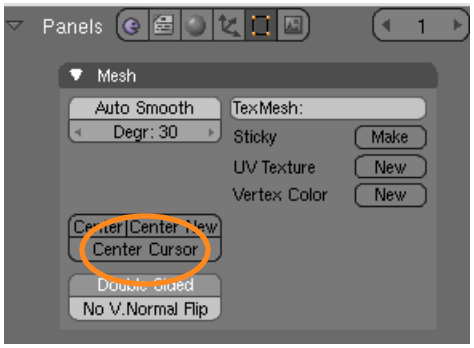
Each object in Blender has a center point represented by a thick gray dot. While an object is in Object Mode (the default state object's are in) they rotate around their center.

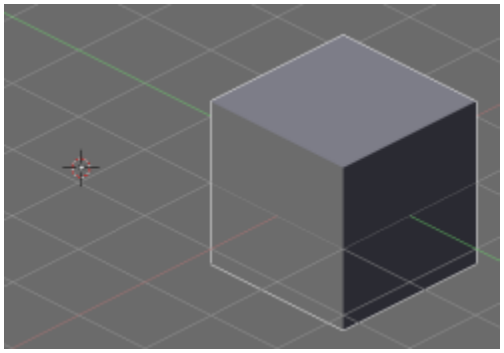
While modeling a Mesh Object in Blender it can be useful to change the location of an object's center. There are several ways to alter the location of the objects center.

Figure 31: A cube with the brigh gray dot as its center



One way to change an Object's center is by placing your 3d cursor (see figure 26) and using the Mesh Panel under the Editing Category in the Button Window. In the Mesh Panel there is a button called Center Cursor, this button changes the selected object's center to wherever the 3d cursor is.

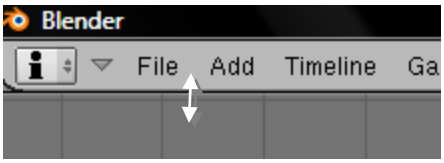


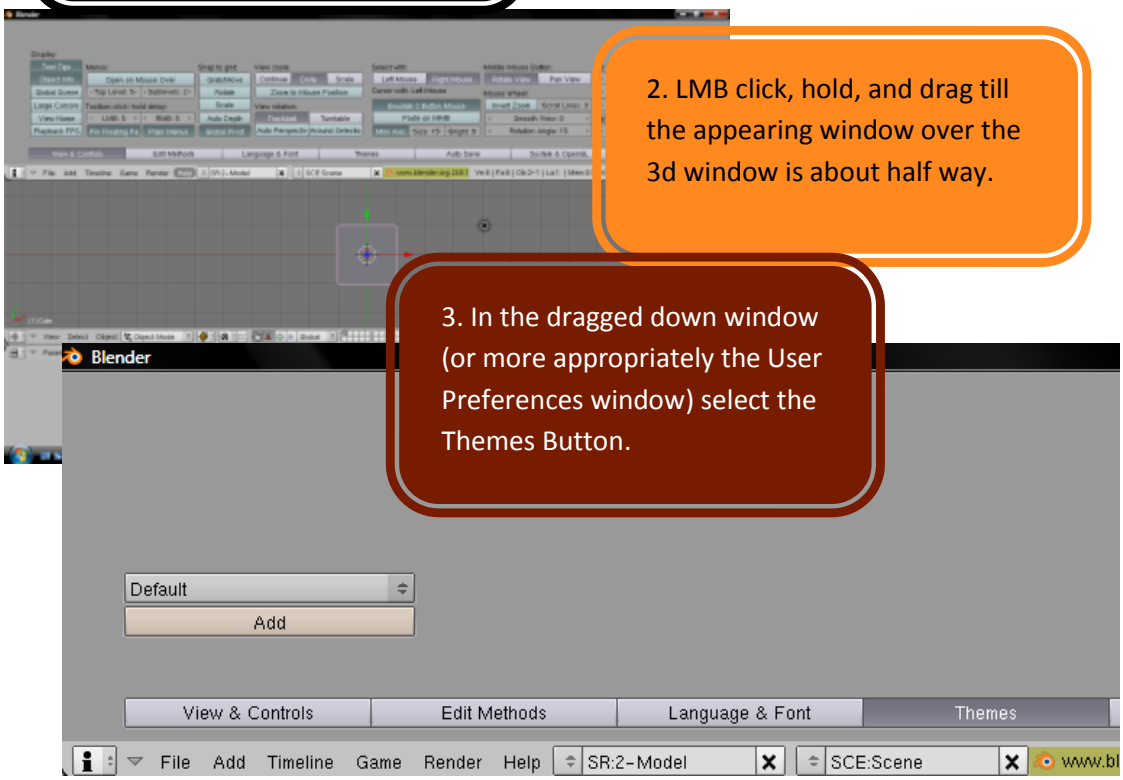


To have Blender automatically calculate a Center for a selected object use the **Center New** button on the **Mesh Panel.** To center an object or send it towards it's center (it'll make sense when you have to do it I swear) use the Center button the Mesh Panel

Finally before modeling, many Blender Heads (er..Blender users) have certain layout and color themes for Blender. These modeling sessions will be using the default layout but not the default theme. To follow along precisely you can change Blender's theme real quick by:

1. Place the mouse cursor on the split line at the top of the 3d window till the cursor change to





2. LMB click, hold, and drag till the appearing window over the 3d window is about half way.

3. In the dragged down window (or more appropriately the User Preferences window) select the Themes Button.

Click on the drop down box, select the Rounded Option. This will change the theme to what it is used through out the rest of these pages.