

The Snowman of Doom

A Beginner's Guide to 3D Modeling

for Neverwinter Nights

by TheBarbarian

Part 1.1 - Crafting the Mesh

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- Scene Setup / Selecting and Deleting Objects

OK! This is the part where we get started for serious. I'm going to assume that, within Blender, you're able to rotate the camera, zoom in and out, select objects, and reposition the 3D cursor. If you don't know how to do these things, please review the information linked to in the preface, or otherwise click around on the screen and try to move the mouse while holding different mouse buttons, to try to get a feel for the controls.

The orange highlight means that something is currently selected.

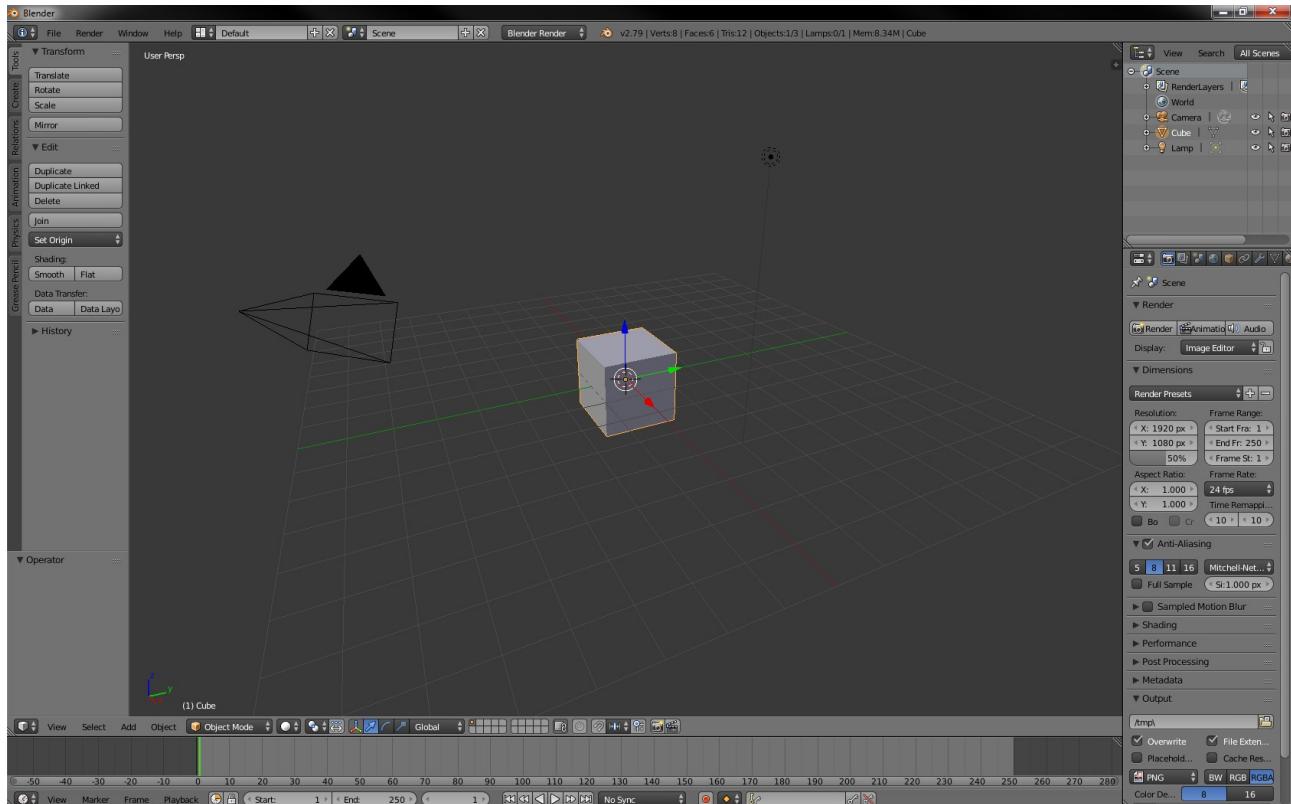
The orange dot at the centerpoint of the object is its origin point. Note: You want this thing to stay exactly in the middle of the scene the **entire** time, far as this part of the tutorial is concerned. If it moves elsewhere at any point, that's not supposed to happen, and you should hit Undo (CTRL+Z).

The red/white striped circle thing is the 3d cursor. We won't be doing much with it.

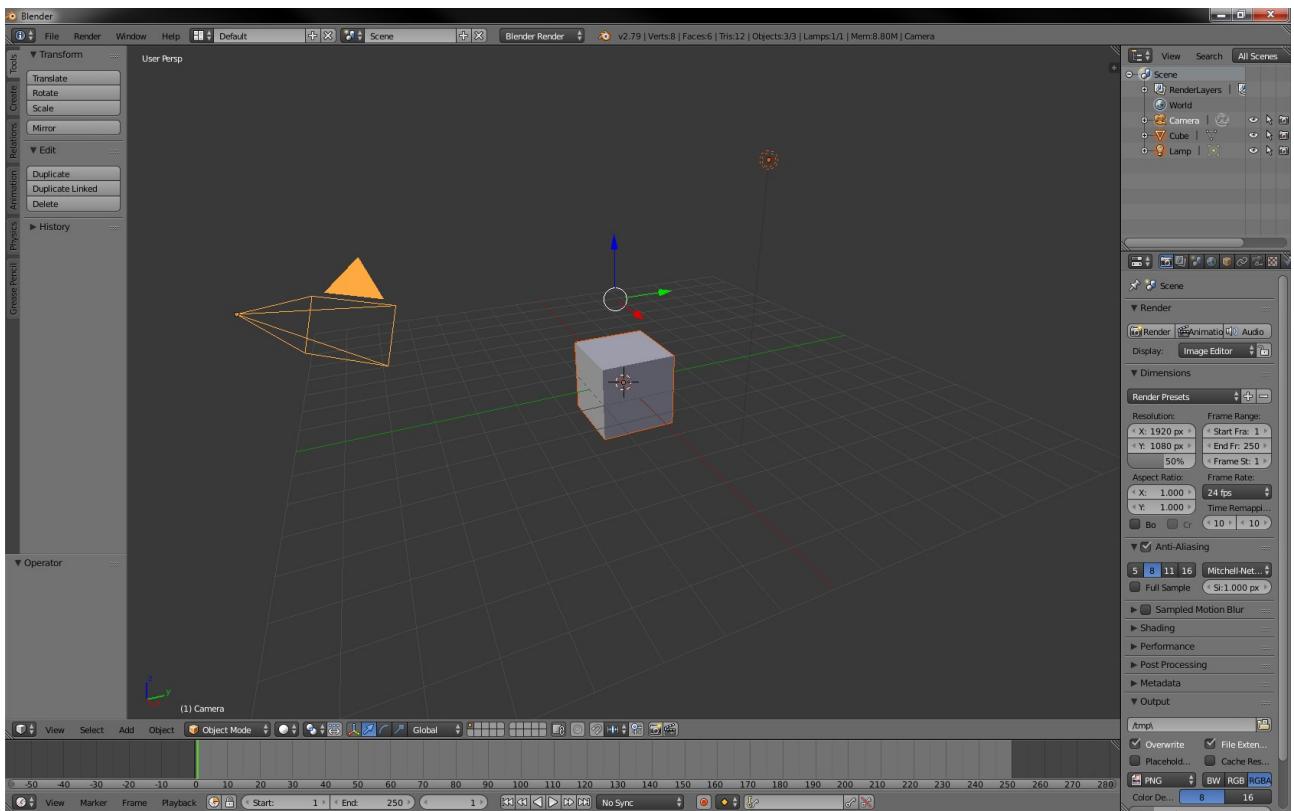
The mouse wheel zooms in and out if you scroll it.

I'm also going to assume that you already have the Neverblender plugin installed, and generally have your work environment (somewhere to sit, not literally being on fire while you're working...) set up and are ready to go, but otherwise are a complete beginner, so I'll explain each and every thing I do and try to keep things as uncomplicated as humanly possible. To craft your own snowman, all you have to do is follow along step by step.

This is my "starting position":

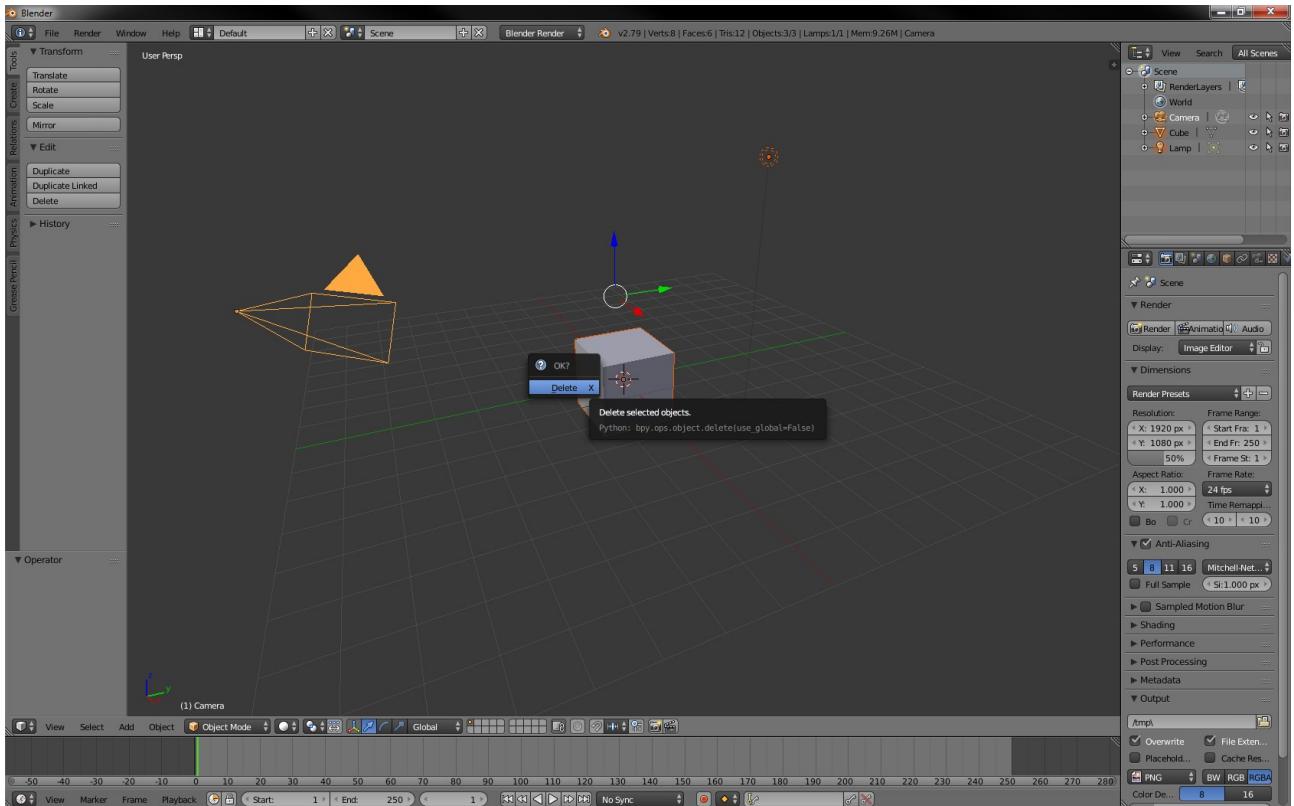


What I'm going to do next is clean out the **scene**. It currently contains a camera, a cube, and a lamp, and I won't be needing any of them; all they'd do is clutter up the place. Away, pesky clutter!

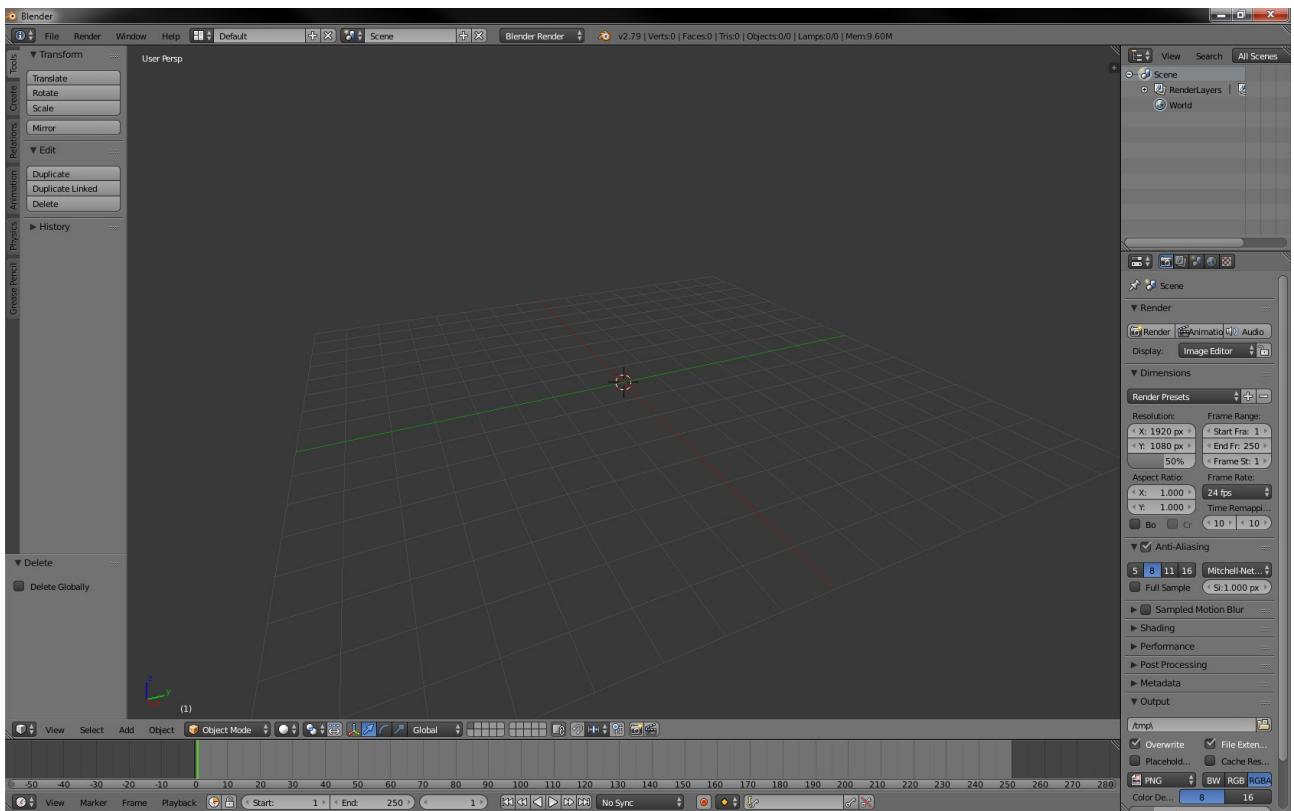


In the scene list, I've selected all three of these objects by holding **SHIFT** while **clicking** on them.

Holding SHIFT while you click on an object adds it to your current selection. This is a general rule, and applies to most other things that can be selected throughout Blender.



I've now pressed the **DELETE** button on the keyboard, and will now hit **D** while the dropdown menu is open, to delete all three of my selected objects.



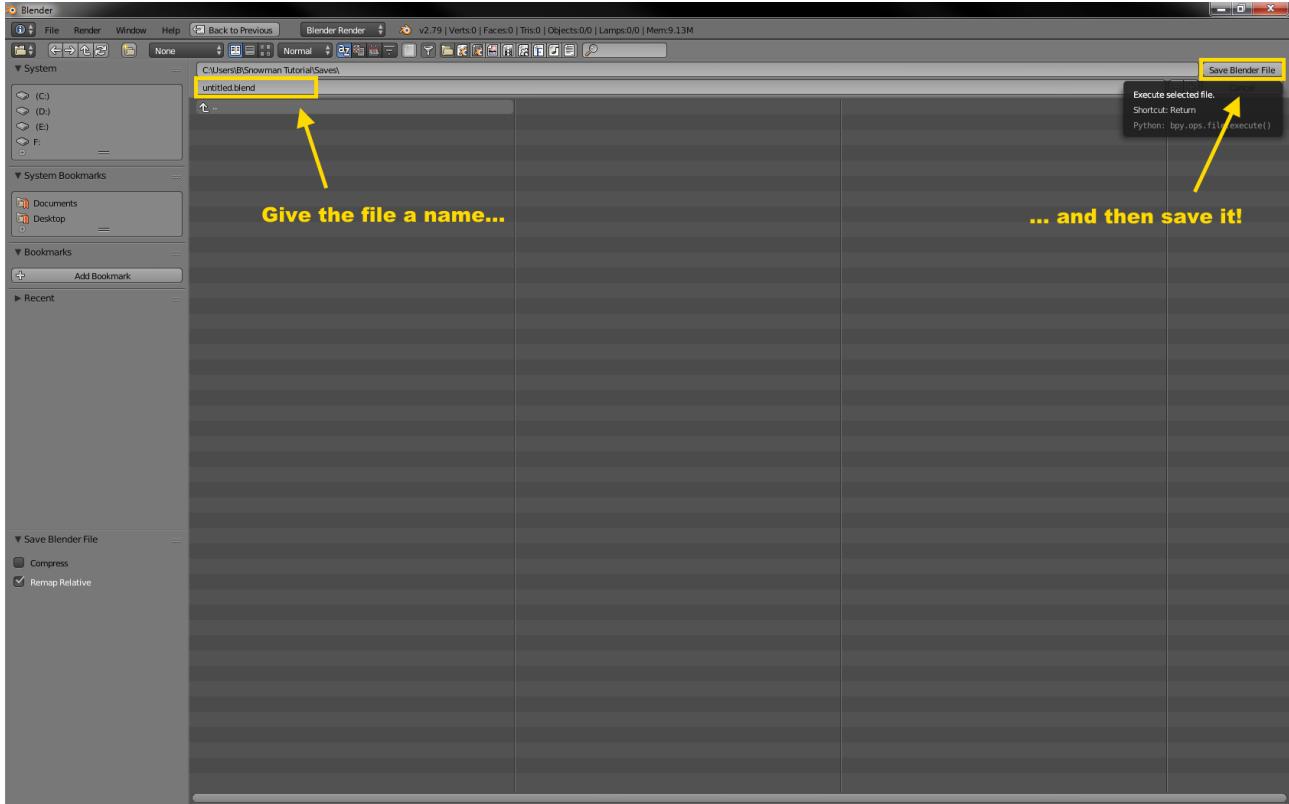
Fwoompfh! Gone they are.

You can hit **CTRL+Z** to undo your last action, and **CTRL+Y** to redo it again. So if something wonks up for some reason, **CTRL+Z** is ready to come to your rescue. This step right here would be a good time to try this out a couple of times.

This would also be a good time to save the .blend file for the first time. Let's do that.

- Saving the Blendfile

When you hit **CTRL+S** in a scene that does not have a .blend file yet, a saving screen opens.



If a .blend file for this scene already exists, **CTRL+S** will **overwrite** the current file.

The other two methods to save are **CTRL+SHIFT+S** (Save As) and **CTRL+ALT+S** (Save As Copy).

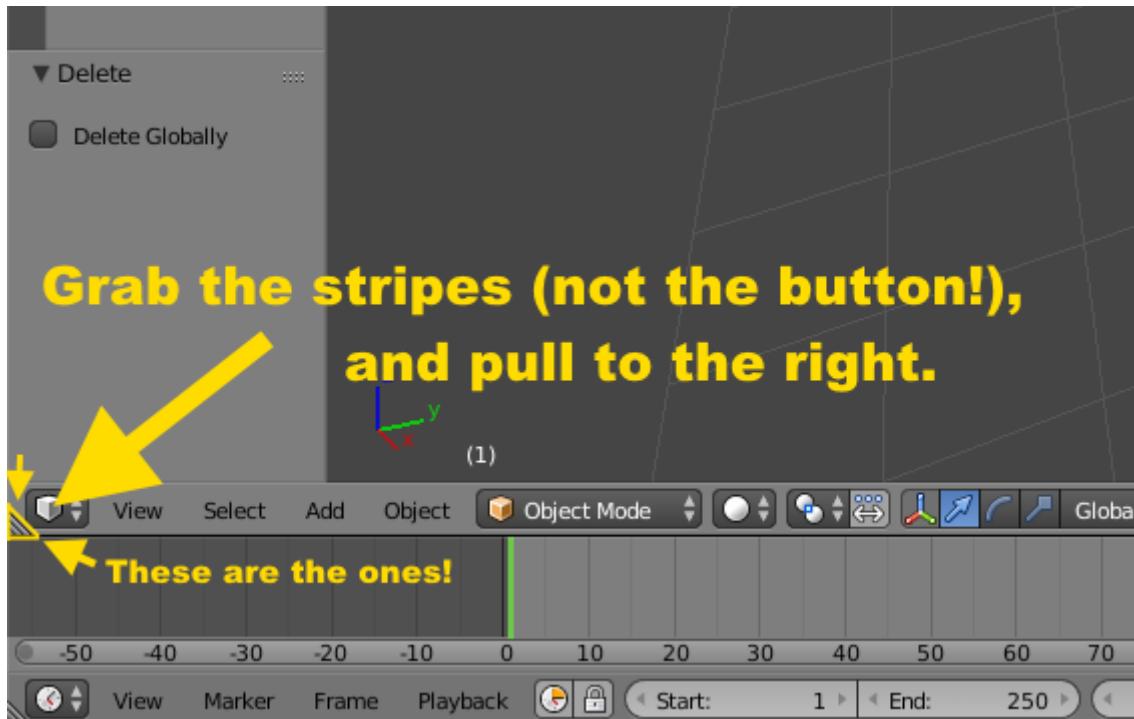
I'm going to throw a whole bunch of "HEY HAVE YOU BEEN SAVING?" notices at you over the course of the tutorial. YOU WANT TO INTERNALIZE SAVING, AS IF YOUR LIFE DEPENDED ON IT.

Make frequent copies as you go along, so you can revert to earlier stages when needed. And also, make backups. I *will* laugh at you if you lose your progress because you didn't save and didn't make backups. I'm not going to feel bad about it, either. It'll help me cope with my horrible deep-seated anguish over all the time *I've* lost because *I* didn't save often enough. Learn from my mistakes, young grasshopper.

A very important sidenote for later on: Note that **CTRL+S** saves *the .blend file*. If you edit active textures within the .blend file, they **do not** get saved automatically along with the .blend file, so you **will** need to save textures separately.

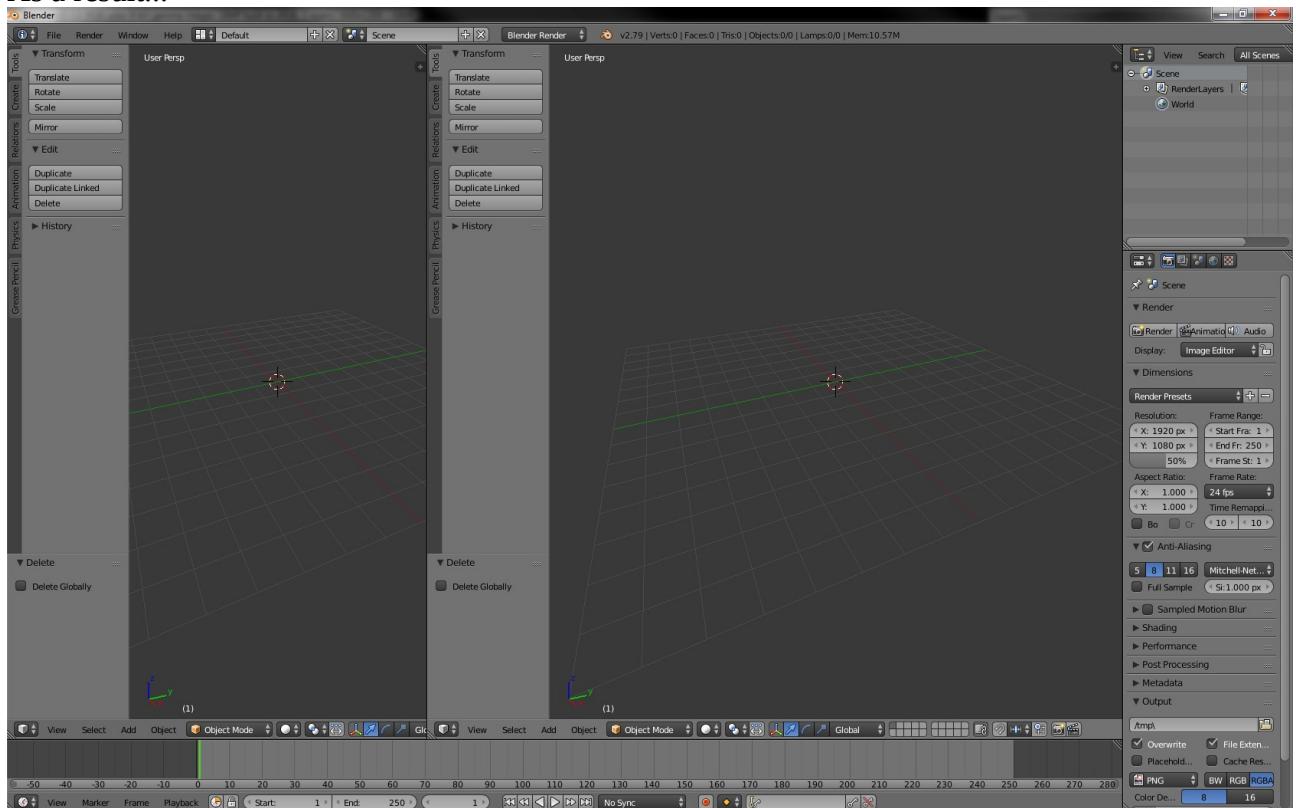
- Opening/Closing Viewports

Next up, I'm going to open two additional viewports. To do this, I'm going to click the corner with the striped arrows, on the lower left of the biggest currently-open viewport, and drag it to the right.



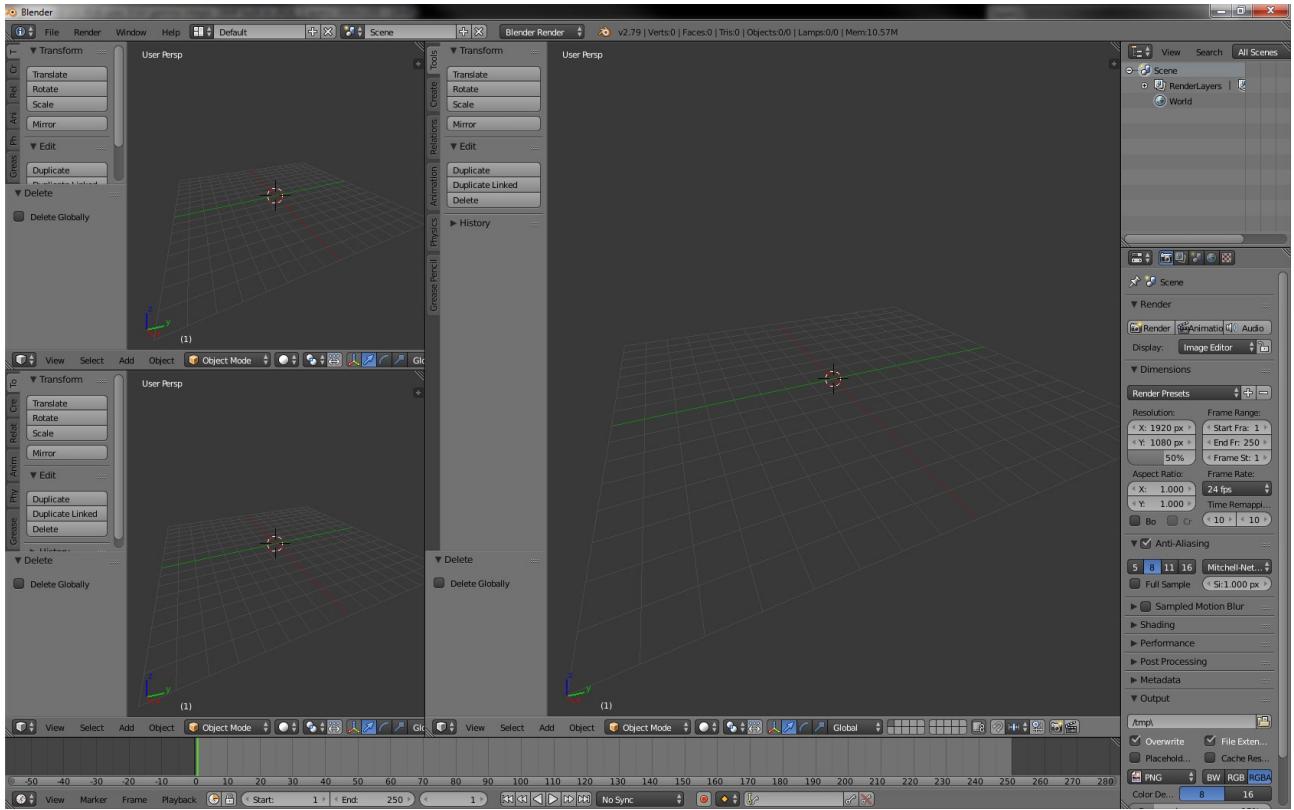
Just grab and pull! No hesitation. Y'can't break it, promise.

As a result...



... I now have *two* open viewports, which I can switch into different modes or set to different camera angles, viewing the model from multiple directions at once.

I'll open a third within the one on the left, because I'm just used to it being there:

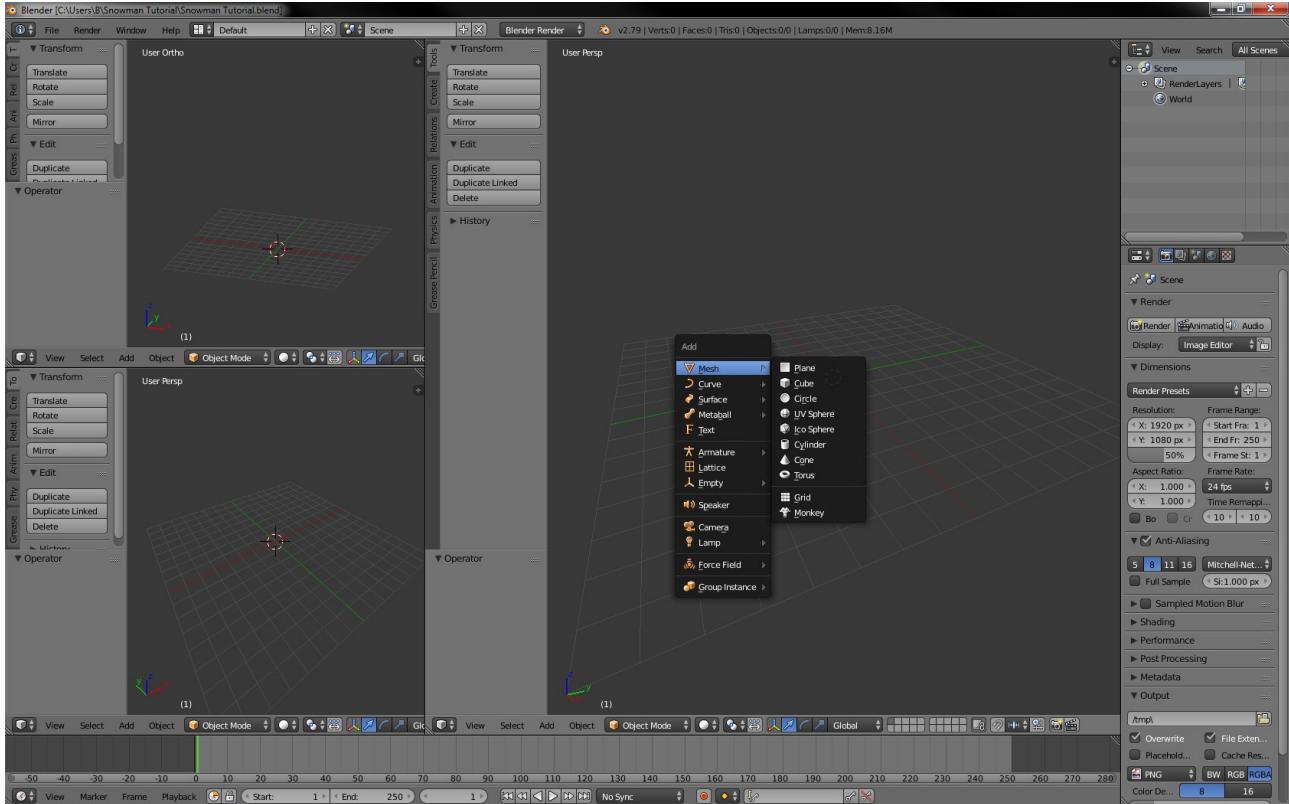


You can grab the striped corner of the newly-opened viewport and drag it back into the first one, to close the viewport again.

Go with something you're comfortable with. I'll probably be keeping the three-viewport setup here for the remainder of the tutorial.

- Creating New Objects

Hold **SHIFT** and tap **A** (while holding SHIFT) to open the Add menu.



These geometric shapes are referred to as **basic primitives**, or just **primitives**, in this context, and you can use them as starting points for all kinds of models.

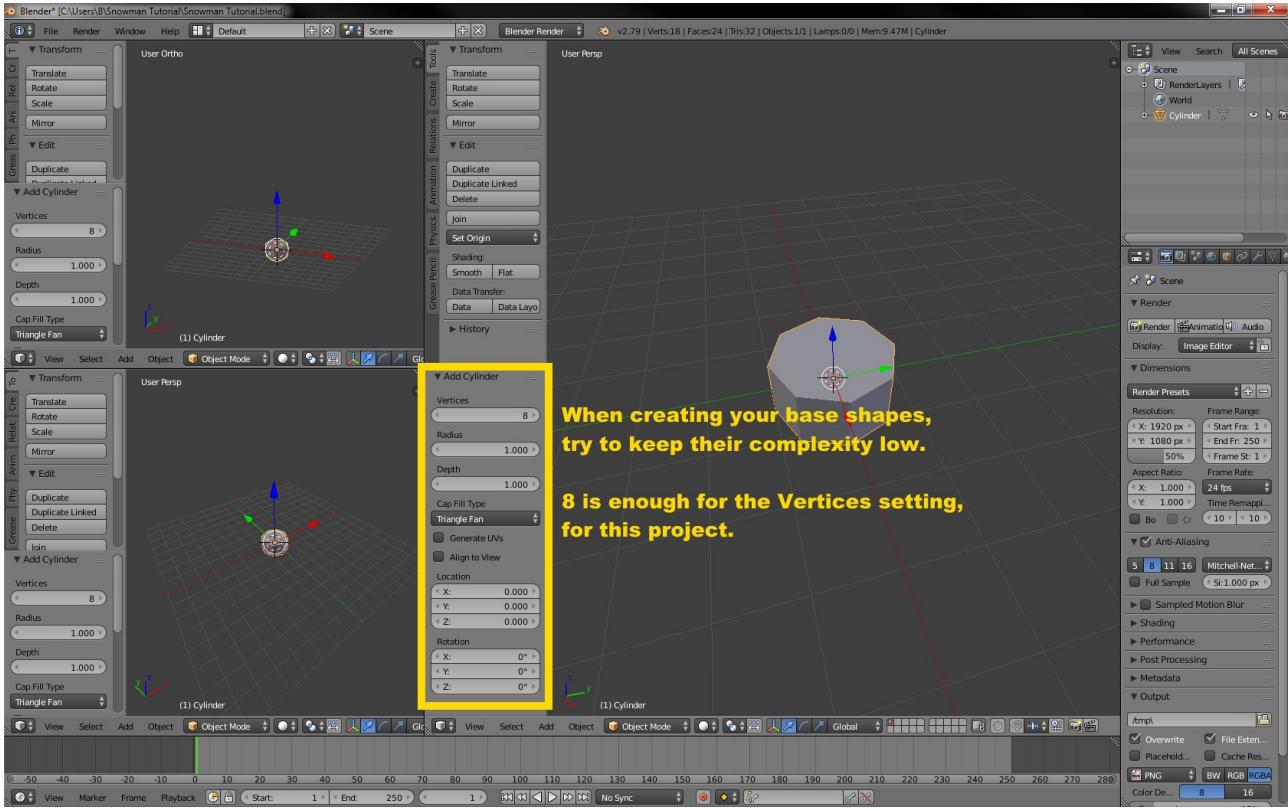
Much like shaping clay, you can start out with pretty much any shape you want, but if you know what kind of model you want to create, then some starting shapes make a lot more sense than others.

Mind that you are **not** bound by their overall form, however. The whole point of the 3d modeling program is to let you *create* and *modify* three-dimensional shapes. You can start with a cube to create a model of, say, a globe, just as much as you can with a geosphere or a flat circle, the steps it takes to get from *here* to *there* are just different.

I'm going to go with a **cylinder**, here.

To create a new cylinder, you can left-click the option with the mouse once the menu is open, or you can stick entirely to the keyboard and hold **SHIFT**, tap **A** while holding **SHIFT**, then hit **M**, then hit **Y**.

Once you've done this, the new object will be visible, and you will be seeing some options you can change while you're creating an object of this type.



These are the options for the cylinder. If you perform any other action at this stage, the settings will be finalized, and you will no longer be able to alter them.

I've set the Vertices setting down to **8**,
the Depth setting down to **1.0**,
and switched the Cap Fill Type to **Triangle Fan**.

Note on the side: New objects will always be created at the position of your 3D Cursor. If you've accidentally displaced it, you can re-center it via the following shortcut:

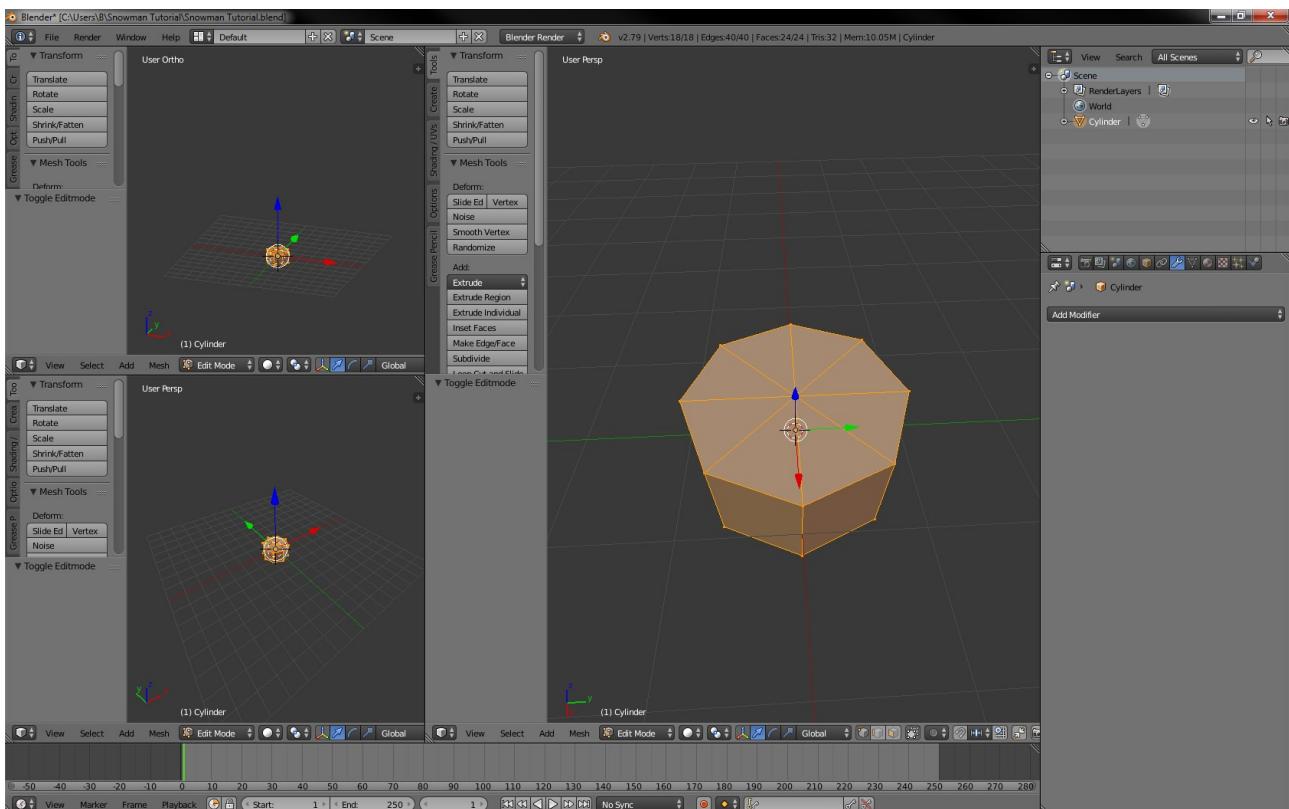
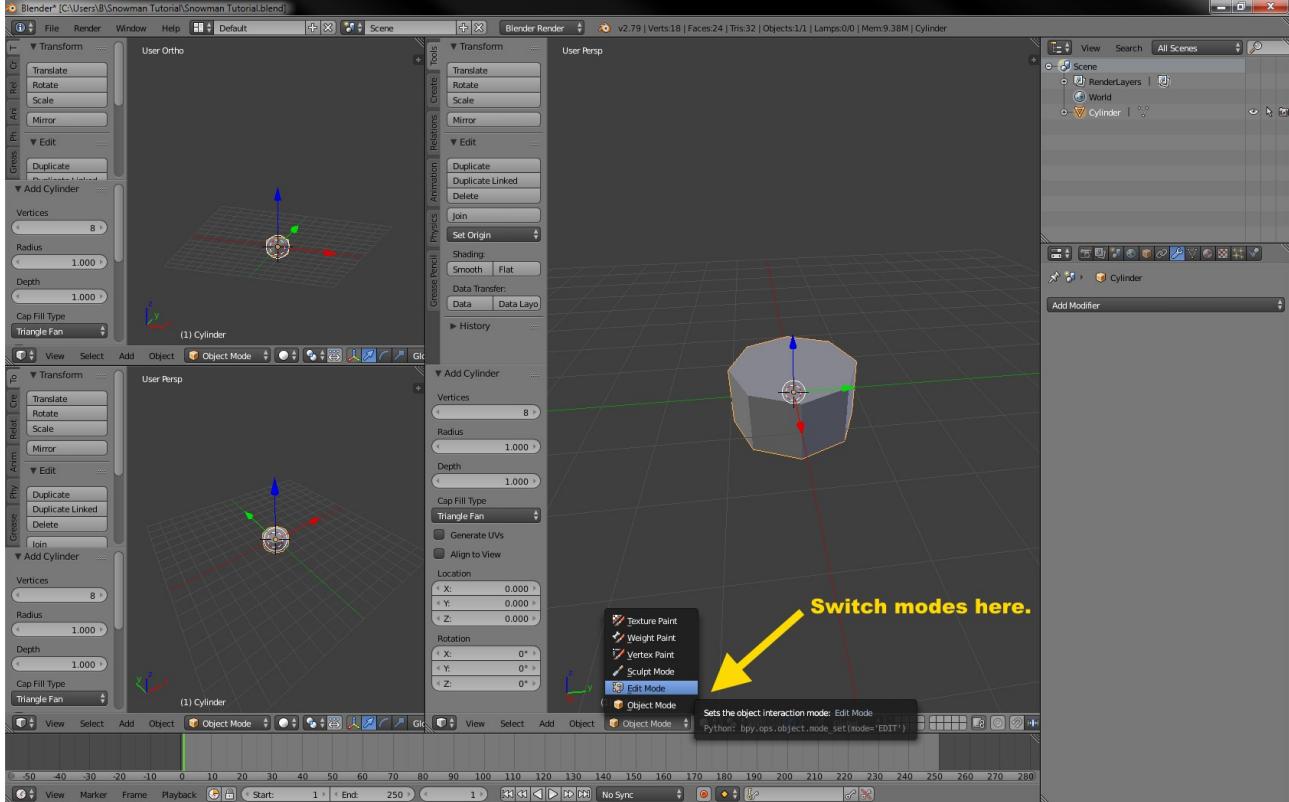
SHIFT+S -> Cursor to Center

Also: **SAVE YOUR PROGRESS.**

Don't just make *one* save file that you keep overwriting with newer versions, either. Reminder: Use **CTRL+ALT+S** to create a new, separate save file, and **CTRL+S** to save the current file (overwriting it).

- Switching Modes / Edit Mode

Switch in or out of Edit Mode by clicking the button this friendly yellow arrow is pointing to:



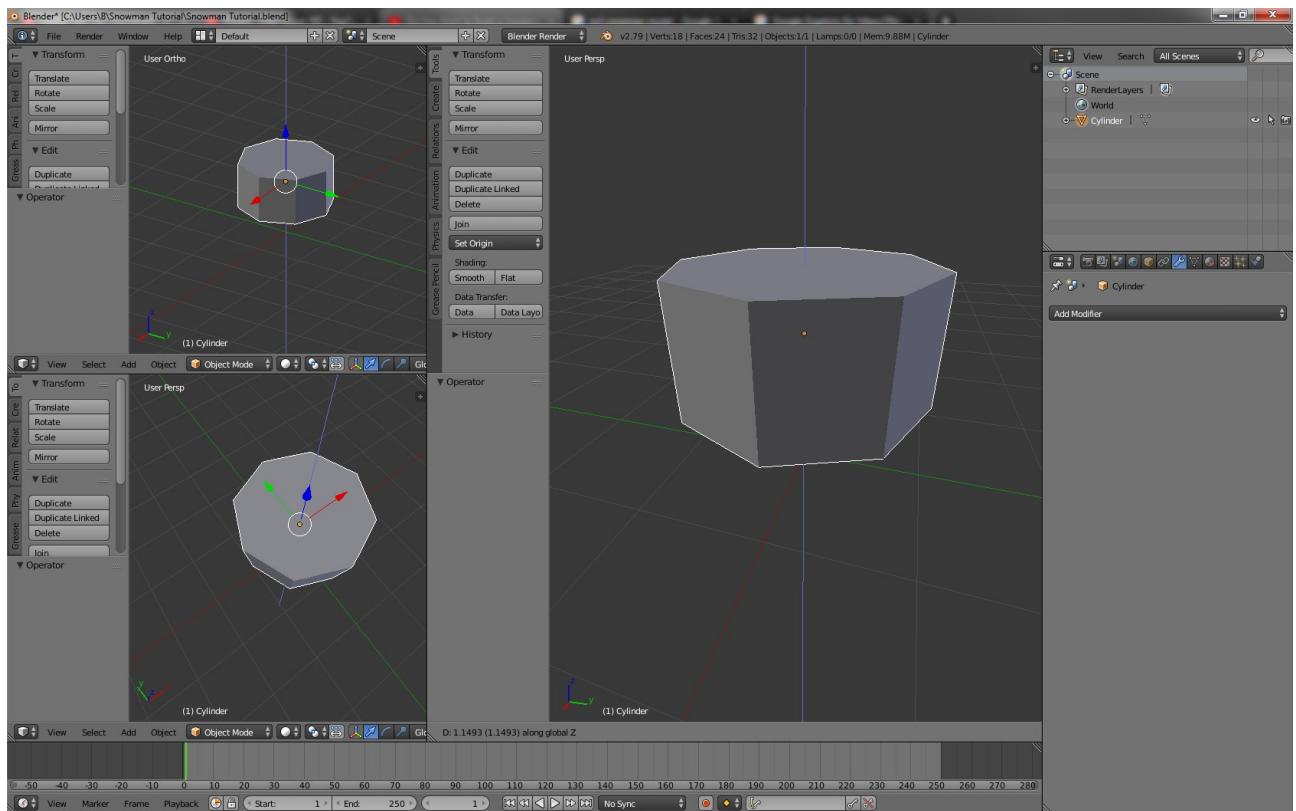
In Edit Mode, you can see the **Mesh** itself clearly. It's constructed out of points (**Vertices**) that are connected by lines (**Edges**), forming solid surfaces in between (**Faces**).

- Moving/Repositioning Objects

The orange dot is the origin point of the selected object. Think of the object Cylinder (in the list here) as a container, and of the geometric shape itself as an item *within* that container. The position of the contents of the container are always relative to the origin point of the container.

You can reposition visible shapes in two separate ways in Blender; you can move the container (repositioning the origin point), or you can move the contents (repositioning the verts/edges/faces of the mesh). The way to do this is identical for both, but you need to be in **Object Mode** to move the object, and in **Edit Mode** to move the mesh (or parts thereof).

The hotkey to move something is **G**.



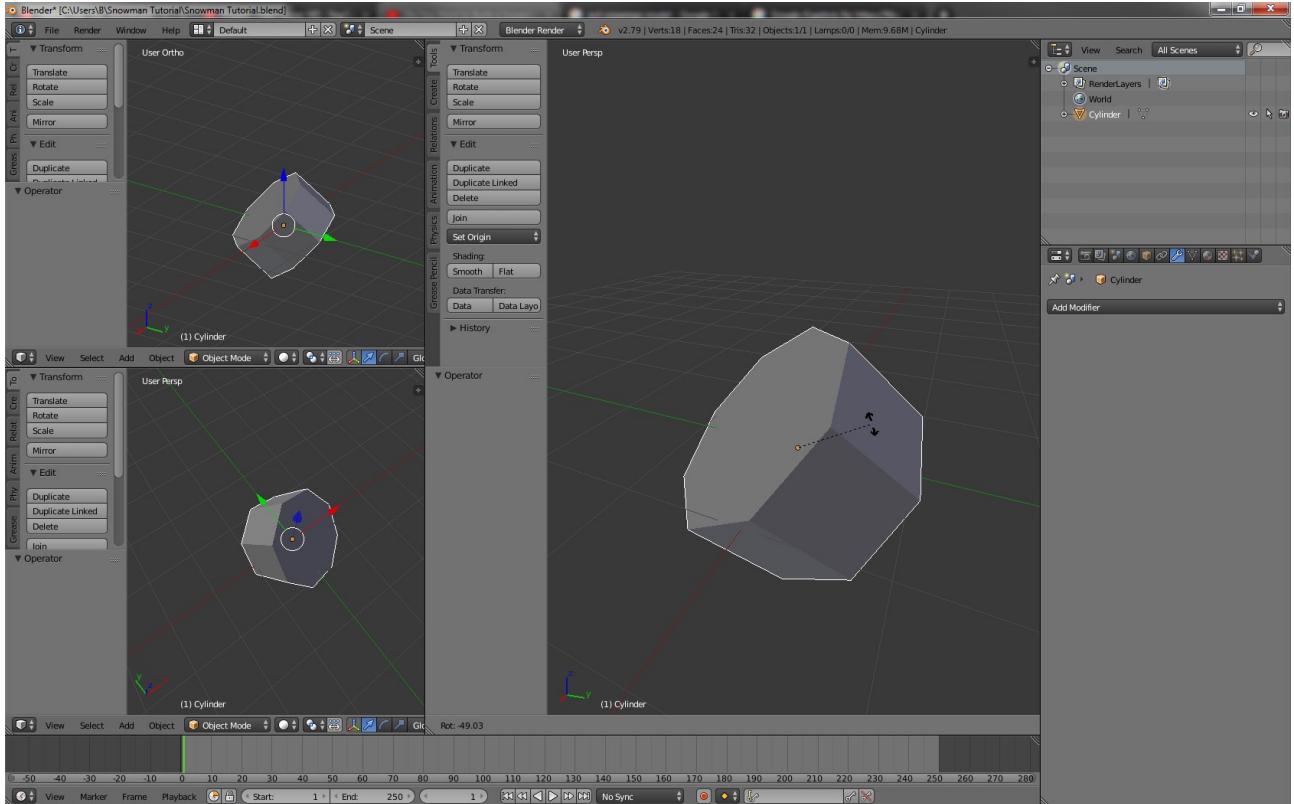
Hit **G** and then **Z** to move something along the Z axis only.

Hit **G** and then hit **SHIFT+Z** to *exclude* the Z axis.

You may also specify exact values when moving, scaling, or rotating something. Try hitting **G**, **Y**, and then typing **2.0**.

- Rotating

The hotkey to rotate objects (or parts of the mesh) is **R**.

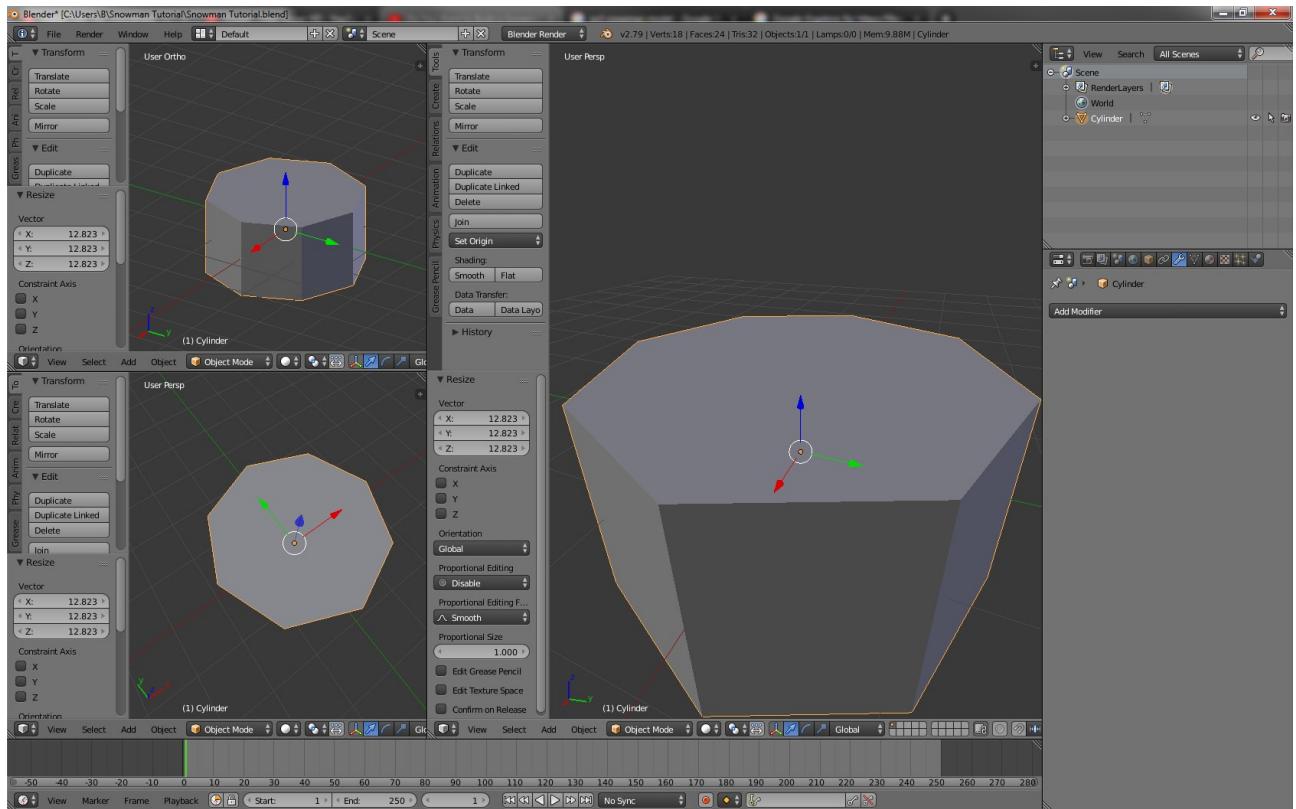


Again, you can rotate the container (the object), or you can rotate the contents (the mesh), depending on whether you are in Object Mode or Edit Mode.

If you do not specify an axis to rotate around (X, Y, Z) then the rotation angle depends on the current position of the camera within the active viewport.

- Scaling

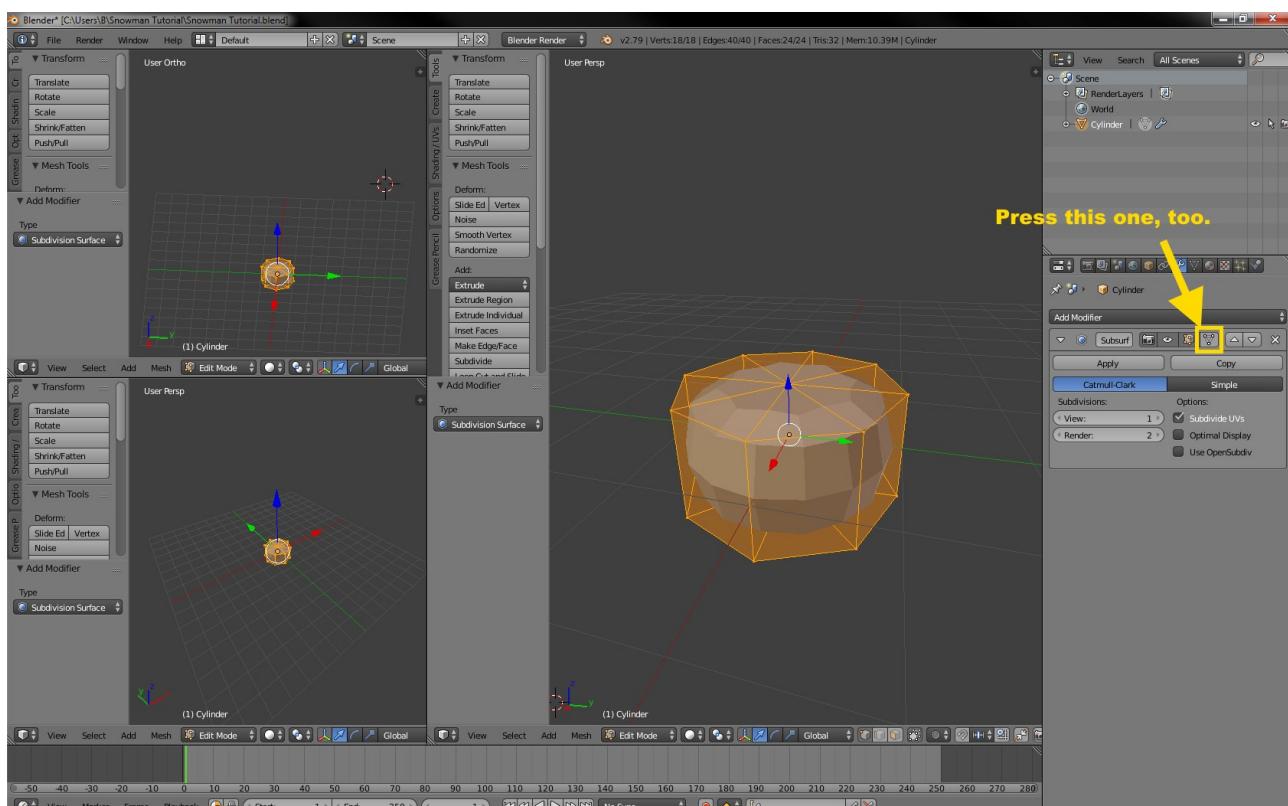
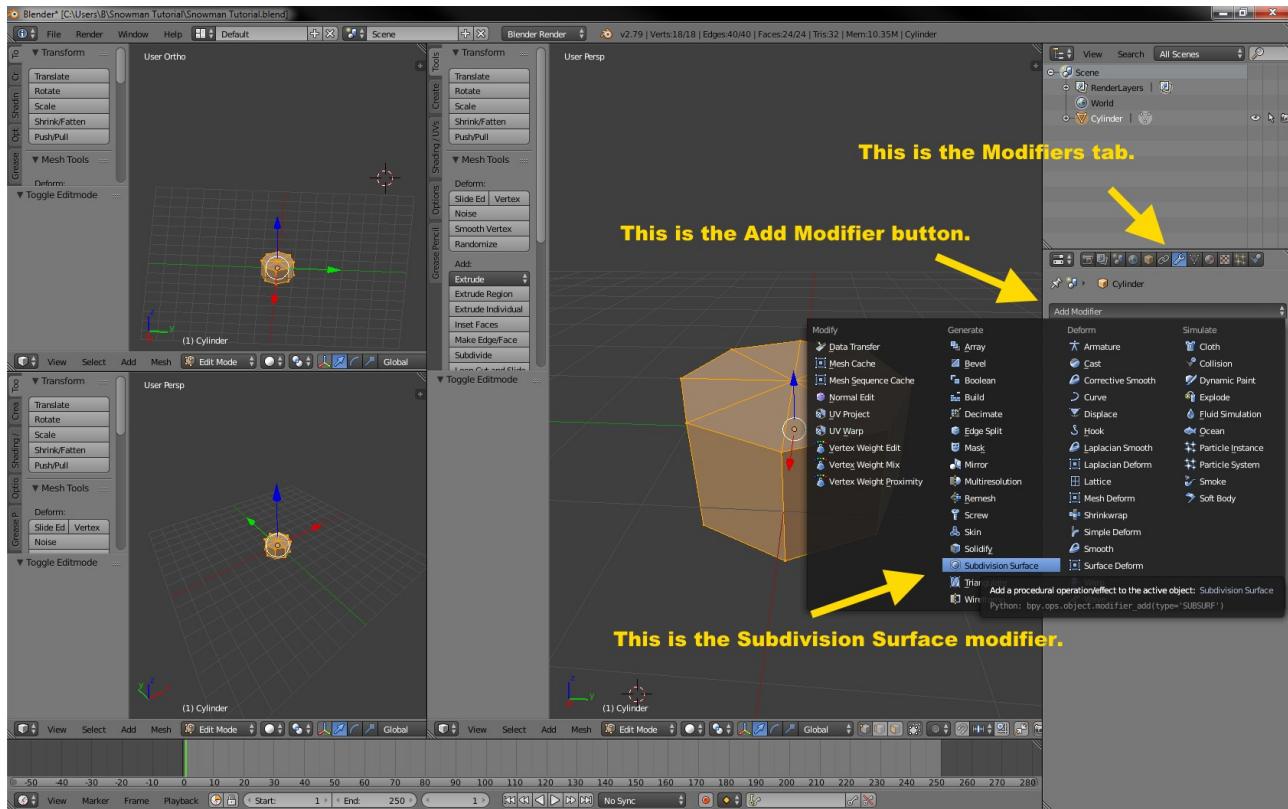
The hotkey to scale up and down is **S**. Same deal as with moving and rotating; you can scale the container, or you can scale the contents.



I'll be mentioning all of these hotkeys again while I'm scaling, moving, or repositioning things while I shape the mesh, so don't worry about keeping them all in mind. They're on the reference sheet, too, in case you forget.

- Adding Modifiers

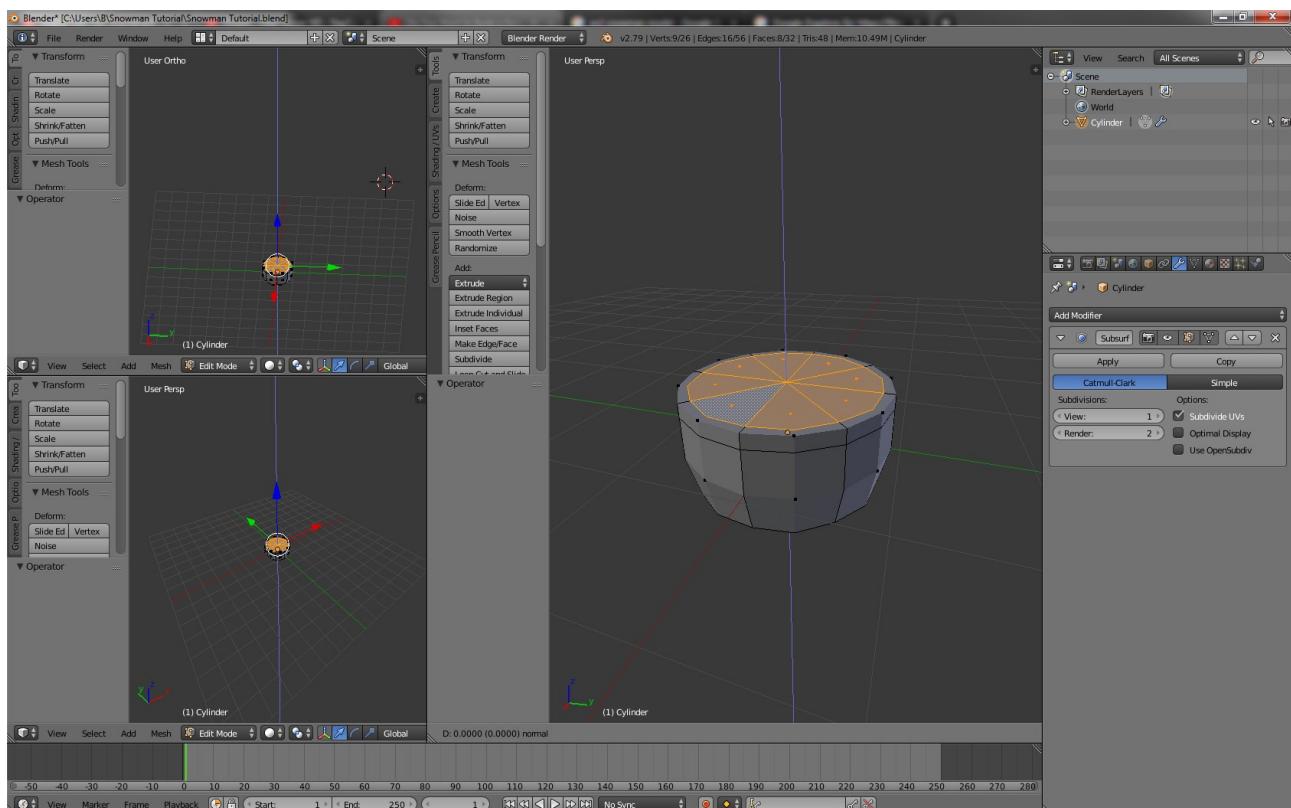
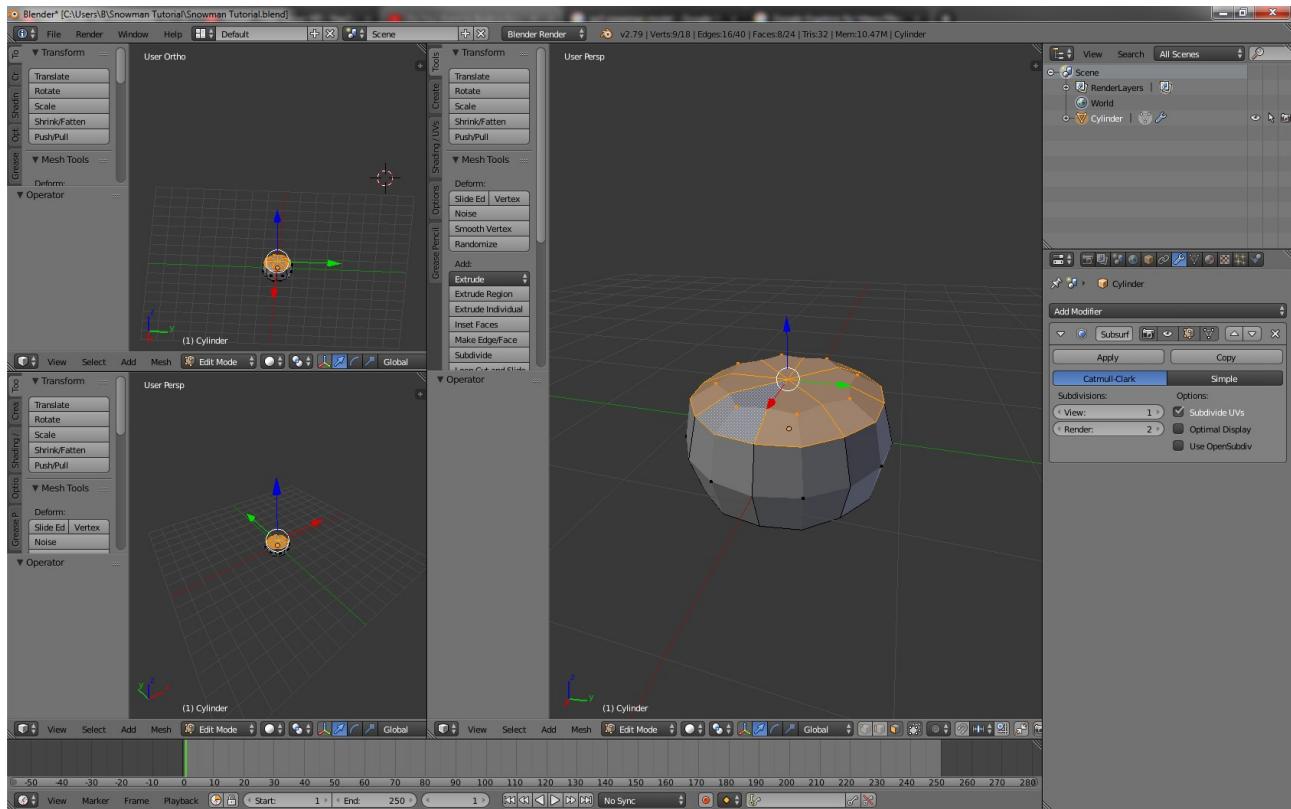
We're going to add a Subdivision Surface modifier, and then get down to shaping this thing into a snowman. Click the following buttons, in a top-to-bottom order:



Now we have a subdivided cylinder. Blender is automatically subdividing the mesh for us, and smoothing the borders, to boot.

- Extruding Faces

To extrude faces, select faces (click on a face to select that face specifically, or hold SHIFT while clicking to add to your current selection), and hit **E**.



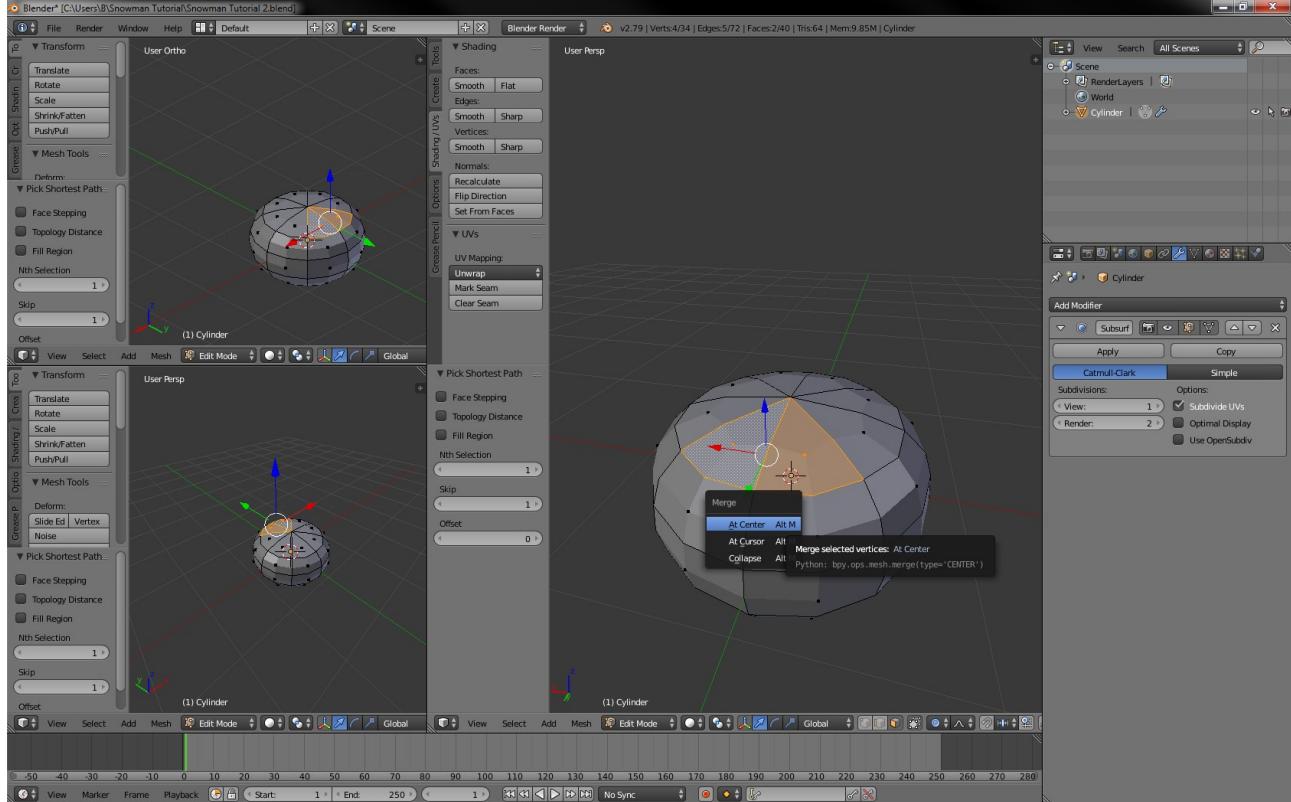
You can move the extrusion up or down, and then click to confirm your edits.

[Here's a link to a YouTube video example.](#) Kudos, Mr. Adams! Click "Like" on there for me, please.

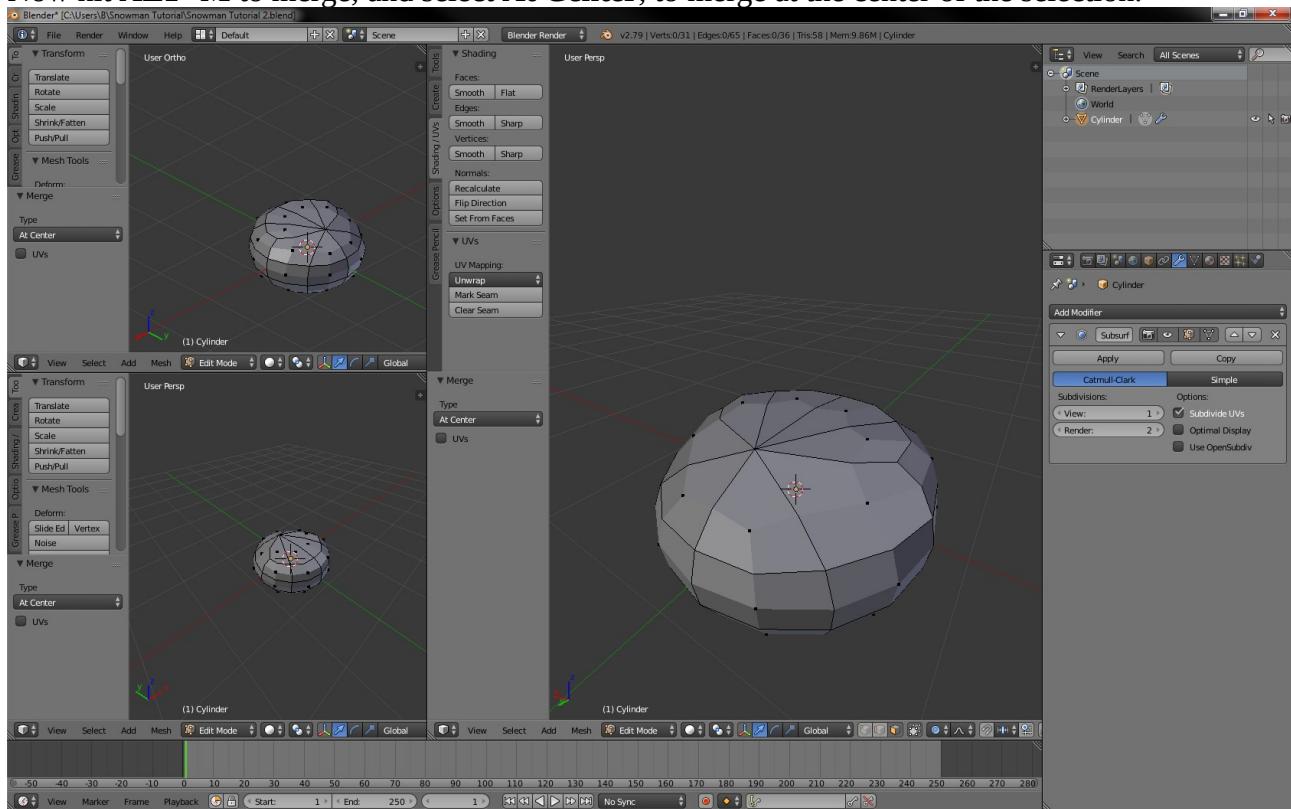
- Inserting Faces, and Merging Faces

In the pretty much exact same way as extruding works, you can also insert faces by hitting **I**. No picture for this one - it looks exactly like extruding does, on paper. If you try the two out, you'll see the difference, though.

Merging, on the other hand, looks different. Check this out; select some faces at random:



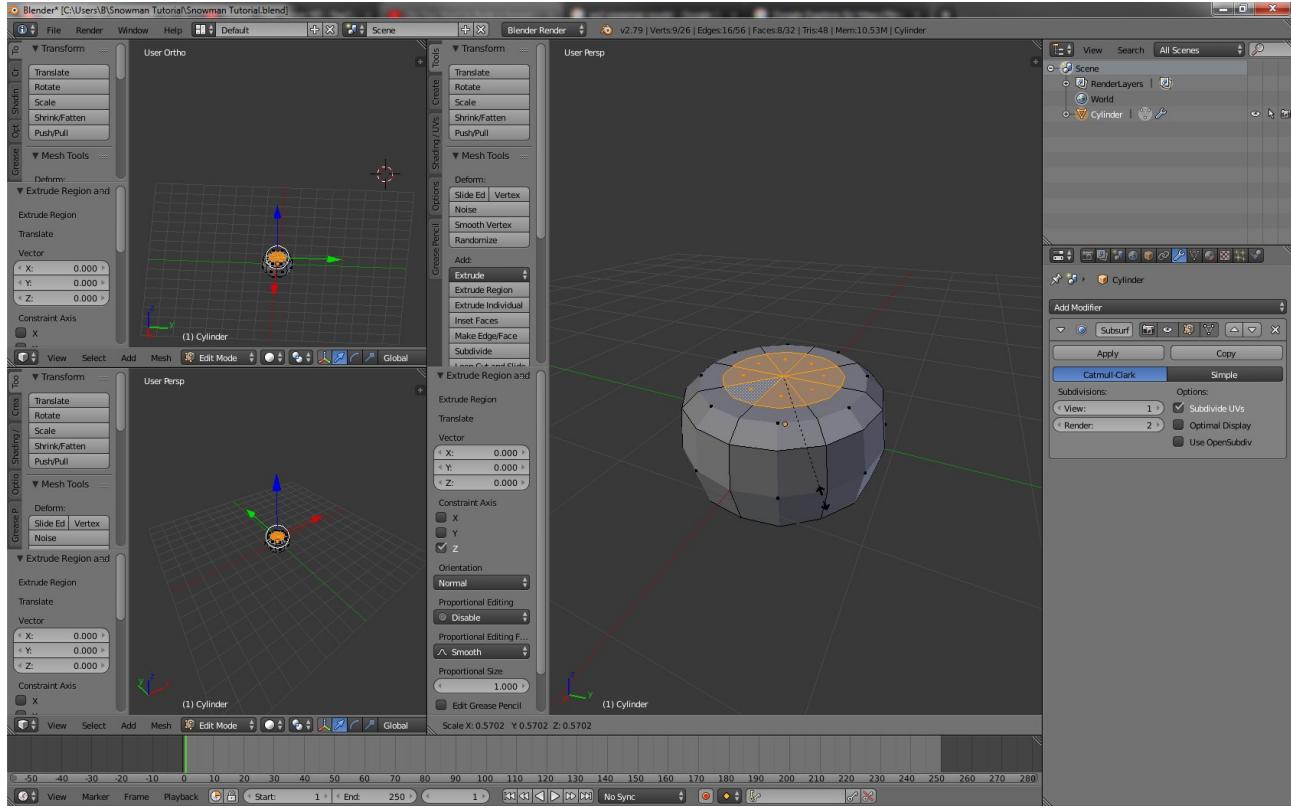
Now hit **ALT+M** to merge, and select **At Center**, to merge at the center of the selection.



Boom! It is a misshapen lump. Truly, we **are** artists, *at last*.

- Scaling Faces

While you've got something selected, hit **S** to scale it up or down.



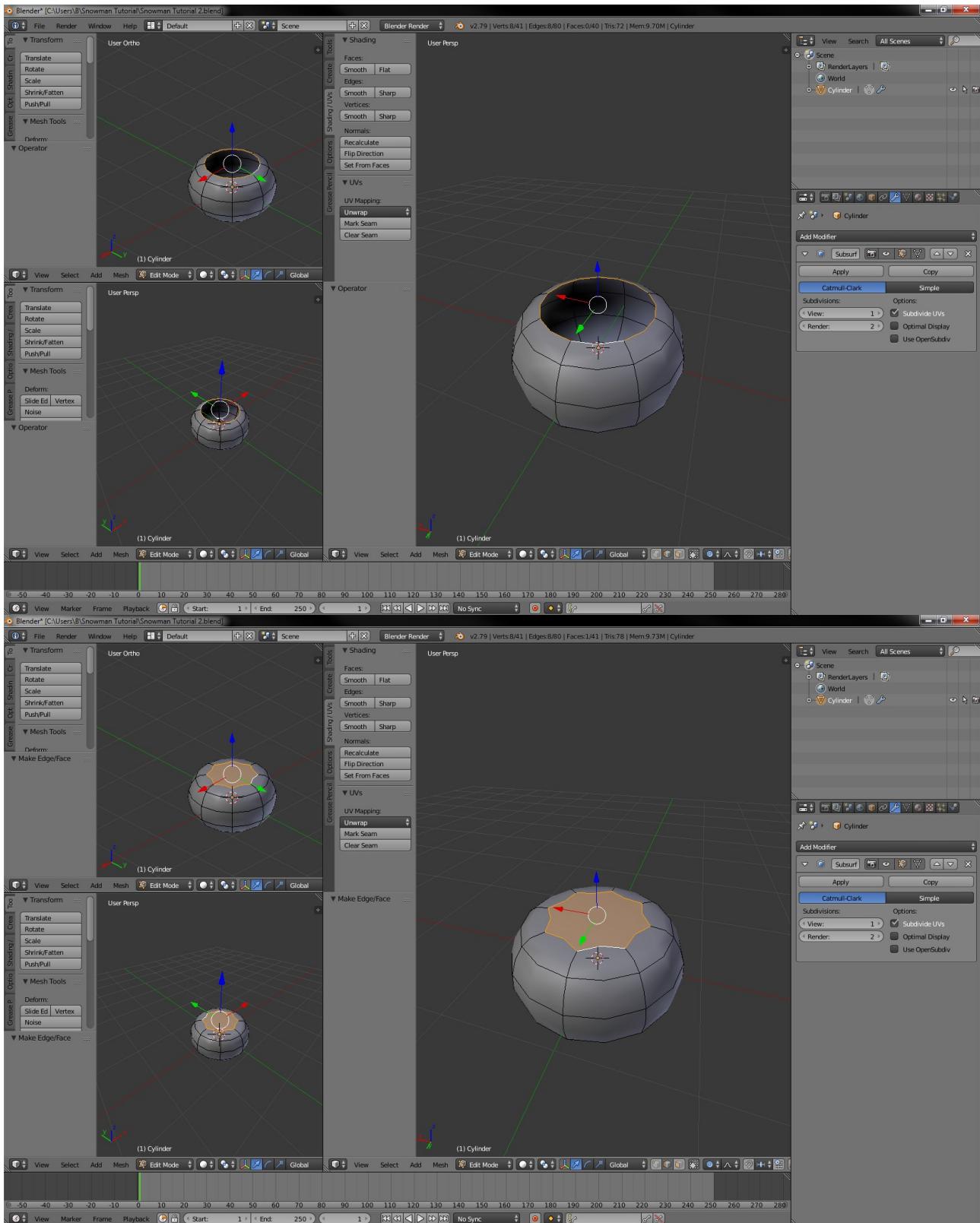
You can also hit **O** to activate or deactivate a Falloff radius that will affect nearby vertices along with your current selection.

Here's a [forty-second video on Proportional Editing](#), for the interested. When you are moving/scaling/rotating something while Proportional Editing is active, you can scroll the mouse wheel to increase or decrease the radius.

I'm putting this note here to remind you to DEVELOP A NEUROTIC HABIT OF SAVING EVERY OTHER FEW SECONDS. **CTRL+ALT+S!**

- Filling

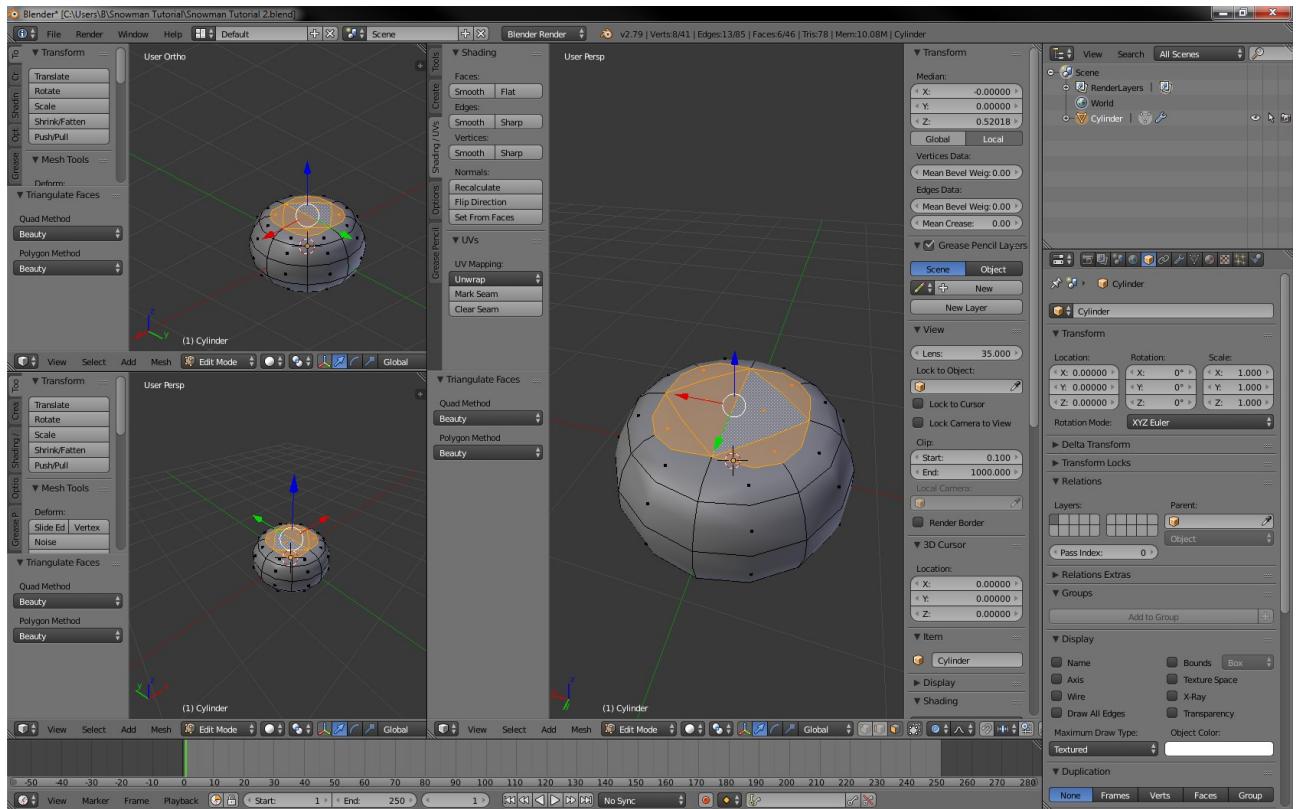
If you've got open spaces (delete your selection with **DEL**, anytime), or two or more edges or three or more verts selected, then you can hit **F** to fill them up with a new polygon.



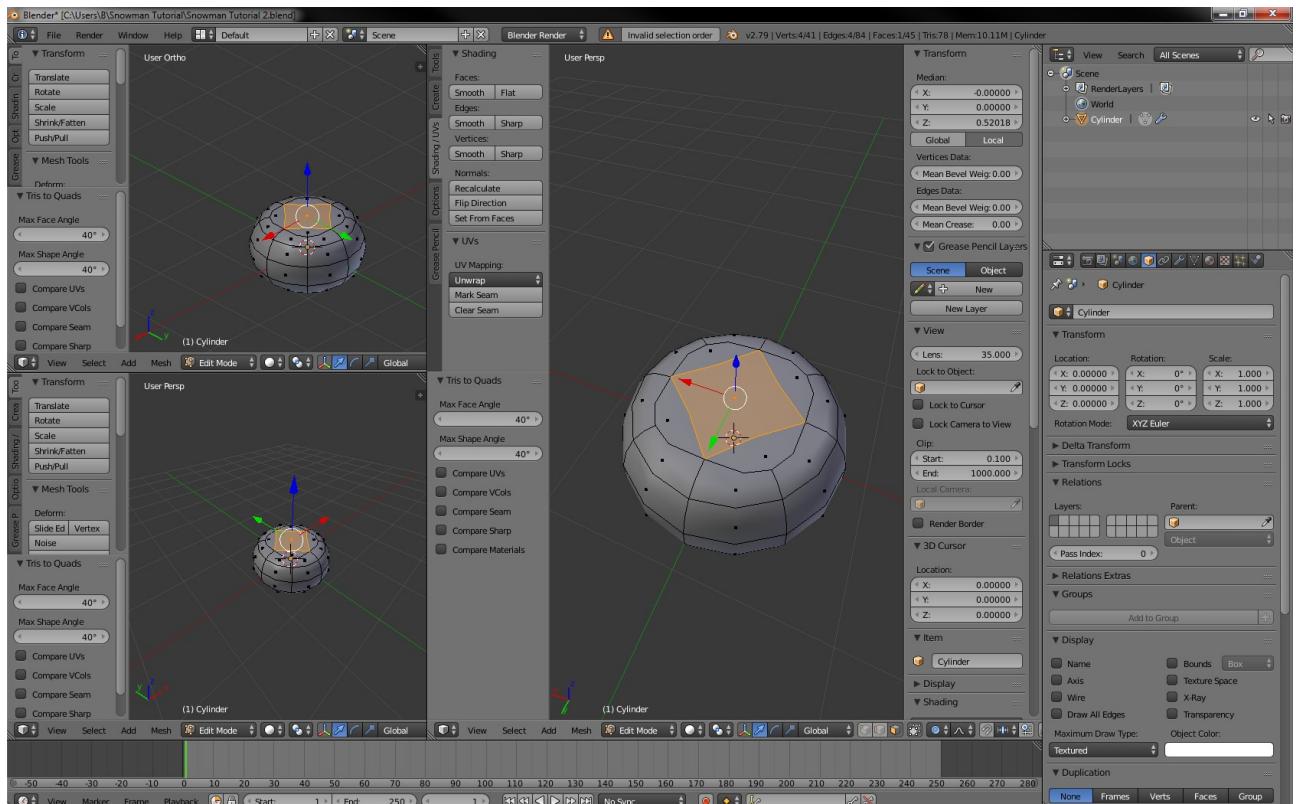
Note the difference to the original, though! To get the original state back again, you'd want to merge this selection (**ALT+M**), so you'll have the top as a triangle fan again.

- Triangulating and Joining Faces

With Face Select active, hit **CTRL+T** to triangulate selected faces, splitting polygons (polys) up into individual triangles (tris).



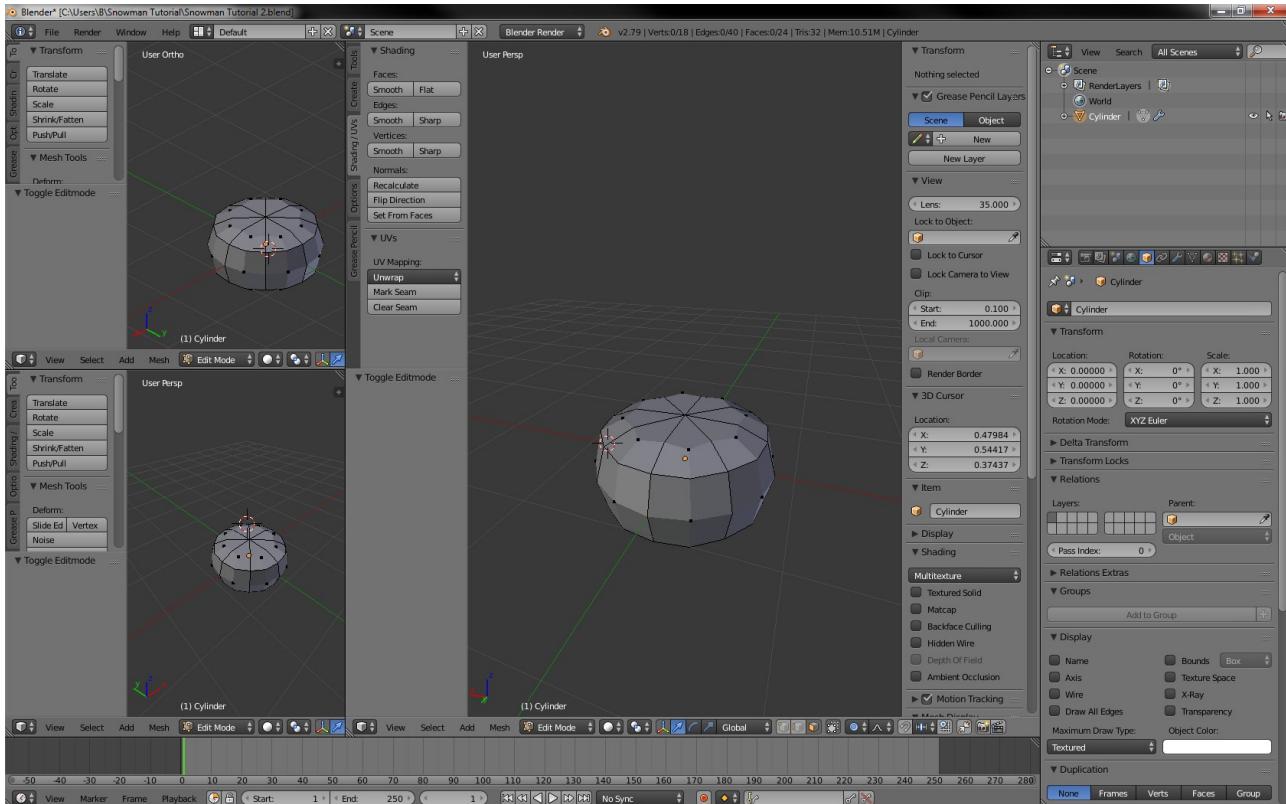
Select two triangles and hit **ALT+J** to join them into a quad.



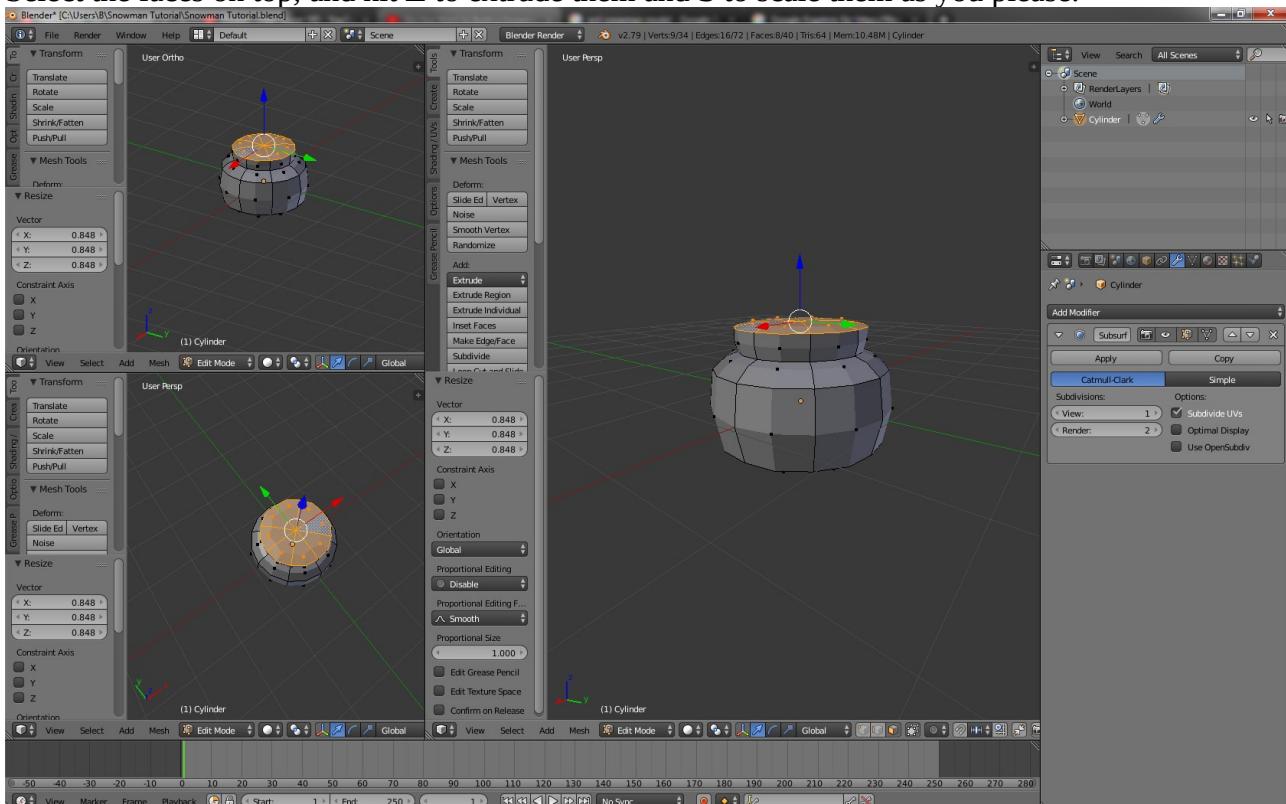
As a ground rule, try to keep things systematic and in quads. The structure of the mesh matters.

- Shaping the Snowman

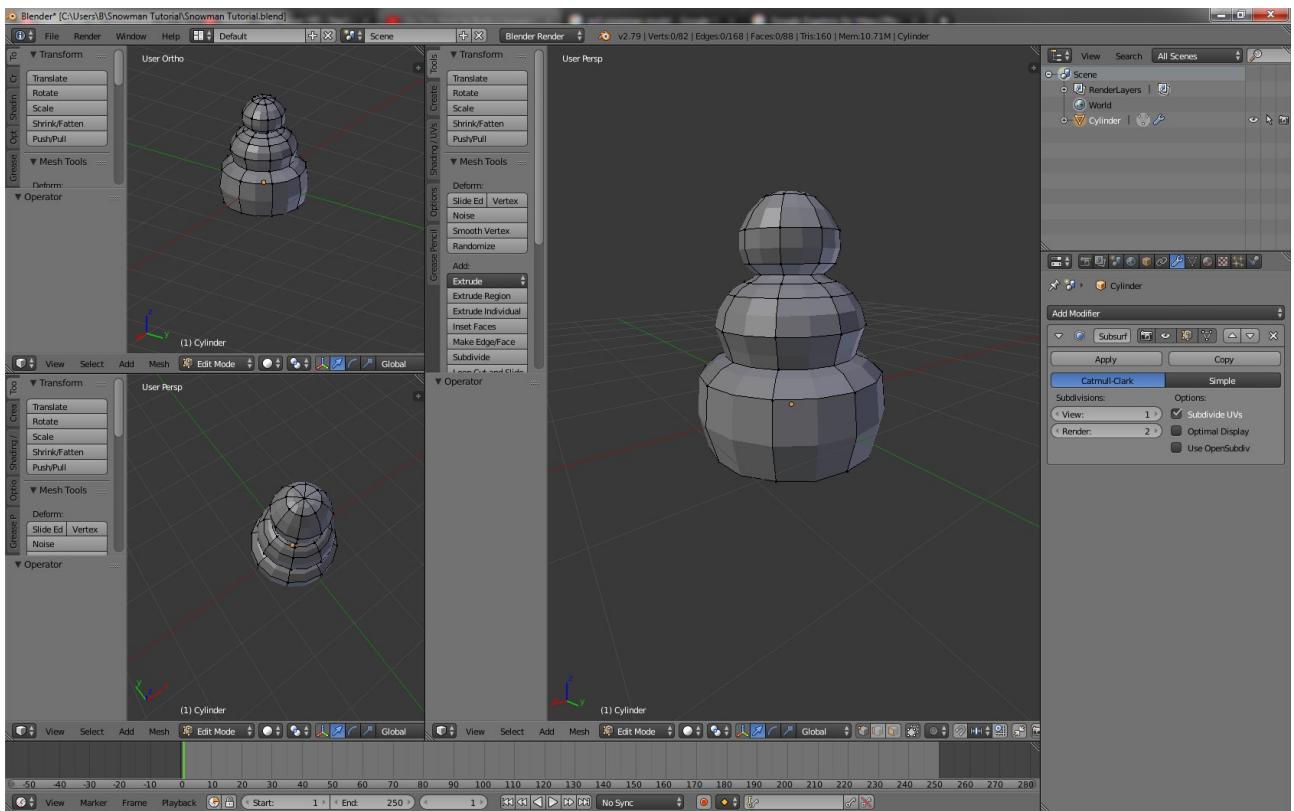
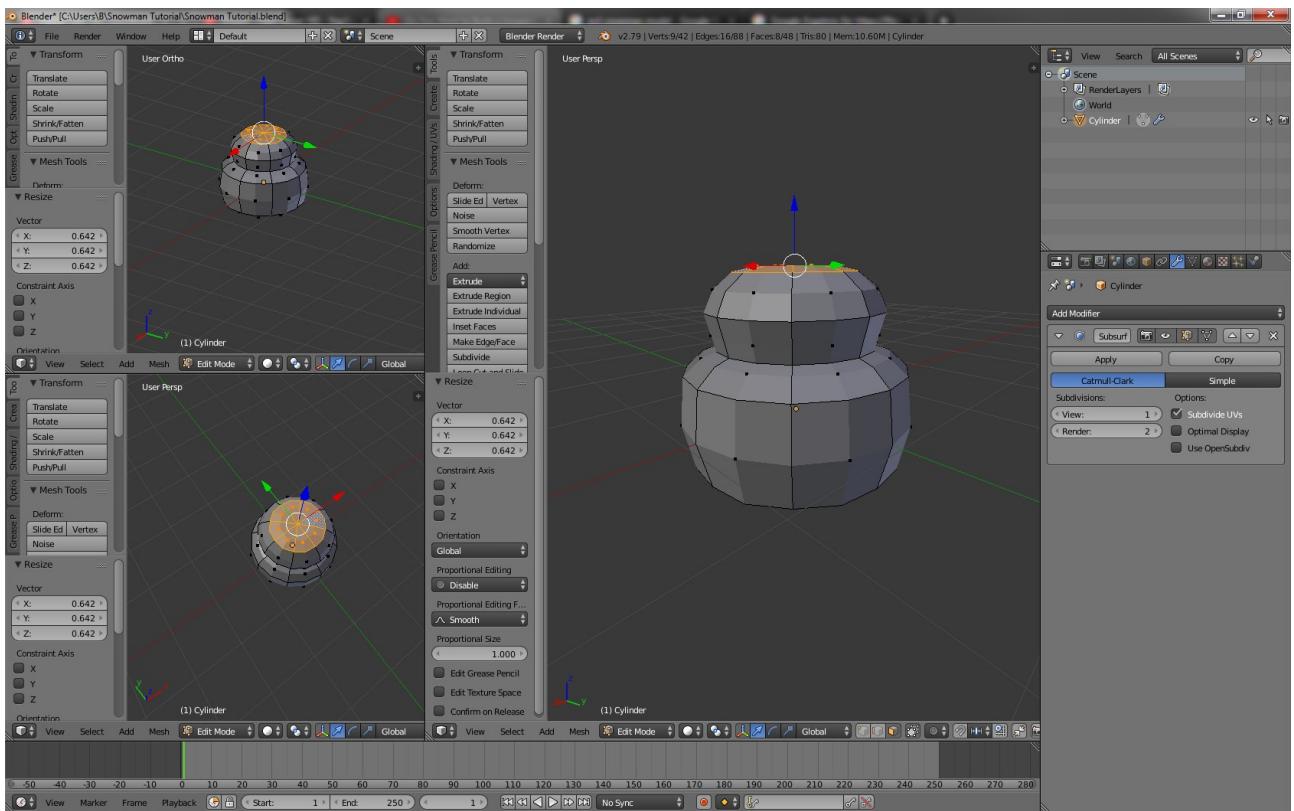
With these tools - selecting, moving, rotating, extruding, and scaling - we can now shape the basic form of the snowman in any way we want to. **If you've modified your base cylinder during the "So hey, what tools have we got?"-pages, CTRL+Z as often as it takes to undo the changes, please**. This should be roughly the kind of thing you're starting out with:



Select the faces on top, and hit E to extrude them and S to scale them as you please.



Just keep extruding and scaling the top faces, layer by layer. Try not to overdo the amount of layers.

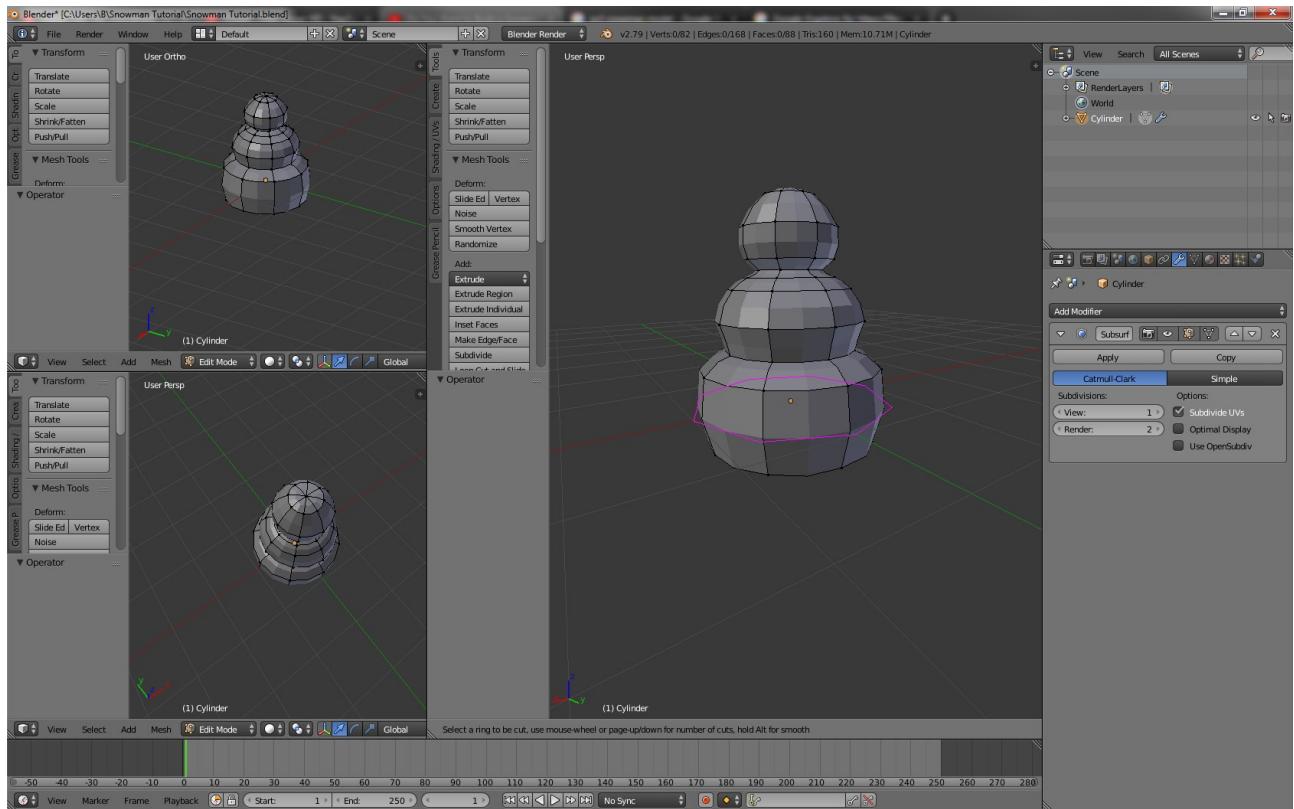


There we go; that's a snowman in the making.

ps: you could have been saving while doing this. saving is super important. disregard the lying lies of people who tell you that it is completely unnecessary to save every other few seconds, they are wrong times two which is double the amount of wrongness that just plain being wrong is. That's how wrong they are. **CTRL+ALT+S!**

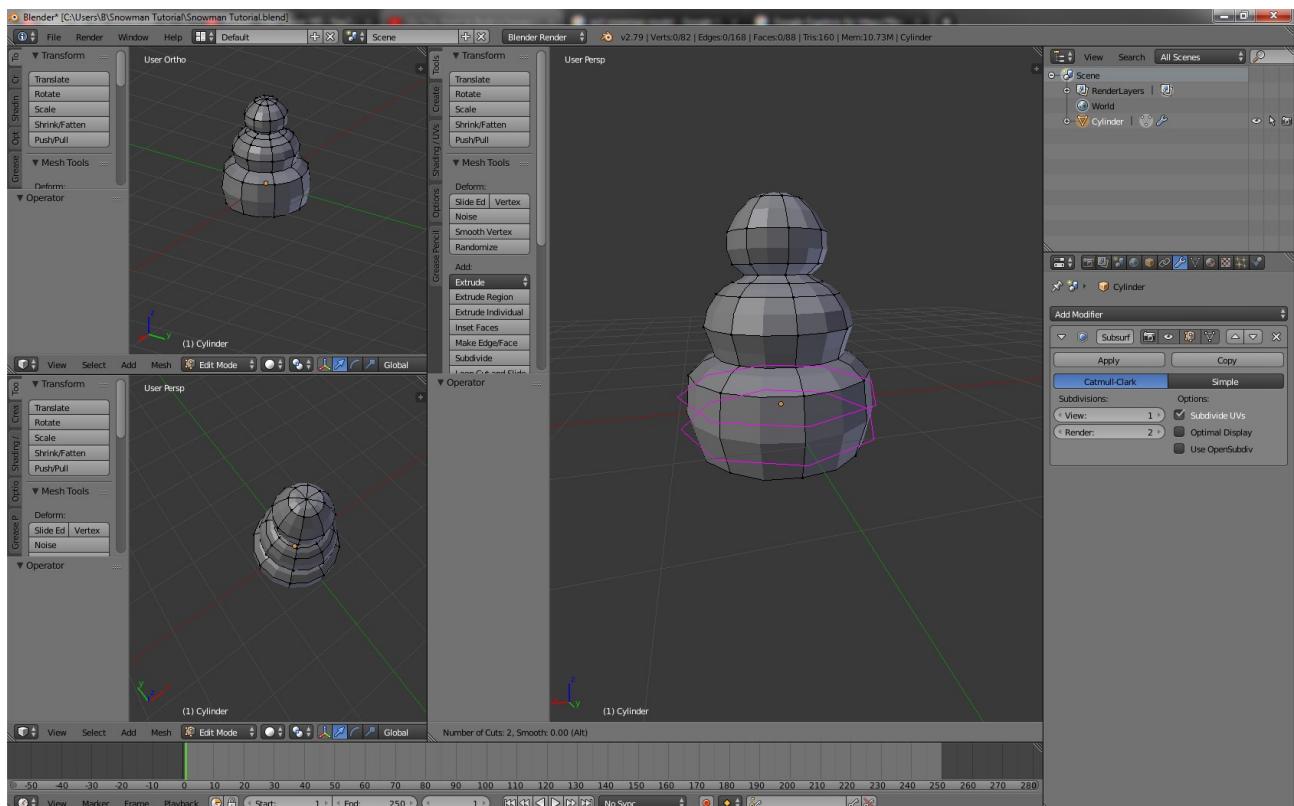
- Loop Cut

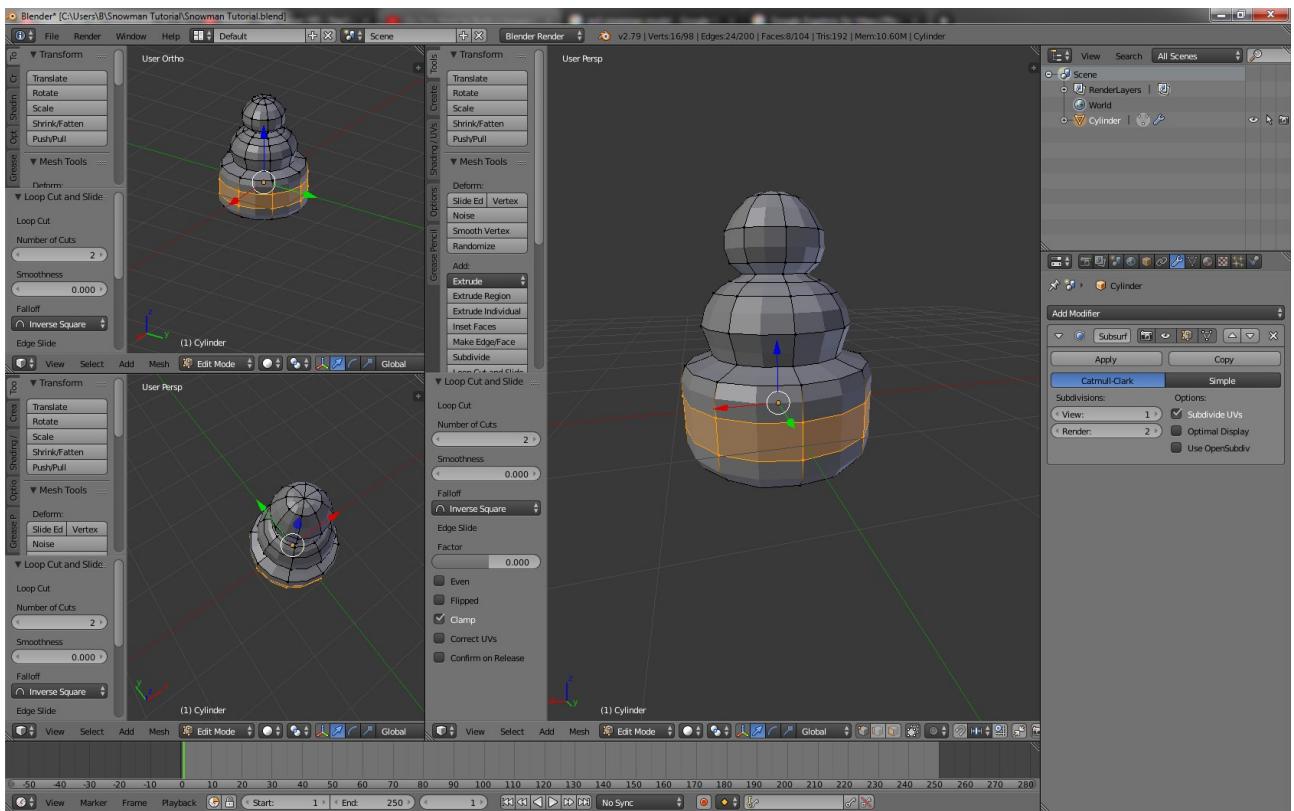
Showing you one more tool because EDUCATIONAL VALUE - hold **CTRL+R** and point at a part of the mesh to attempt to place a Loop Cut.



Try scrolling your mouse wheel to increase or decrease the amount of cuts, and then click to confirm that you want to place a loop cut in this position. After doing this, try moving your mouse up and down. Then, click again to confirm your edits.

(also, remember that you can always hit **CTRL+Z** to undo, or **CTRL+Y** to redo!)





Loop cutting lets you cut multiple new lines into the mesh, following along a specific edge. In the case of the snowman mesh here, this is a quick way to add extra "rows" to the column that the snowman is comprised out of.

For a very nice, more detailed explanation (if necessary), also see Blender's own documentation page on this tool: <https://docs.blender.org/manual/ko/dev/modeling/meshes/editing/subdividing/loop.html>

Note also the other tools that are available to you, as listed in the docs. :-) This isn't necessary for the snowman, but I'd like you to be aware that there's reading material to dig into there if you find that you're having a good time with 3d modeling and want to know more.

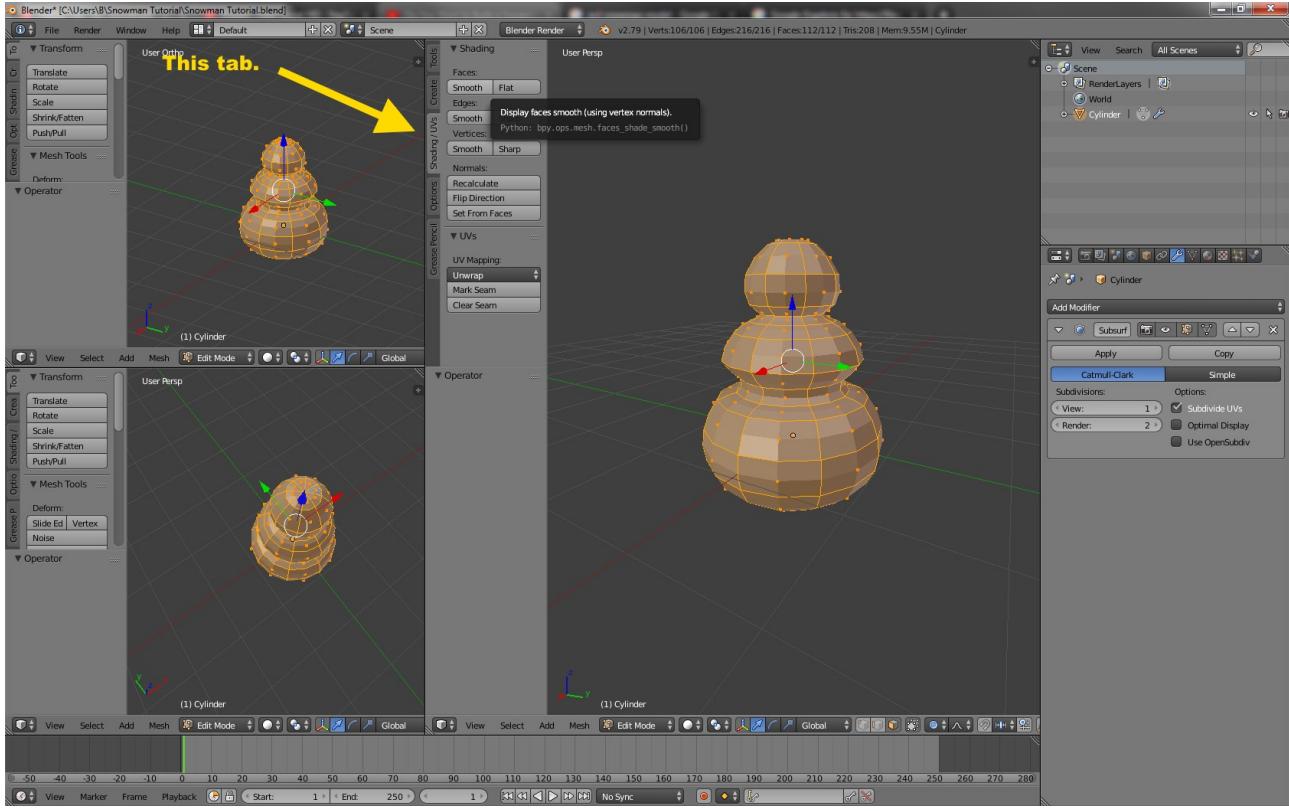
Far as this tutorial goes - now you get to shape your snowman as you like. There is no One Ultimate Snowman Shape that all snowmen must adhere to. Is yours top heavy? Does it have a giant head? A tiny one? Is it kind of square? Extremely round? Does it have two tiers or three? It's up to you.

Do try to keep the complexity of the mesh down, though. :-O The more complex the mesh is, the more expensive it is to render, generally speaking. So if an extra row of faces in the body doesn't make a clearly visible difference, then consider whether it's really necessary. It's very uncomplicated to add more complexity to a low-poly mesh, but the reverse can be considerably more involved.

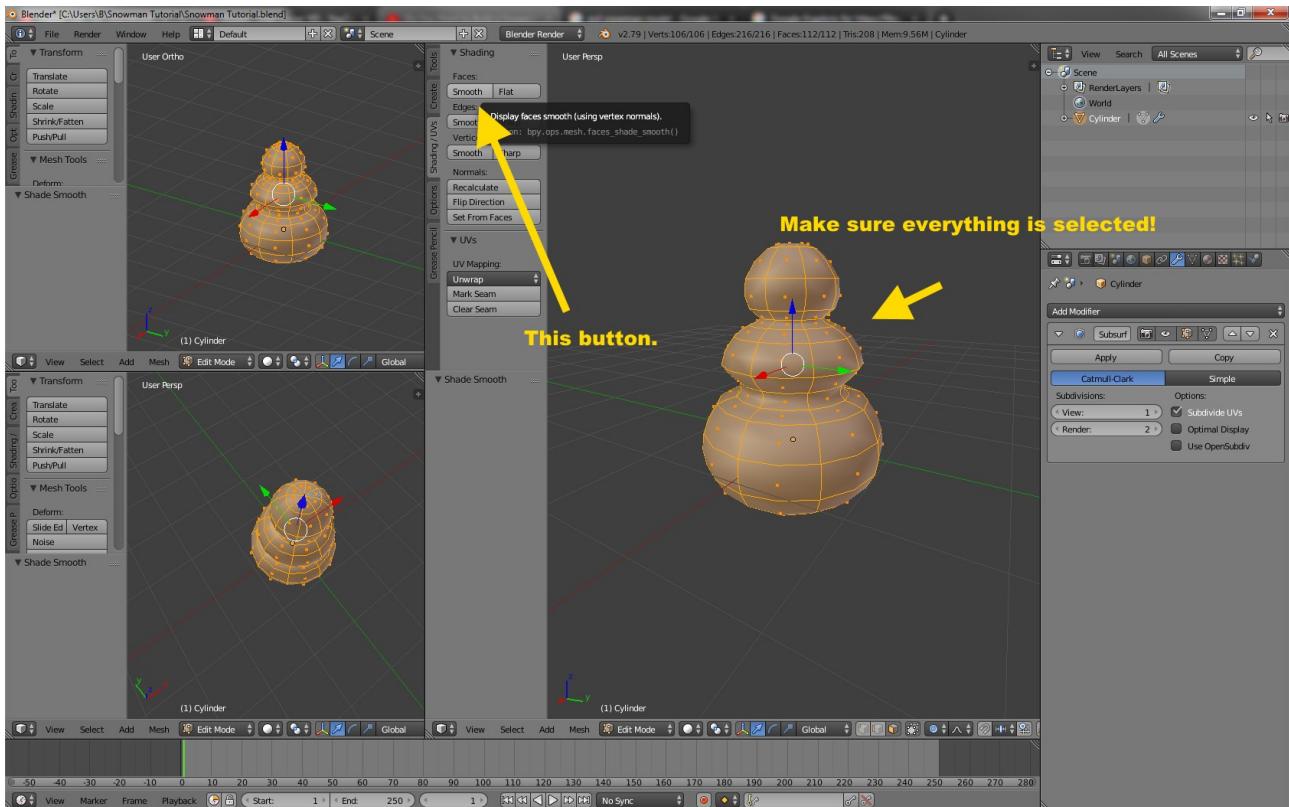
Retopologizing down from high-poly to low-poly is a topic for another day and place, though, I think. X_x

- Smoothing the Faces

In **Edit Mode**, switch to the **Shading / UVs** tab.



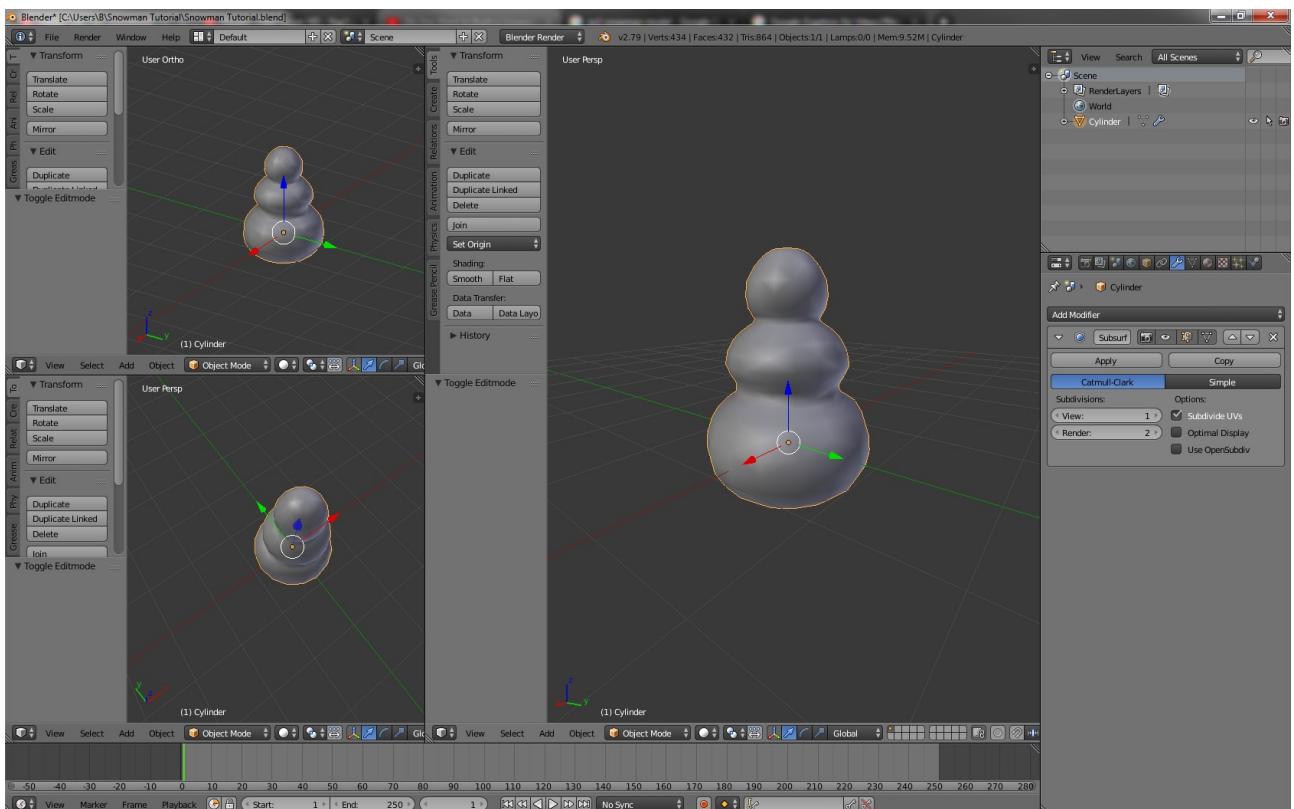
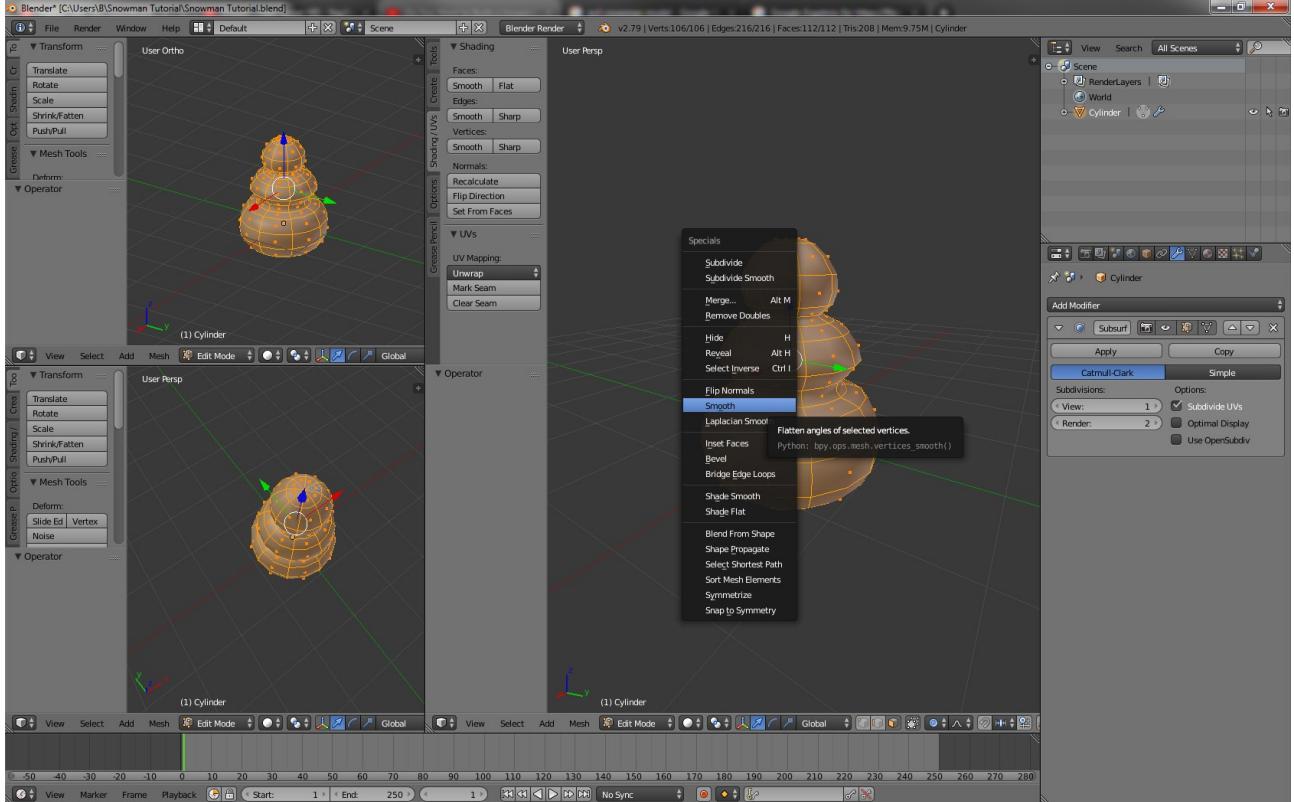
Point the cursor at the mesh and hit **L** to select all linked.



Press the "Smooth" button for the faces to set the faces to be smoothed along their edges.

- Smoothing the Mesh

Also in Edit Mode, hit **W** and then **O** to smooth the geometry of the mesh itself.



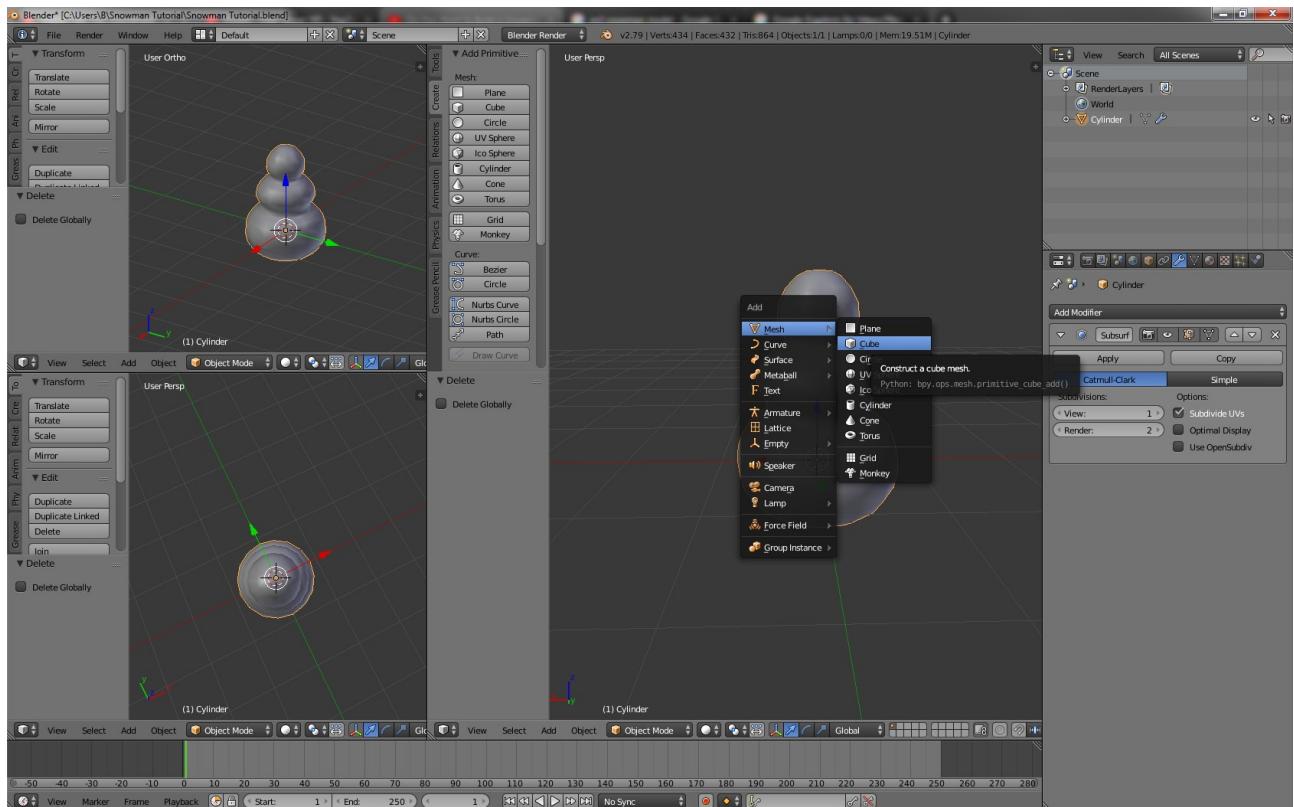
Vital progress!

Have you been saving? **SAVE YOUR VITAL PROGRESS! CTRL+ALT+S!**

- Making the Arms

I'll set up the arms as separate objects from the base body, since that's a good bit easier to rig than a connected shoulder. You'll thank me later, believe me. Most of the creature models in Neverwinter Nights weren't set up with shoulders and elbows, so getting connected parts to animate well is a bit fiddly even when you've got experience with it. I won't put you through that right now.

Switch back into Object Mode, and create a new object. **SHIFT+A!**



Cube, I summon thee!

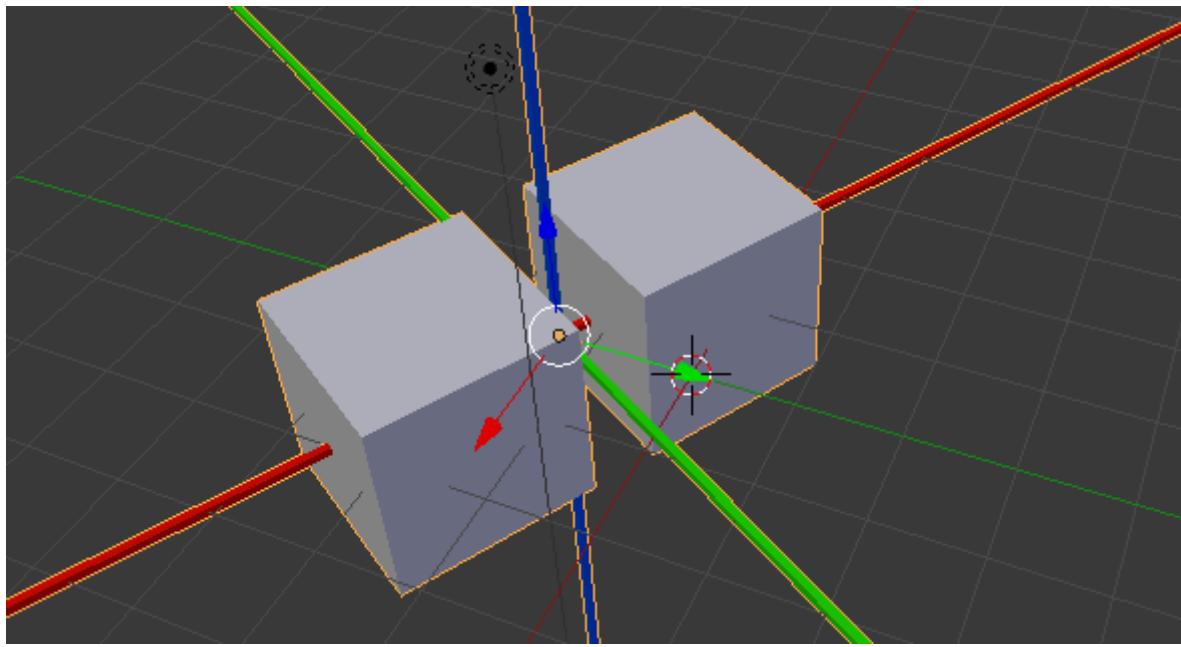
We're going to be shaping a single arm, and mirror it to get a second one right off the bat.

I'm going to add an explanatory page at this point, just so you know what's happening when we're mirroring that cube.

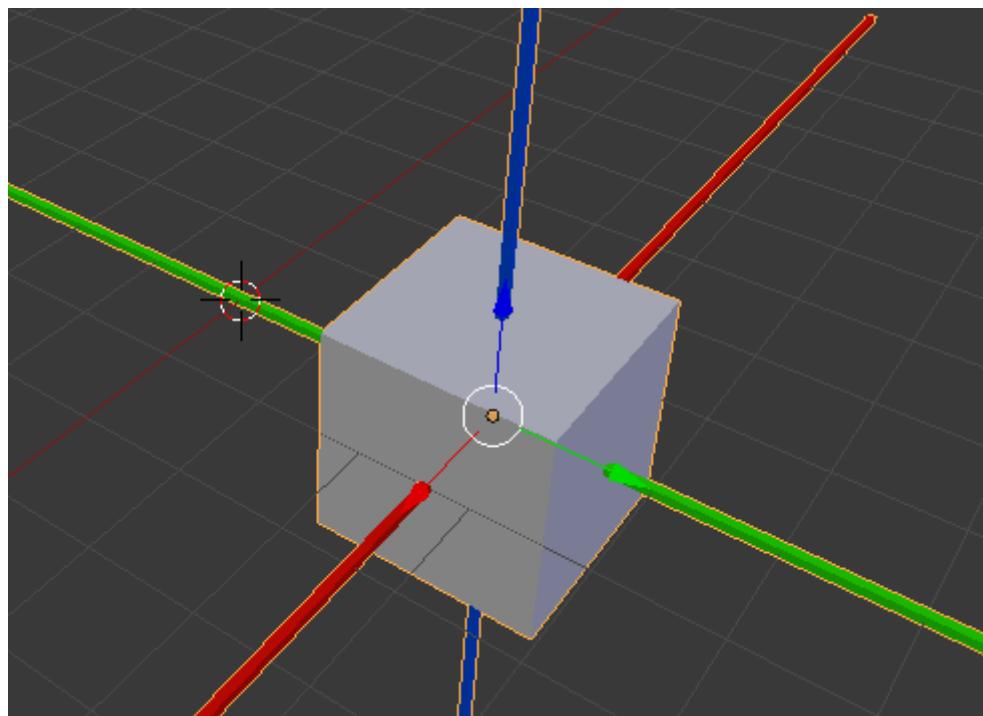
Remember how I mentioned earlier that the **object** and the **mesh** should be thought of as separate parts? This is one of those times when this is relevant.

Watch out for that the orange dot (centerpoint of the object) does **NOT** move, when you're doing this. You want to move *the mesh that the object contains*, not *the object itself*. If you move the object, you are moving the line of reflection and the mesh in equal amounts.

So, solemnly, with emphasis: **Be in Edit Mode when you try to move the mesh.** If you are in Object Mode you will be moving the *object*, not the mesh. Visually, this looks like the same thing, aside from that the origin point (the orange dot) will move if you move the object, while it won't do that if you move the mesh.



When you apply the Mirror modifier and are mirroring along the X axis (red line), then the Y axis (green line) is your line of reflection, and it's centered on the position of the object, not in the center of the scene.



Watch for the position of the orange dot. The orange dot is the origin point of the object that contains the mesh. The X, Y, and Z axes *within that object* meet at the origin point of the object.

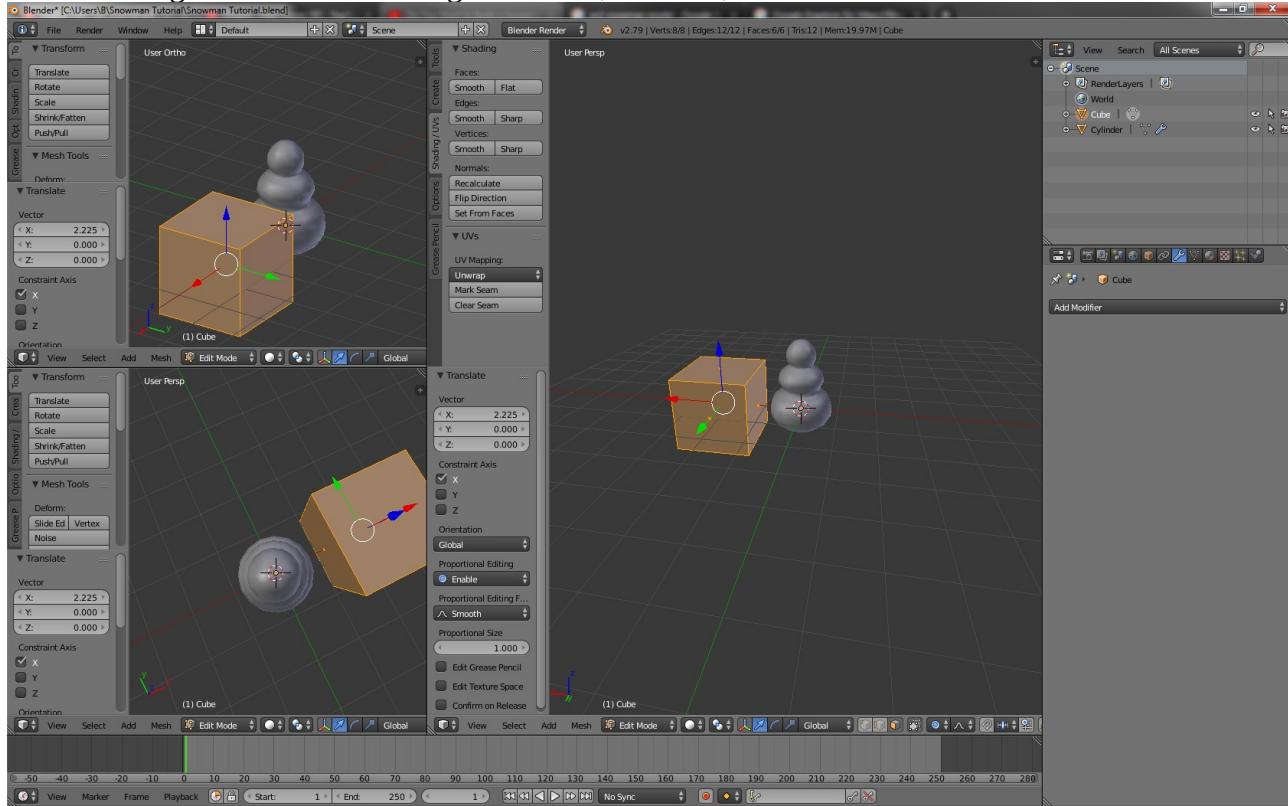
If you add your Mirror modifier having moved the object, rather than the mesh within the object, then the newly-created cube will sit smack dab and perfectly symmetrically in the middle of the object, and mirroring it along any axis will not have a visible effect.

Hence: When trying to mirror parts of the mesh, **move the mesh, not the object.**

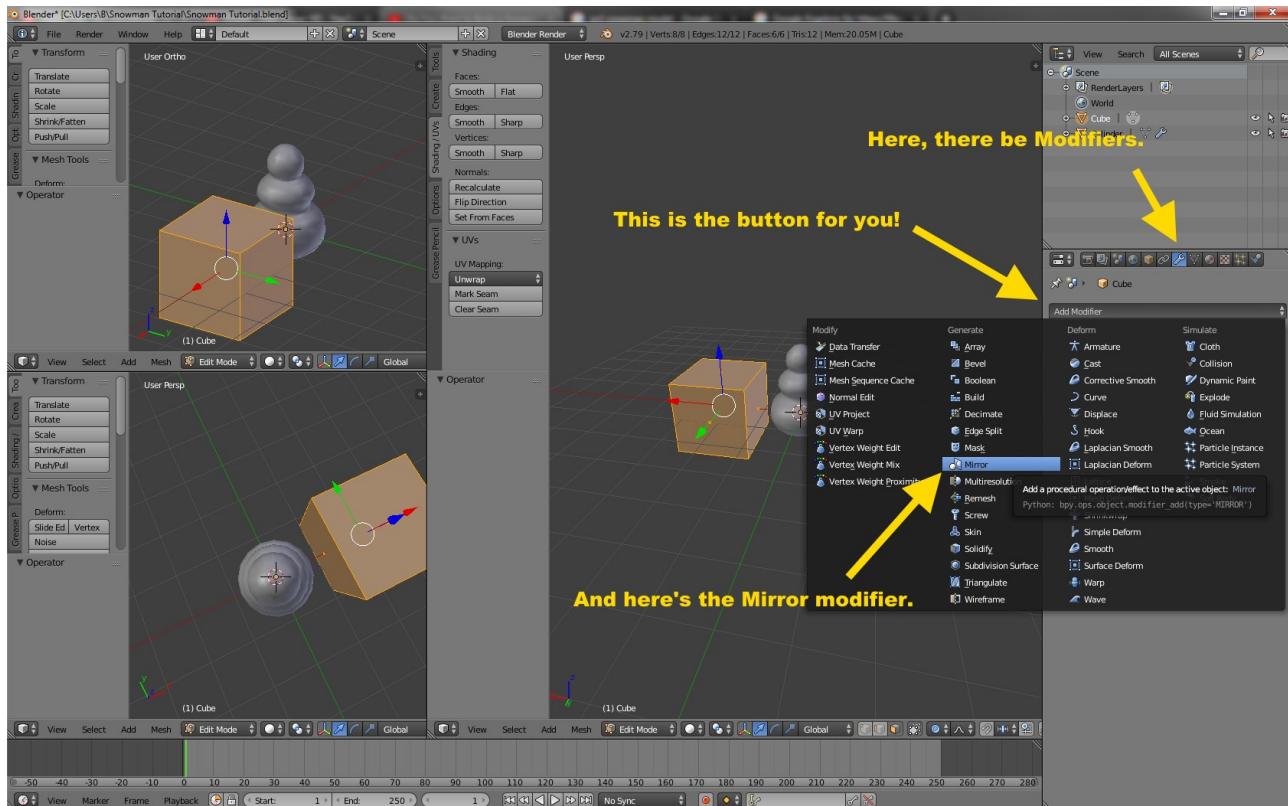
OK, let's switch to **Edit Mode** and move the **mesh** of the cube to one side.

Reminder: Point the cursor at the mesh and hit **L** to select all linked. Hit **G** to move. Press **X**, **Y** or **Z** after hitting **G** to move along a specific axis only.

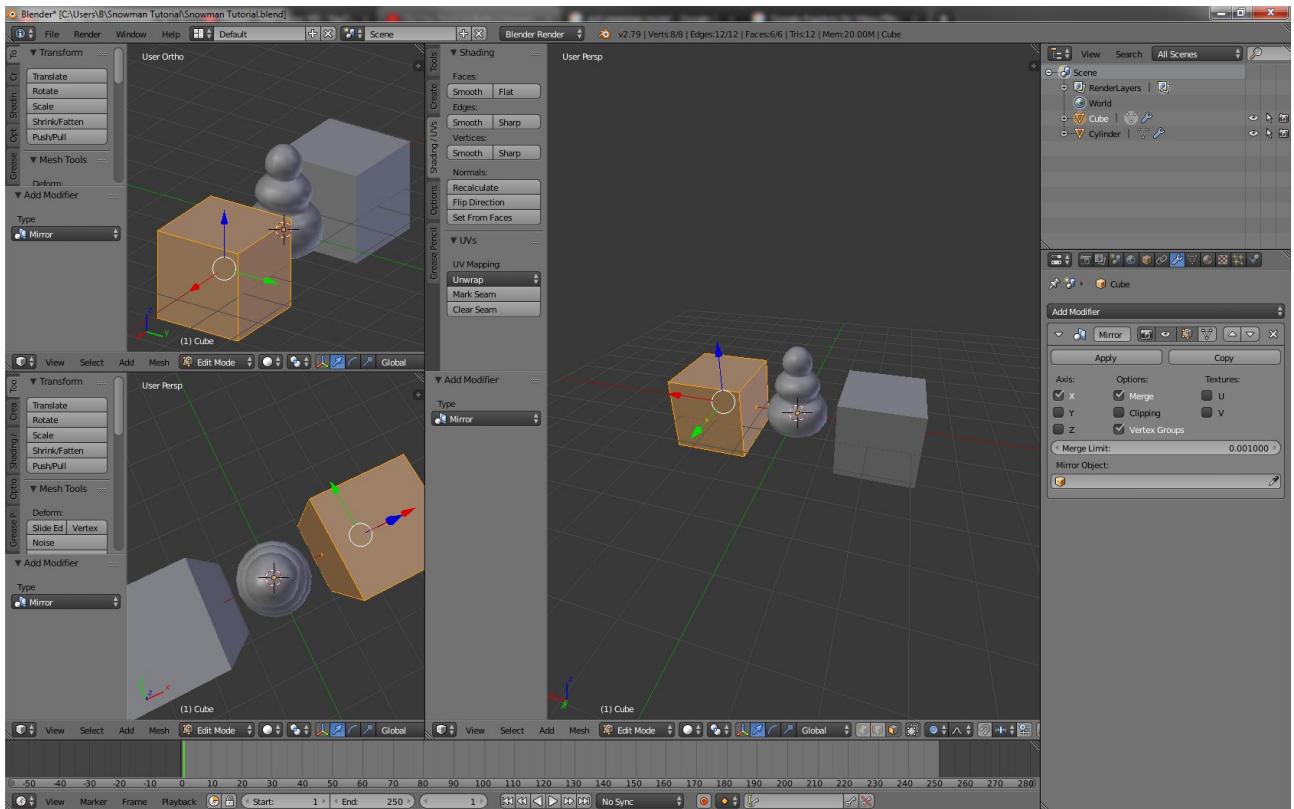
I'll be moving this cube mesh along the **X** axis, so it's **G**, **X** for me.



Next up, the Mirror modifier. Back to the Modifiers tab:

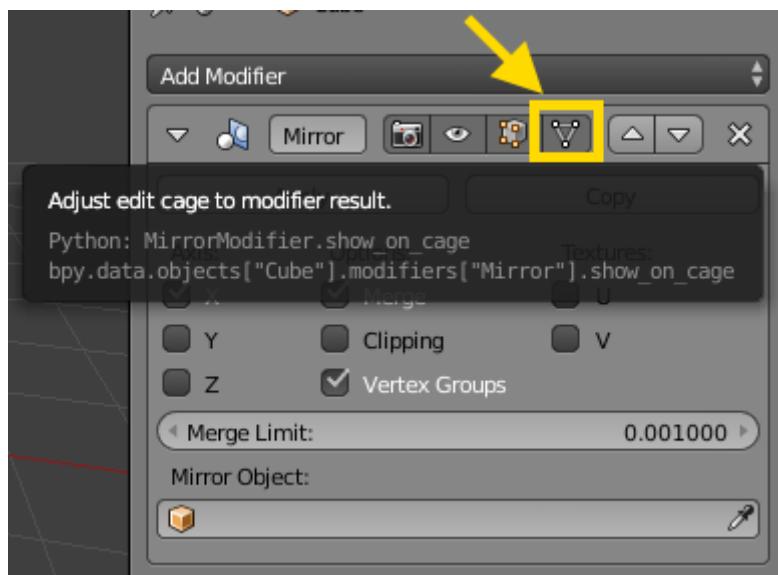


Add a Mirror modifier. Make sure that your cube is located along the **X** axis (red line).



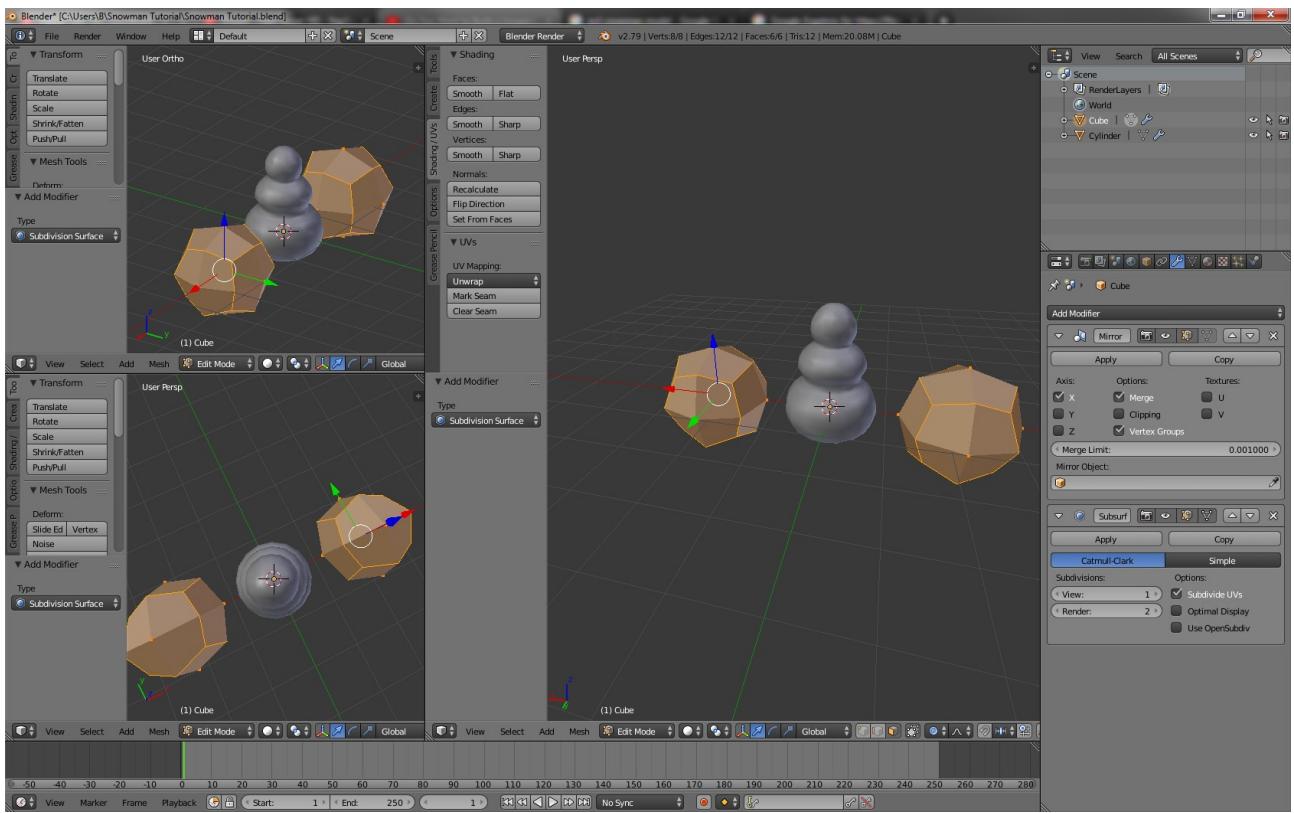
Ta-dahh! We've got a vaguely snowman-shaped blob that's about to be squished in between two cubes. Everything is going according to our sinister, sinister plan.

If you're not getting the above result, you very likely moved the object rather than the mesh. Check for the position of the origin point - it's supposed to be in the middle of the scene.



You can click this button to make the mirrored part of the mesh clickable in Edit Mode, so you can work on either side. Give it a Subdivision Surface modifier, too, like the one we gave the body.

ps: **CTRL+ALT+S!**

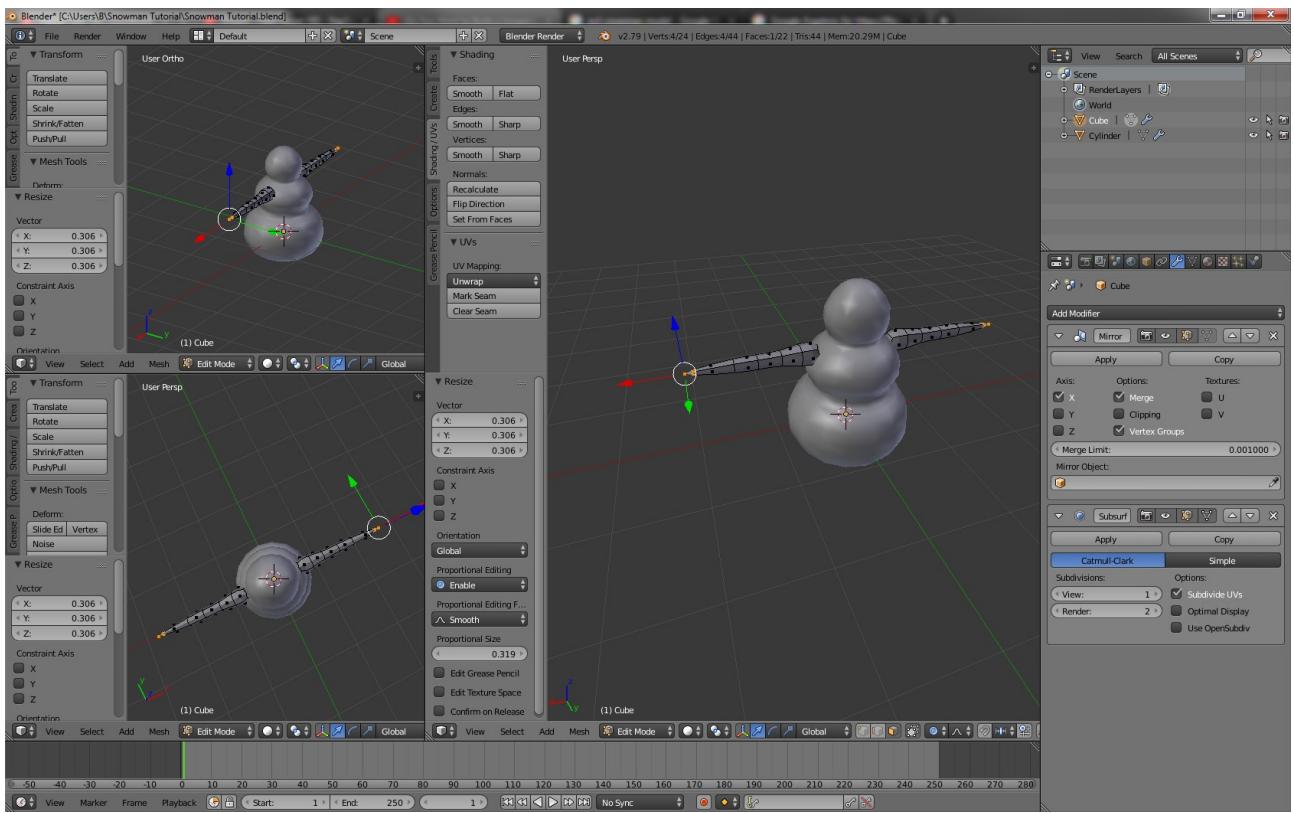


Mind that this is still **one** mesh that's being mirrored, though - edits made to the right arm will affect the left arm, and vice versa.

Now, it's time to shape that arm a little. Same tools as before - extrude (**E**), scale (**S**), move (**G**), rotate (**R**), smooth (**W**, **O**), loop cut (**CTRL+R**, click mesh). Blender has many other tools, but these'll do for our purposes here.



Start with **E** to extrude, then use **S** to scale the newly-extruded part, and repeat until done.



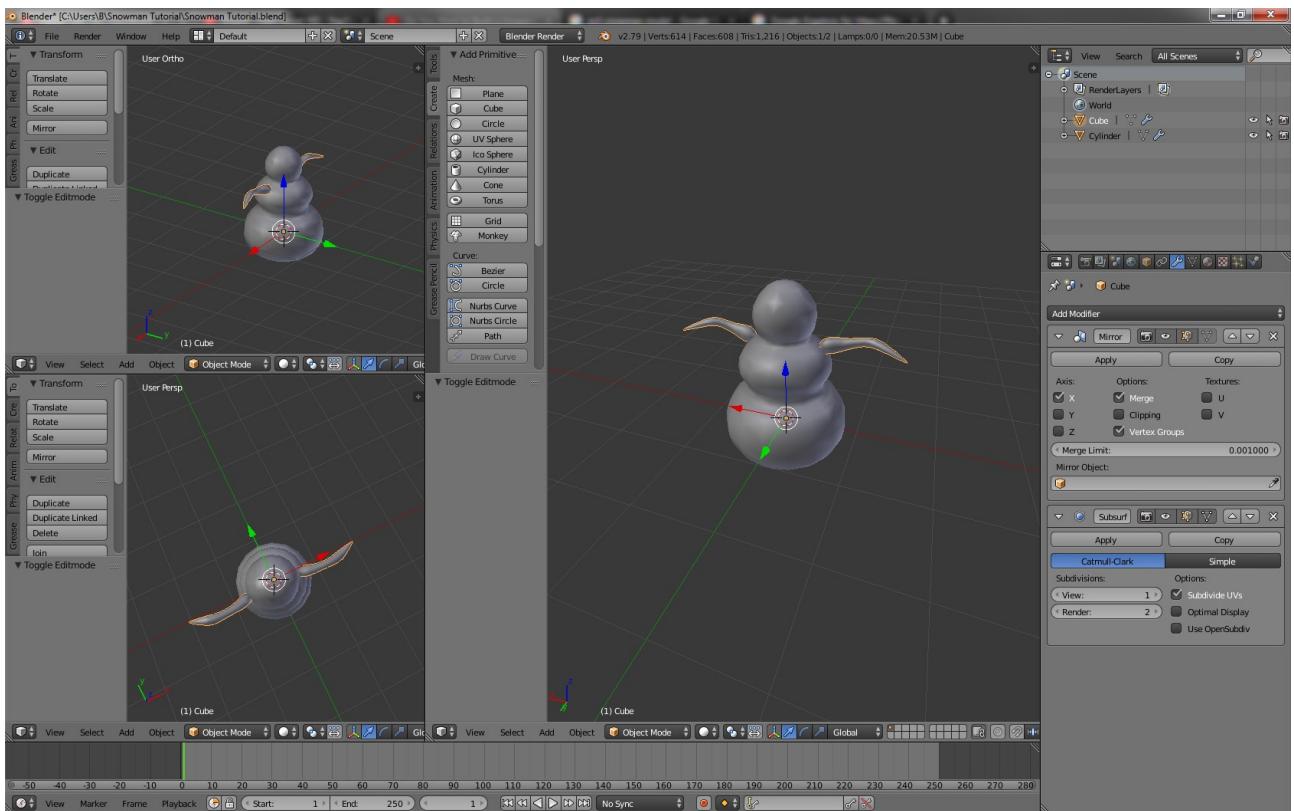
I'm just going to give this thing sharp, pointy, curved spikes instead of hands.

It's funny how this is a perfectly reasonable thing to do, in 3d modeling for videogames.



Next up, go back to the Shading / UVs tab, and set the faces of the arms to be smooth, too.

These arms are still a little too big, though. I'll scale them down a little more.



OK, that'll do for the arms, I think.

At this point, the snowman mesh has all the absolute minimum characteristics it needs to become an animated creature later on.

What else you want to add to your snowman is up to you. You can add any kind of basic primitive shape, and form it into anything you like. We're going to be going over how to UV map and texture the parts you create in the next section of the tutorial, so that it stops being a grey blob of virtual goo, and then we're going to export it as a placeable and get it into the game.

I'll be adding details of my own, which you can follow along with in the Extras for this part. This is for you to consider, though: What are the characteristics of **your** snowman? What does it have, aside from arms and a body?

A sensible primitive to use for a carrot nose would be a cone or a cube. A cylinder would make a good base for a top hat.

You're in videogame land here, though, so don't hesitate to go a little crazy with it. If somebody tries to tell you can't turn the head of your snowman into a telephone with ears and feet if that's what you wanna do, then just START SHOUTING AT THE TOP OF YOUR LUNGS THAT **YOU'RE AN ARTIST!!!** and that you **DIDN'T LEARN 3D MODELING NOT TO PUT EARS AND FEET ON TELEPHONES WHICH ARE ALSO THE HEADS OF EVIL SNOWMEN!**

That'll show 'em! HAH! Nobody ever expects **that** from the quietly focused tinkerpeople.

ps: you should definitely be saving now

Next up: PART I, SECTION 2 - UV MAPPING AND TEXTURING