Modeling - Introduction and Basics

Hey there! Welcome to the modeling course for the Add-on Making Academy. The class will be taught by Conan (BLID 4928) and Trogtor (BLID 23897). In the next few lessons I'll be covering the basics of modeling, as well as setting up some dedicated stream/server hosting times to answer any specific questions. You can find the stream/server times on the Classroom assignment linking to this doc.

General Information

Most of you have probably heard of Blender as the go-to tool for modeling for Blockland. Blender is a free, open source modeling program provided by the Blender Foundation. You can find downloads to install Blender at the blender.org link below. Download the latest version off the website - as of writing it is 2.78c. You can also get it off Steam - the main difference is you'll automatically update, and your Blender folder will be in `C:/Program Files x86/Steam/steamapps/common/` rather than `C:/Program Files x86/Blender Foundation/`

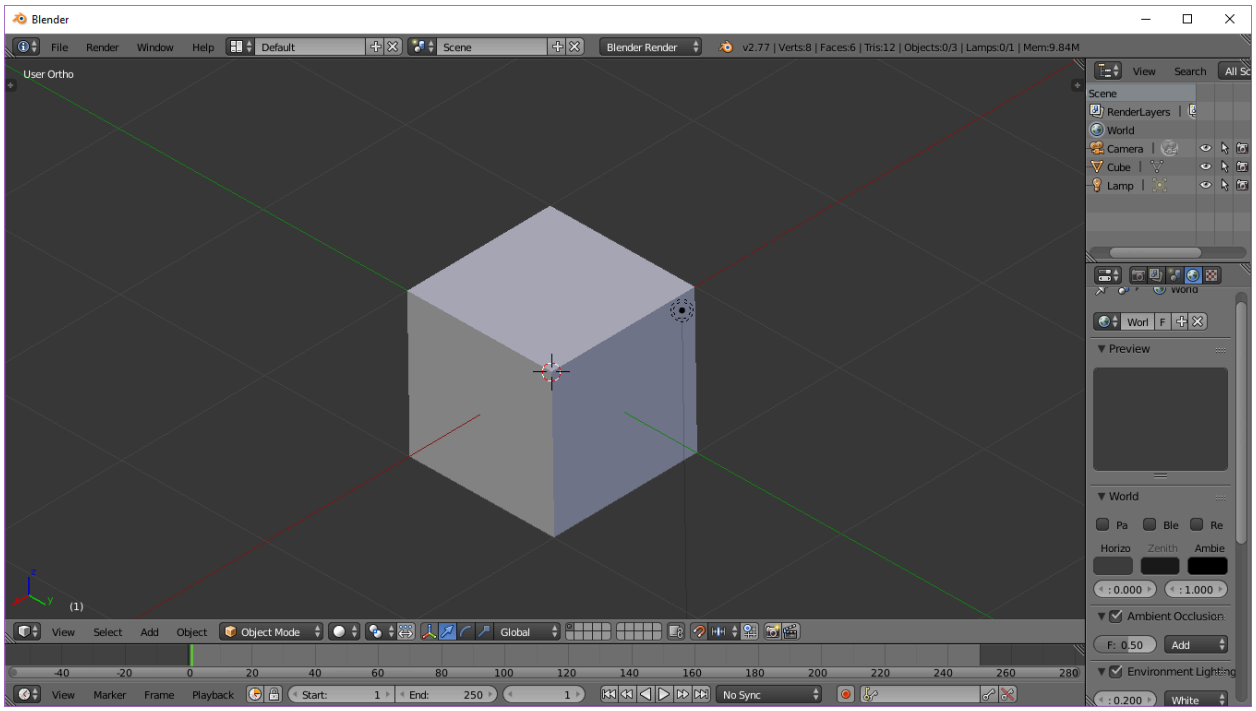
Most of the class will be applicable to 2.6-2.7, but note that these lessons may not apply to Blender 2.8 and above (when released) since there are various major changes planned in that version. You will have to install older versions of Blender from their archive if this is the case.

The general lesson map/plan is as follows:

1. General modeling - **this will be the largest portion of the course**
2. Texturing, UV Mapping, and Shading
3. Formatting for .dts export and importing into BL
4. Modifiers (Mirror, Array, Triangulate, etc)
5. Differences between Item/Bot/Static Shape/Projectile models
6. Animation
7. Custom animated playertypes + advanced animation (vertex transforms)

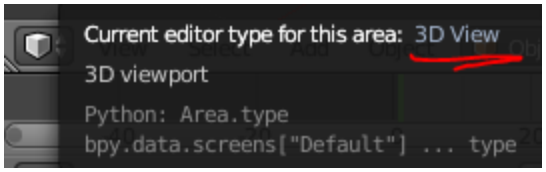
General Modeling - The basics of the basics

Time to dive right in! On opening Blender, you'll likely be daunted by the interface that immediately shows up. Don't worry, we'll be going through every part piece by piece - you'll likely be able to get by not knowing what half the stuff on the screen does. Your screen might look slightly different since I've configured my Blender a bit.



Note these drop-down menus on the left side of each header/footer line

If you hover over them, you can see their name



For now let's focus on the 3D View Pane. To rotate your view around the box, use middle mouse click, aka pressing down on the scroller on your mouse (I really hope you guys have a three-button mouse...)

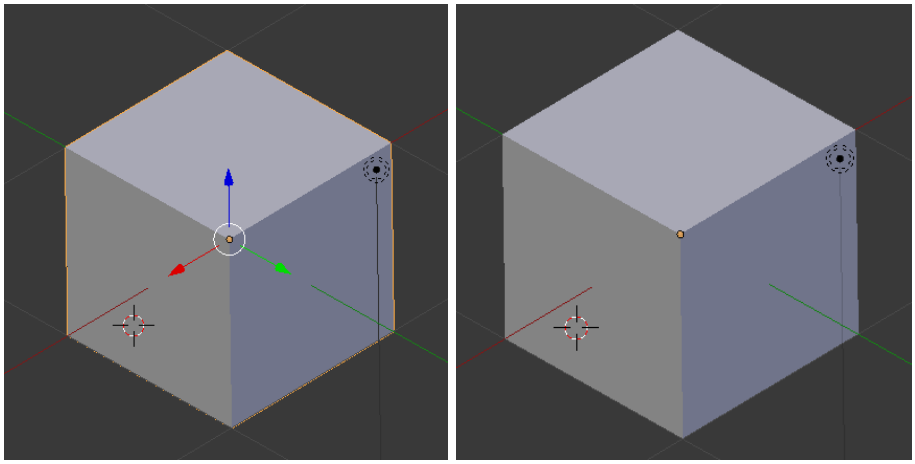
To pan your view, use Shift+MMB, and to zoom you can just scroll, or Ctrl+MMB if you really prefer.

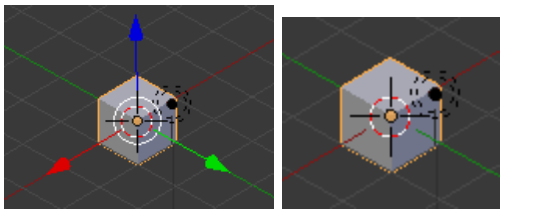
Once you get comfortable with that, take a look at the bottom bar of the 3D View. Unless if you pressed Tab or some really obscure keybind, it should look like this:

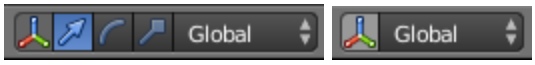
If you did press Tab once earlier, with your mouse over the 3D View panel with something selected, it will look like this:

Object Mode and **Edit Mode** are the two primary modes of Blender you'll be using 99% of the time. Modeling consists of *editing* meshes in Edit Mode, and *positioning and rotating for export/animation* in Object Mode. Early on, we will work primarily in Edit Mode, and get into Object Mode stuff later when we start exporting and animating our models.

Use Right Click (RMB) to select the cube in the center of the screen. You will know if it is selected by the orange highlight around the object while selected. To deselect everything you have selected at any time, press A. If you don't see the triple arrows (3D Manipulator Widget) while having the cube selected, make sure the colored Y symbol in the 3D View bar is enabled.





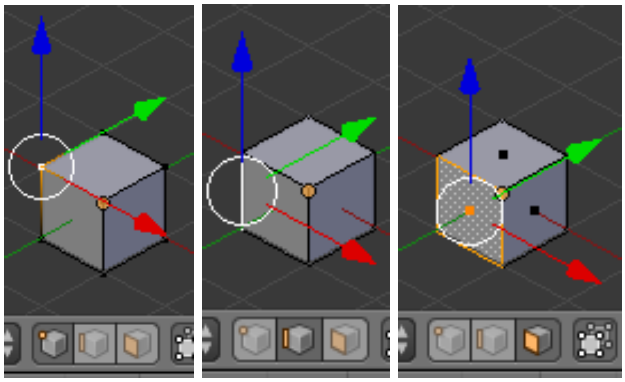


Press Tab once while in object mode to enter Edit Mode. This should change how the selected cube you have looks. You can now select faces/vertices/edges, depending on your 3D toolbar settings.

Edit Mode

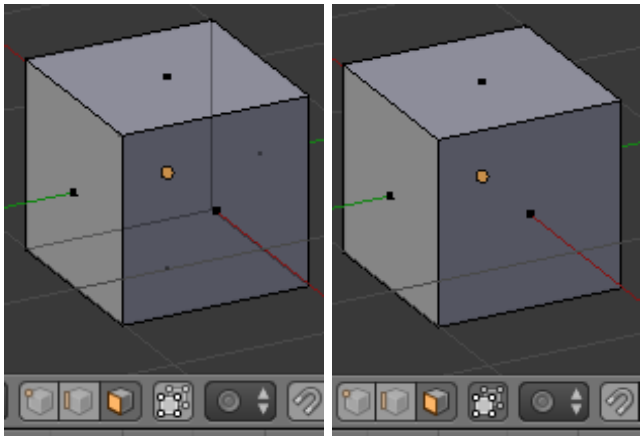
As noted earlier, the bottom bar buttons change while in Edit Mode. Here's the image again for reference:

Right of the 3D Manipulator Widget section is three new buttons, each corresponding to different select modes. **Vertex select** (the dot) lets you see and select vertexes on the model. **Edge select** lets you see and select edges between vertices, and **Face Select** lets you select visible faces from above or below the face.



The dots in Face Select mode represent the center of the face, averaged from all the locations of the vertexes that make up a face. Using the widget, you can move the face, vertex, or edge along an axis.

Just past the Select Options is the toggle for **Limit Selection To Visible**. While on, this hides selectable parts behind any faces or edges, and prevents you from selecting them except in Wireframe mode. While off, anything you can currently select that is hidden behind another face is shown as a ghost, and you can select them over foreground objects if your mouse cursor is closer to them/their center than to foreground objects.



You've also probably noticed the orange dot - that represents the mesh object's origin. This will be important later when it comes to animating, mirroring, and exporting, but for now you can ignore it.

Last but not least, visible in both Edit and Object mode, is the Snap modifier. This is by far one of the most useful options here, especially if you like working on grids or are trying to get two things aligned just right.

By default it is set to increments (grid steps) and toggled off. Holding Ctrl while using most editing tools (like transform/scale/rotate, as well as knife tools and extrude) will temporarily toggle the option to on (and off if it is already on). Try moving a face while holding control - you'll notice how it snaps to quite large increments. In the next lesson I'll go over how to make the grid be smaller.

This is probably a lot for anyone 100% new to modeling, so I'll leave off this lesson here. Any questions I get asked about this lesson will be appended to this section.

Questions

Is it possible for me to close the model by creating edges, faces or some other sort of thing?

Yes, you can. If you select two or more edges, or three or more vertices, you can press F to create a face between the selected parts. If you select two vertices, F will create an edge between them. I'll be going over tools like this in the next lesson.