Blender lessons 1-2

1. What is Blender?

Blender, originally a 3D software of a Dutch animation studio NeoGeo at 1994 for the company's own production is now a free open source software. It is developed by the the Blender Foundation. With Blender you can make 3D models, animations and games. It is also possible to use Blender for film editing.

2. Getting Blender

Go to www.blender.org to download it and install it. Look at that site, there are some tutorials too if you want to learn more by yourself. After installing Blender open it.

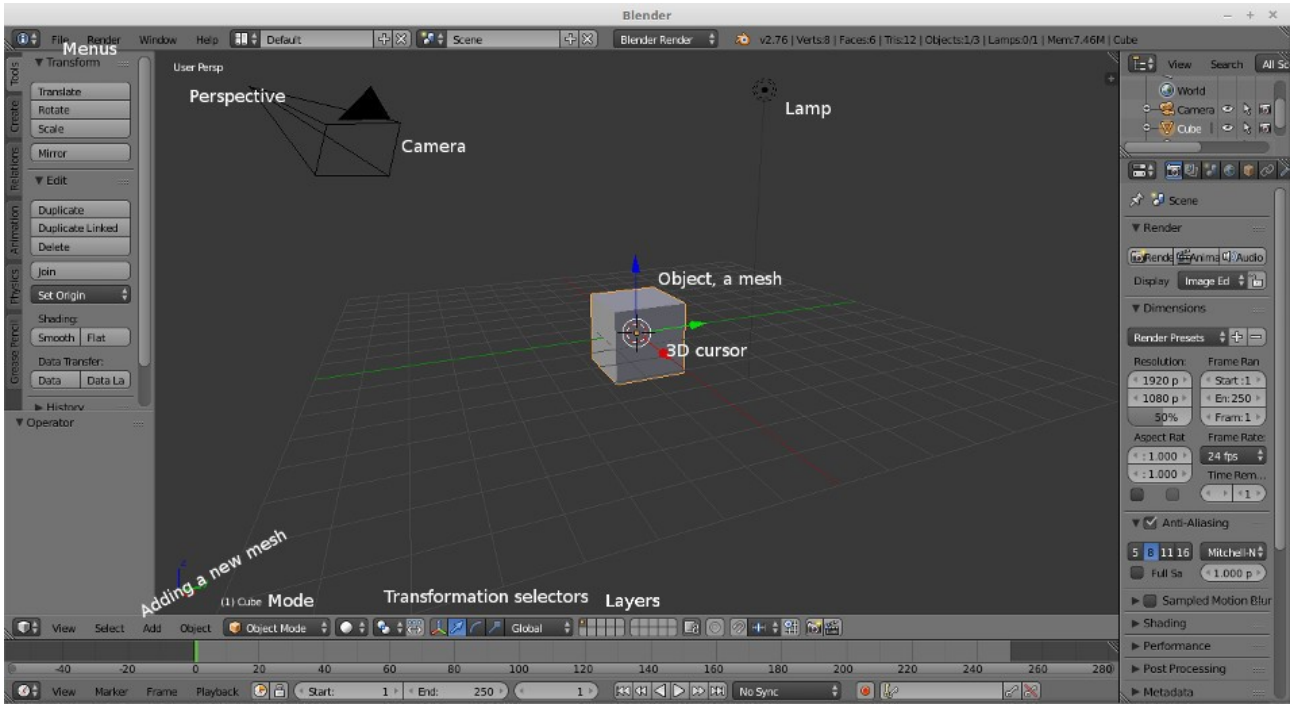
3. Setting the environment

There is at first not much you should adjust, but if you happen to have a mouse just with two buttons or if your keyboard is missing the numpad, you will have to make some adjusting to be able to use Blenders total capacity.

On the top left choose ”File” from the menu, then go to ”User Preferences” . Choose ”Input” tab and tick box ”Emulate 3 button mouse” if your mouse doesn't have a middle button (it is in the scrollbar) and tick ”Emulate numpad” if your keyboard doesn't have a numpad (the ”extra numbers” on the right). Now you can emulate the middle click by pressing the alt on the keyboard while you click with the left and numpad with the numbers on the top of the keyboard.

4. The interface

The interface looks very complicated an it is. That means, that it is not very quick to learn, but also that it has a lot of properties, you can do a lot with Blender.



5. Working with Blender

As you see, there are many buttons, tabs and menus to select. But with them, and often instead of them, many actions can be executed with keyboard shortcuts, because its faster. There os a list of them and today you will learn some basic keyboard commands.

The axis are:

red = X

green = Y

blue = Z

If you get a mess, you can return the default view from the File -menu on the top left.

You can undo your last step(s) by pressing ctrl and Z on the keyboard.

6. Viewport controls

Test the following functions:

Click the object with the mouse:

Left click: 3D cursor is moving

Right click: select the object or some part of it

Middle click: move the point of view (If you have to emulate: alt and left click)

Scroll: zoom

Ctrl alt Q: quad view, you can see your object from different pints of view

(press Ctrl alt Q again to get back)

The same can be done with numpad. Try pressing it:

1: front view

3:side view left

3 and ctrl: right view

7: top view

7 and ctrl: bottom view (also 9)

5: perspective view or ortho view (no perspective, sometimes useful)

7. Transformation (moving the object)

The next are keyboard commands, **press that key and move the object** with the mouse, left click to stop.

G = Grab

S = Scale

R = Rotate

Also try pressing first the transformation key and then the axis key, like S and X, then move the mouse. You can go **along** the axis with G and S and **around** the axis with R.

If you press wrong key you can press Esc to cancel that press.

8. Adding new objects

Delete the cube by pressing X and selecting Delete. Left click the 3D cursor where you want to set a new object. Press Add in the menu at bottom left OR press Shift and A on the keyboard. A menu is opened where you can select new objects. The objects you use for modelling are called meshes. There are many different types of them for different purposes. Test adding new meshes. Remember to move the 3D cursor to the place where you want to set them.

9. Editing a mesh

Go back to the default view from the top left menu File- New OR press Ctrl and N on the keyboard.

In object mode we created objects and moved them. But you probably would like to do more than just move the objects. To edit a mesh you need to change to Edit mode. You can choose that from the small window at bottom left, it says now ”Object mode”, click it and you’ll see the other modes and can select Edit mode. But there is a much qicker way too: just press the Tab key on the keyboard, it lets you toggle between Object and Edit mode.

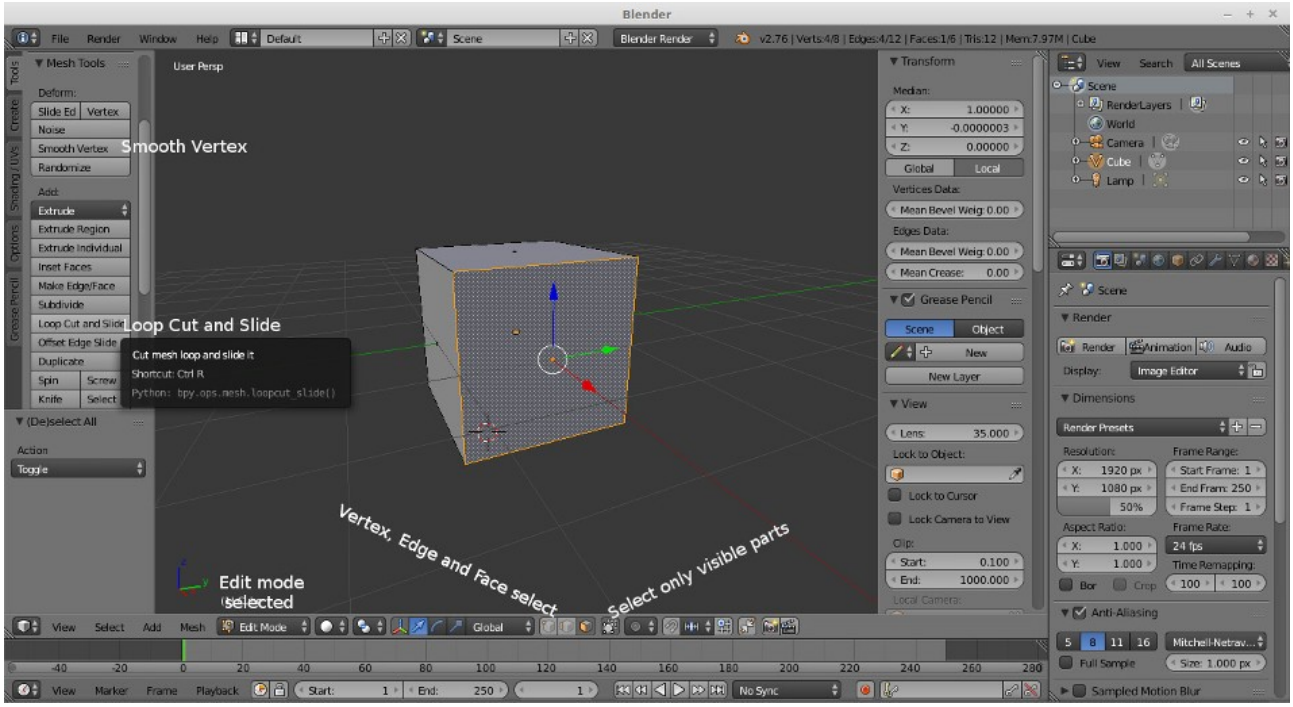
In the Edit mode you can see the objects vertices (a vertex is like a corner), edges and faces and edit and add them. Lets look at first selecting tools:

A: select all (press again to select nothing)

Now deselect everything by pressing A so you can try other selecting tools.

Right click to select targets on the cube. If you want to select multiple targets you have to press Shift as you select other targets. By pressing A you can always get rid of the selections. As you select now you may notice that you can only select vertices. That is because vertice select is on by default. You can change that at the bottom bar, there are vertice select, edge select and face select.

Test different selecting options now.



As you select parts of a 3D object, you may want to select either just something at the front of an object or also the things behind. To choose that there is also an option at the bottom bar, if you click it you choose ”Limit selection to visible”.

Test it and look at the difference in the cube, pressed and unpressed.

If you want to select larger areas faster than right clicking them one by one, you can use following keyboard shortcuts:

B: box select, you can strech a box around the area you want to select, much like the crop tool in Gimp

C: circle select, select circle areas, deselect with C and Shift

Test them now!

Now that you can select different parts of the mesh (the cube, probably) we can start modelling it. But because it migth be boring just to strech the cube or some other mesh, we must add some new vertices to it first. In the toolbar on left there are tools for that.

Select the whole mesh first with A. Then find and click ”Subdivide” on the left toolbar. That’s a quick way to get more vertices to your object. But you might need just one of them and into a certain place. For that you have a tool ”Loop Cut and Slide” on the left toolbar.

Now undo the subdividing by pressing Ctrl Z until you have just the cube. The click Loop Cut and Slide. Move the mouse over the cube. You see a pink cutting line, by moving the mouse you can adjust if will be a horisontal or a vertical cut. When you have chosen that, left click and the cutting line will turn yellow. You can now move the line exactly to the point you want the cut. Then left click again and it is fixed. If you want to move it later, press G and the axis (XYZ) if needed.

After adding some new vertices to the cube change to face selecting mode at the bottom bar. Then select a face of the cube with right click and press E. You can also select axis (XYZ) to extrude along them, for example press E and Y and you can extrude along the Y axis by dragging with the mouse. If you want to extrude freely, click E and middle click on the mouse before extruding, that will free you from the axis.

E = Extrude

Now you have enough skills to make some piece of art. Try to make something from the cube or you can select another mesh. Set new cuts when needed and extract faces. You can twist the faces with R and shrink or enlarge the face with S (scale). When your piece of art is ready you can soften its edges a little with ”Smooth Vertex” on the left toolbar.