

Blender Primer Session Cheat Sheet:

When starting out in any 3D package, the artist wanting to embark on his or her CG journey is usually at first inundated with hundreds of commands, menu options, and rows upon rows of icons along with what could be considered an alien interface that in their minds only a select few could master. The initial experience that the “would be” 3D Artist has is one of perplexity. As Blender is the premiere open source professional CG authoring tool, it comes to no surprise that when artists first open the application, they can in the same way become quickly overwhelmed with all the options.

This Blender Primer Session Cheat Sheet was created in the hopes of getting that artist in you up and running in as little time as possible and that after reading through this primer and having followed the steps, you will be mesh modeling in the shortest amount of time. This document was created as a supplement to the Blender Primer Session that was developed by Mongrel FX LLC.

Blender’s work methodology

Blender’s work methodology was really designed for speed. As such, it is best worked with one hand on the keyboard and the other hand on the mouse. The basic typing stance of the left hand being on the **ASDF** keys will help you get to the keys you use the most during your workflow.

A quick note on Version 2.5

Although this primer was created for version 2.49, the commands are quite the same with some minor differences. For instance, the Spacebar command to invoke the “Add” menu has now been replaced with “Shift + A”

As I discover other commands that have been replaced, I will be continually updating this cheat sheet.

Basic Mouse Functions

Blender works best using a 3 button scroll mouse where the scroll wheel has a dual role and also acts as the middle button.

Right Click - to select an object, (Right Click also performs a mid-action undo)

Left Click - to confirm an action (Left Click also moves the 3D cursor – the bulls-eye looking icon into the space that is clicked on. **See 3D Cursor.**)

Scroll Wheel - **Forward Scroll** – Zoom In

Backward Scroll – Zoom Out

Clicked Down (as middle mouse button) **and drag mouse** – Changes the angled view of the 3D Space.

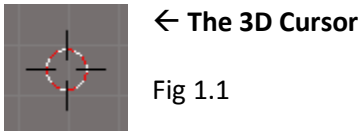
Some Basic “Speed Key” Commands to remember:

Although this command list is not exhaustive, they are used the most when modeling in Blender.

G	for Grab (Translates the object in 3D Space)
S	for Scale (Scales / Resizes the object)
R	for Rotate (Rotates the object in 3D Space based on Pivot Point – see “Pivot Point” below)
V	Splits an intersection of vertices.
X	Delete’s a selected item.
A	Selects All or Deselects All
W	Specials Menu in Edit mode and the Boolean Tools in Object mode (Boolean Tools not currently covered).
O	Proportional Edit Mode. (Works in Edit Mode) Hit O key before Grabbing, Scaling or Rotating – use scroller wheel
P	Separates the selected group of vertices within the mesh and turns it into a separate object (In Edit Mode Only).
H	Hides the selected object. (Works in both Object and Edit Modes)
Alt + H	Un-hides any hidden objects. (Works in both Object and Edit Modes)
Alt + A	Animate the sequence.
SHIFT + SPACE	Maximizes current window that mouse cursor is over.
Tab	Switches between Object Mode and Edit Mode
CTRL + Z	Undo (Maximum of 64)
CTRL + Y	Redo
CTRL + E	Edge Specials Menu . Different Edge select options. See Edge Specials Menu below for more details.
CTRL + R	Creates new “ edge loop ”, Scrolling the wheel forwards or backwards adds extra edge loops along the axis.
CTRL + J	Joins 2 selected mesh objects (in Object Mode) so they can both be worked on within Edit Mode.
CTRL + N	Recalculates “Normals” (in Edit Mode). See section: “ A Quick Note on Normals ”
CTRL + →	Cycles workspaces right. See section: “ Workspaces ”
CTRL + ←	Cycles workspaces left. See section: “ Workspaces ”
CTRL + U	Save Default Setting
CTRL + S	Save blend file.
SPACEBAR	Add menu.

The 3D Cursor

The main function of the 3D Cursor is to provide a source of a pivot point. **See Pivot Point below for more details.**



Pivot Point:

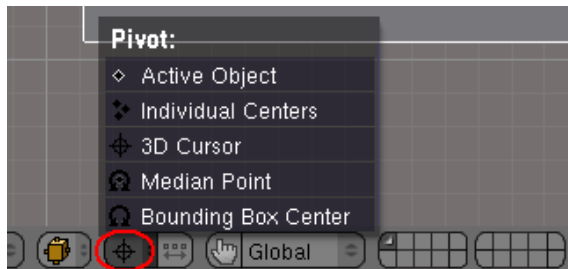


Fig 1.2

Along the header of the 3D Window you will see an icon 2nd on the left of the little white pointing hand. This icon changes based on what pivot point is selected.

Pivot points are important for defining the axis upon which the objects can be scaled or rotated.

Command Menus:



Fig 1.3

Spacebar – Within the 3D Window, when you hit spacebar, a menu appears that will allow you to access a lot of other features within Blender. For the scope of this primer, we will mainly be discussing about the **Add / Mesh** menu items as there are a lot of other advanced functions that can be learned and accessed at a later point.

For now it is important to know that this is how you will be able to “Add” Mesh objects such as Cubes, Circles, and Planes.

A Quick Note on the different Modes within Blender:

There are several different modes that have different functionality within Blender. The two main modes we will be using in this Primer Session will be **Object Mode** and **Edit Mode**.

Object Mode - is the default mode that Blender opens up in. Within this mode you can move objects such as lamps, cameras, mesh objects like you would on any set. Think of this mode as a virtual photography studio where you can build a 3D set of many different components.



Fig 1.4

You can tell you are in Object mode when you see your selected objects outlined in a white border and when you see “Object Mode” appear in the 4th drop-down from the little white pointing hand icon on the header of the 3D Window.

Edit Mode – is the mode where you will be spending a lot of your time when modeling mesh objects. You can enter edit mode by selecting on an editable mesh object and by either selecting **Edit Mode** on the **Mode menu** (Fig 1.4) or by hitting the **Tab** key.

A Quick Note on Normals

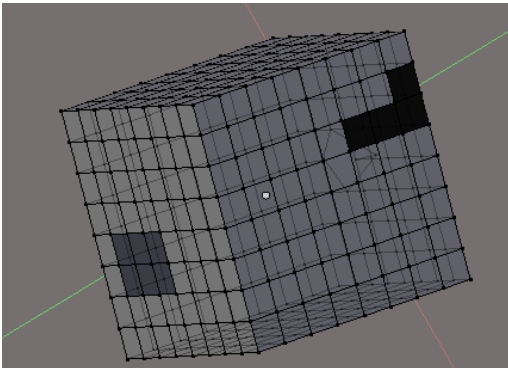


Fig 1.5

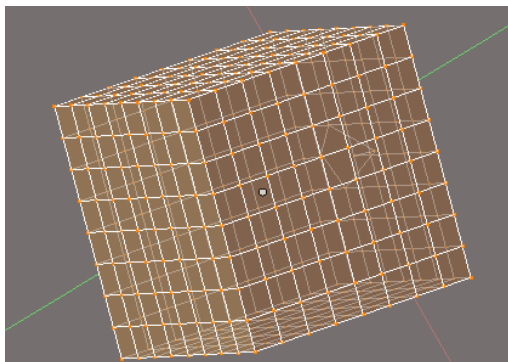
Within the edit mode, Blender tells each mesh which way to face by way of “**Normals**” from time to time during the mesh editing process, you may find that some of the Normals within your model may have been flipped thus showing up as darkend quads (See Fig 1.5).

A quick solution to this is to hit the “A” key a couple of times (within Edit Mode) until you see your whole mesh object highlighted. You would then hit the CTRL + N key



Fig 1.6

After hitting the CTRL + N key, you will see this confirmation box. You will have to left click the highlighted message to confirm. If you move your mouse away, the action is canceled.



After confirming the action you will see that the “Normals” have reverted back to their respective directions, thus making the darkened areas go back to normal. (See Fig 1.7)

Fig 1.7

Workspaces:

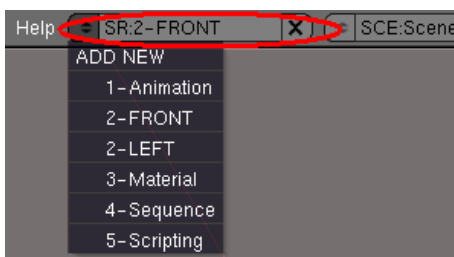
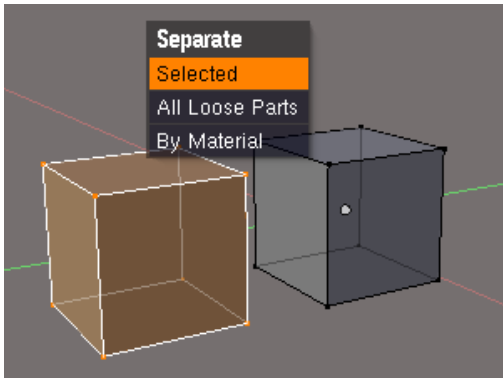


Fig 1.8

As there are so many different functionalities and tools within Blender, it would be impossible to group them all together into one workspace. Because of this an added functionality of different “virtual” workspaces has been implemented. Similar in theory to the virtual workspaces you see in some Linux distributions and on Mac OSX, these workspaces can be switched by pressing **CTRL + →** or **CTRL + ←**. Alternatively, you can find the menu dropdown at the top menu bar of Blender. (See Fig 1.8)

In Fig 1.8, you will see a difference in the 2nd and 3rd entries on the list from what you would have in your installation of Blender. I had modified and added these 2 workspaces to reflect a Front perspective and a Left perspective which I will go into further detail later in the **Modeling** tutorial.

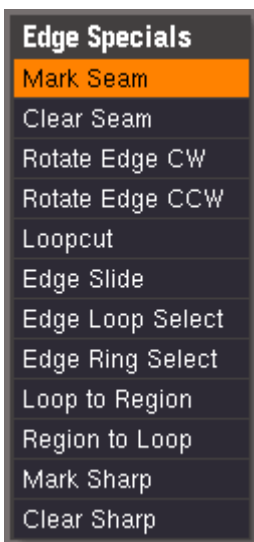
Separating meshes:



Select the group of vertices you want to separate from the mesh object and press the P key, after which you will see a menu appear. Choose accordingly.

Fig 1.9

Edge Specials Menu



The Edge Specials menu provides a lot of functionality when you are mesh modeling in **Edit Mode**. Although there are 12 different functions within this menu, we will concentrate on the 2 most used for mesh modeling. The others will be explained in later tutorials.

Edge Loop Select – Edge loop select is a way to select several edges that run along a clean unbroken line - a group of joined edges that starts and stops at an intersecting vertex of more than 4 edges. To do an edge loop select, you will have to select 2 vertices to help guide the edge loop selection. Once selecting the 2 vertices, you will press **CTRL + E** to bring the Edge Specials menu and click on the **Edge Loop Select** menu item. If you look at the image to the right, you will see

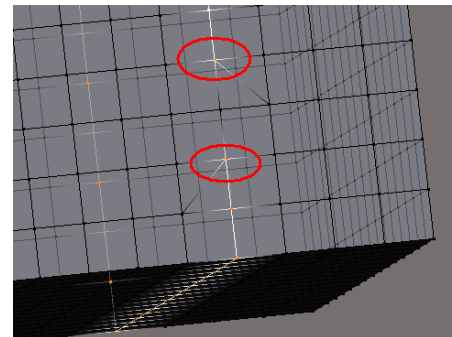


Fig 1.11

where the edge loop starts and stops. These intersections are joined by 5 vertices and therefore are marked by Blender as the start and end point of that specific edge loop. Although this may be just a prevailing theory right now, this selection method will become a valuable tool later when you are mesh modeling.

Edge Ring Select – Edge Ring Select is similar to Edge Loop Select however it selects parallel edges to make a ring around the object. You can see from the screenshot to the right that it is not constrained by intersecting vertices of 5 edges. To execute an Edge Ring Select, you will need to select at least 2 vertices that you want the ring to run through in parallel, press **CTRL + E** and click **Edge Ring Select** from the menu.

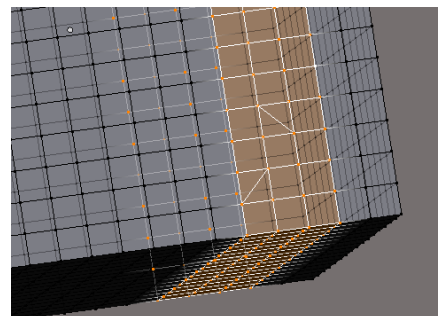


Fig 1.12