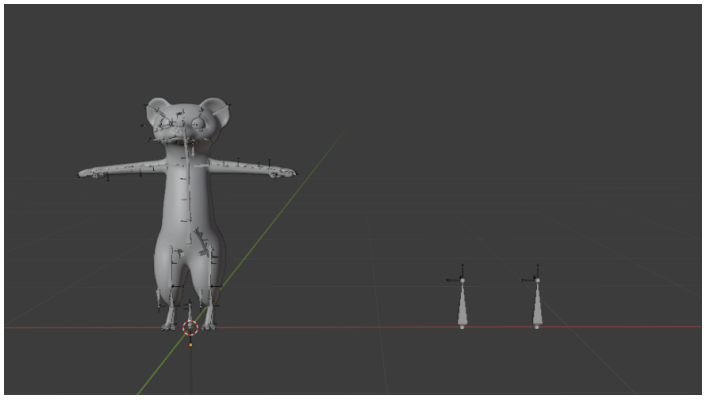
(lmao this is over a year old)

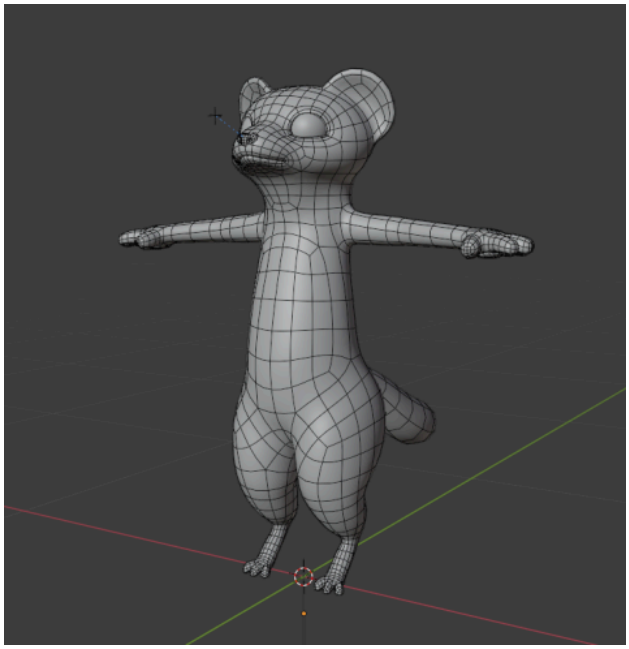
Alright, you want to round-ify your model, but putting the character inside a sphere just doesn't hit quite right. So I'm gonna show you how to make the perfect spherical shape out of ONLY your character's model and how to smoothly transition between them.

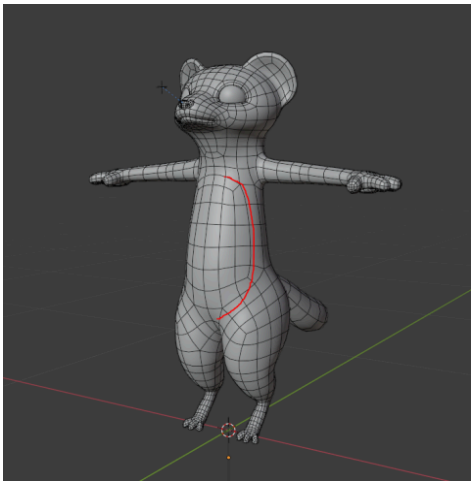
ALSO, I use Blender. For those who use any other programs, you can almost certainly do the same. The concepts should be the same, but the interface is completely different.

FIRST THINGS FIRST, this is probably obvious, but you need a character model. This tutorial won't be showing you how to make that cause there's already tutorials for that stuff.

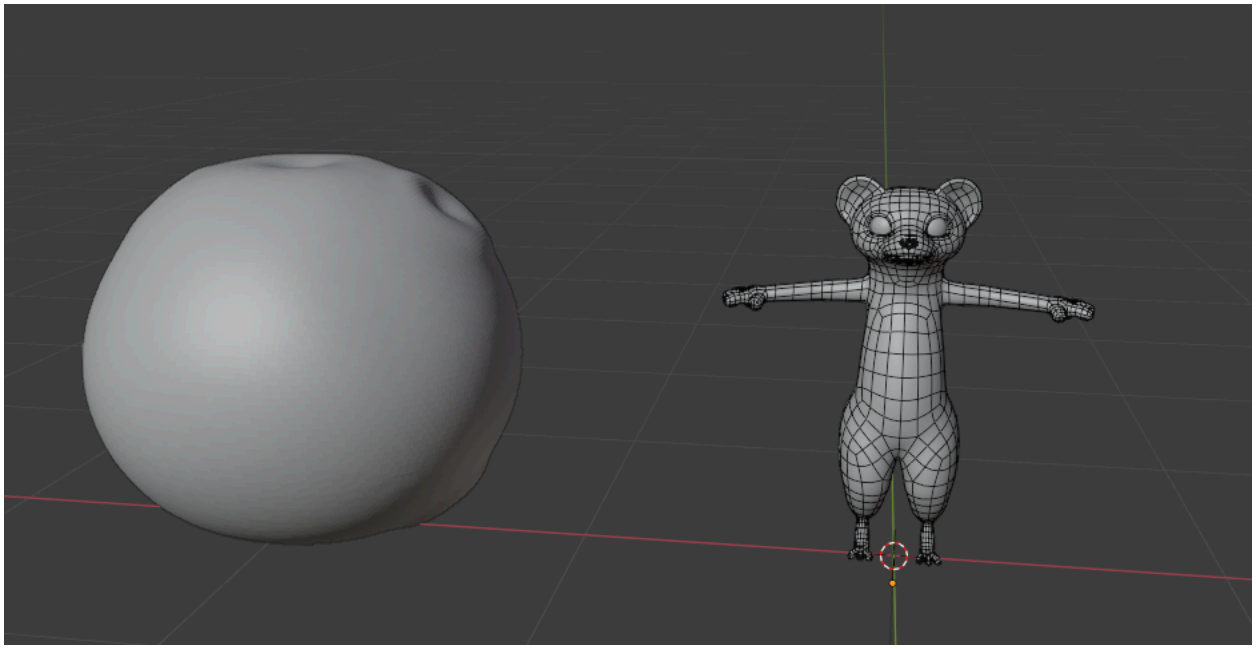


It also really helps if you have animation controls and constraints before you do this.

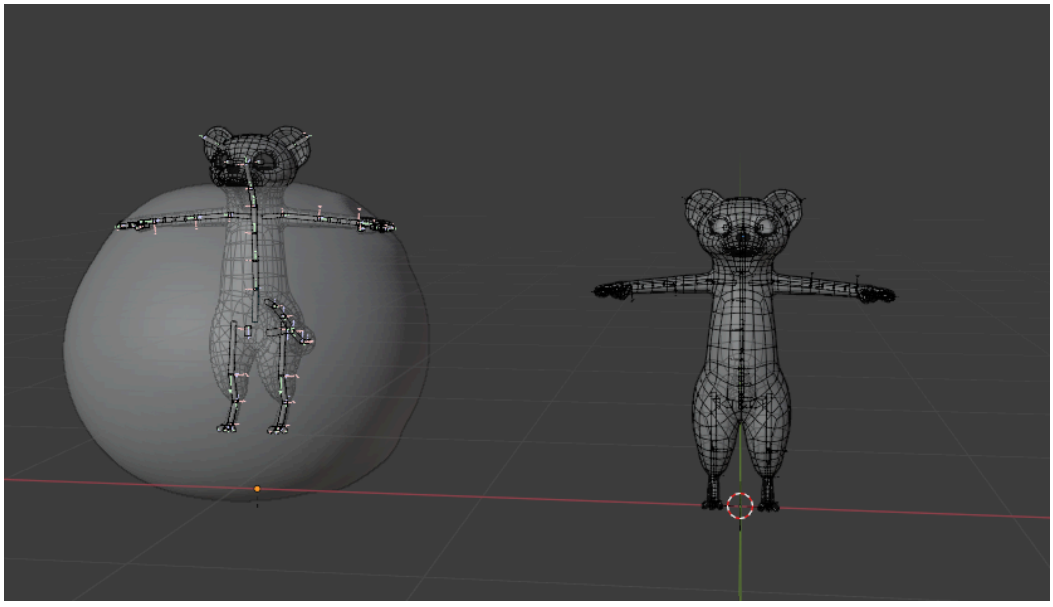




I'd recommend that the model BE AS LOW POLY AS POSSIBLE. The more polys your model has, the more tedious and painful the process will be. It also helps if the topology of your model has loops for and areas you want to specifically inflate (belly, butt, breast, maybe even muscles?).

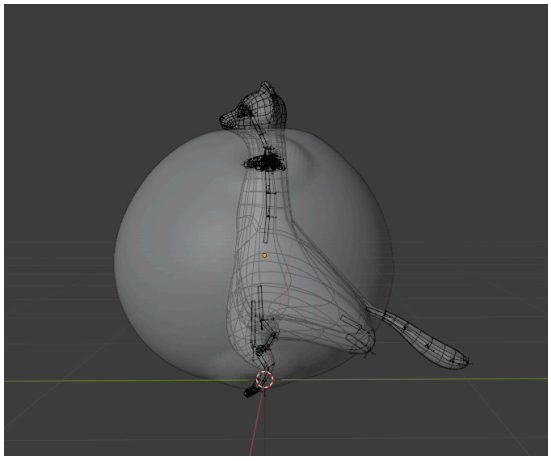


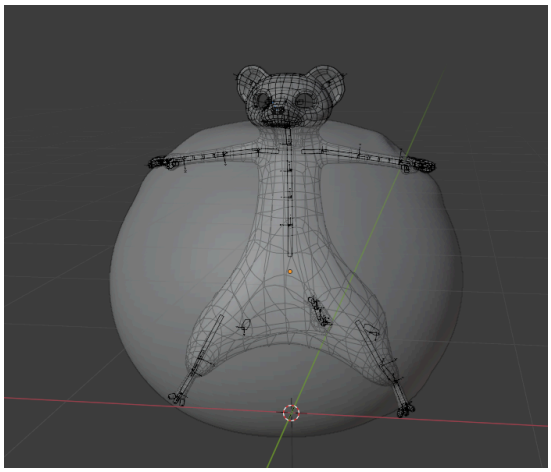
1. Ok, the first and easiest step on the actual inflation process. Make the inflated body shape without the head, hands, and feet. I recommend sculpting this out, it can be as high poly as you want.



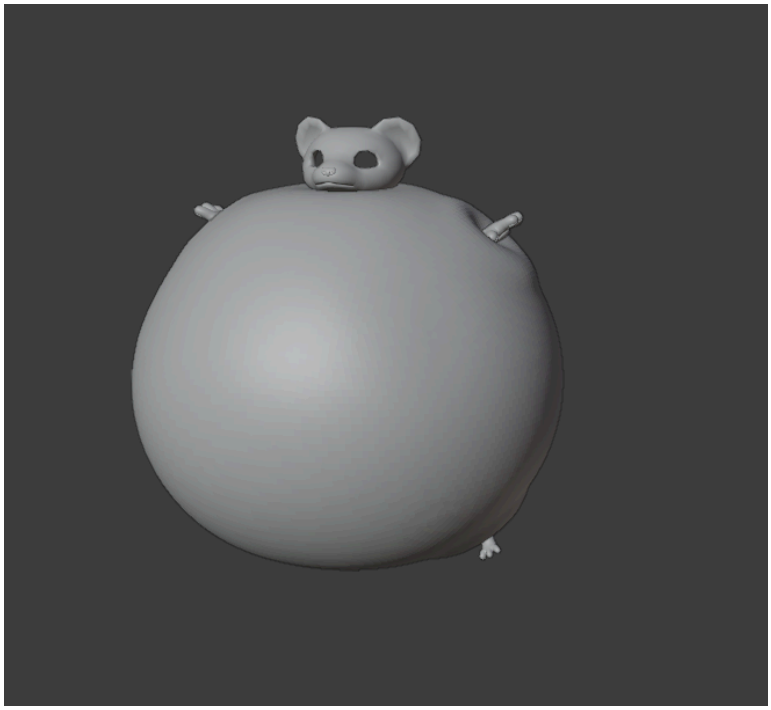
2. MAKE A COPY of your model and skeleton and position it to THE EXACT CENTER your inflated form. In POSE mode, move your character's pelvis so that the head is at the top.

Ok, it gets whacky from this point on so strap in. The order of the steps ARE CRUCIAL to executing this properly without turning your model into spaghetti.

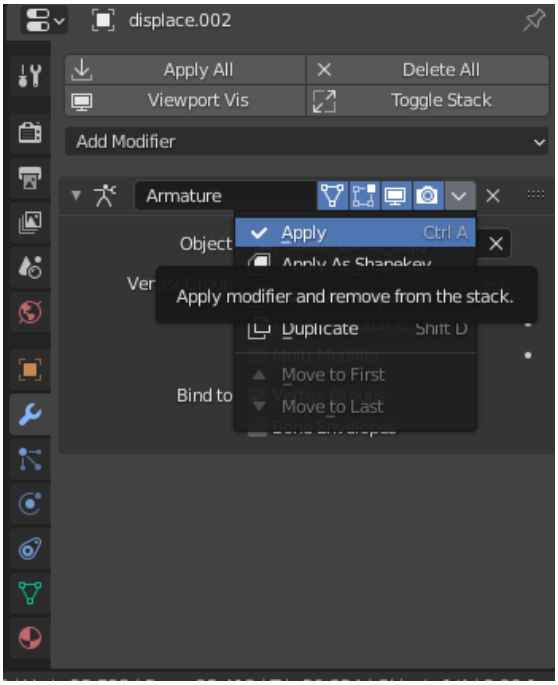




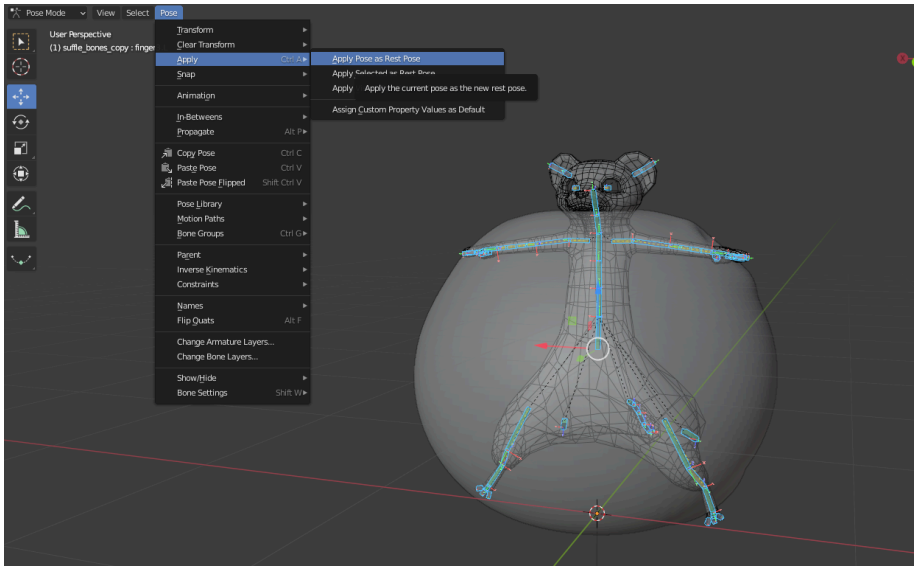
3. In POSE mode on your duplicate model, position the parent bones of your limbs to match the shape of the ball form (for my model it's the clavicles and thighs). Make sure the tail is put out there too.



It also helps if the hands and feet are rotated to point outwards.

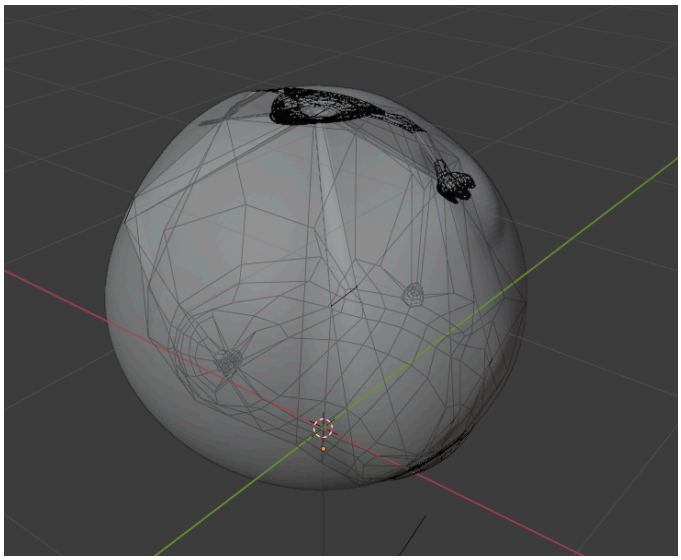


4. APPLY THE ARMATURE MODIFIER

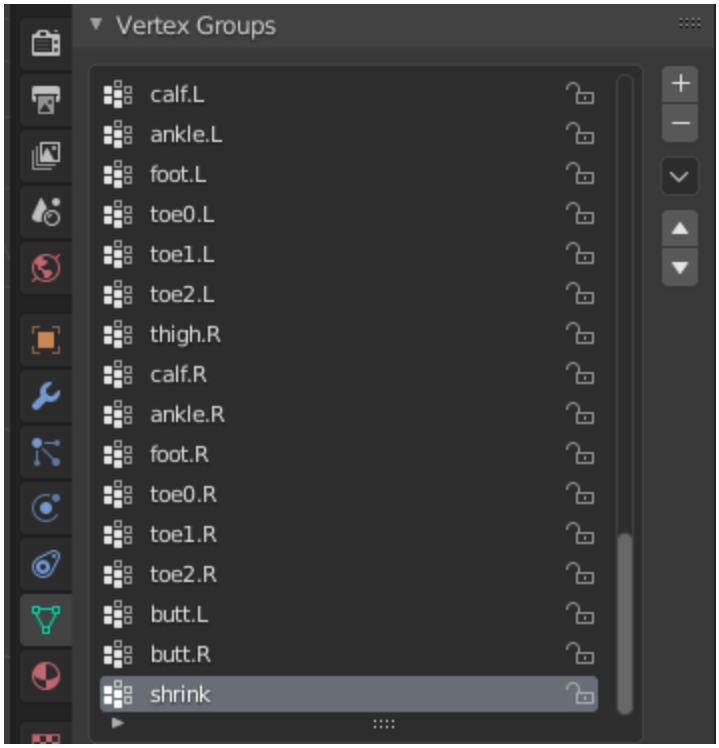


5. Then apply the model's pose as the skeleton’s rest pose. DO THIS AFTER APPLYING THE ARMATURE MODIFIER.

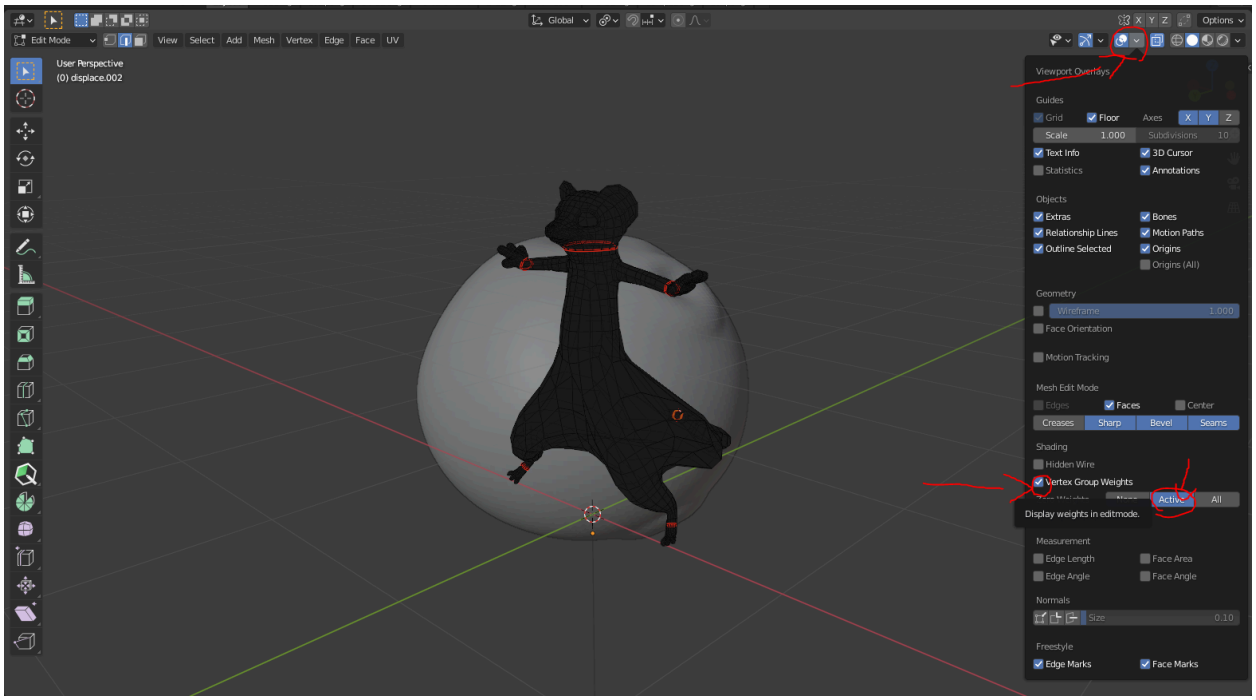
The next step in the process will be manually moving the vertices onto the body form, but we’ll also want help from the shrinkwrap modifier, which will automatically wrap the vertices onto the model. But BEFORE we do that, we want to make a vertex group for the shrinkwrap, otherwise your model will look like this…



Yuck...

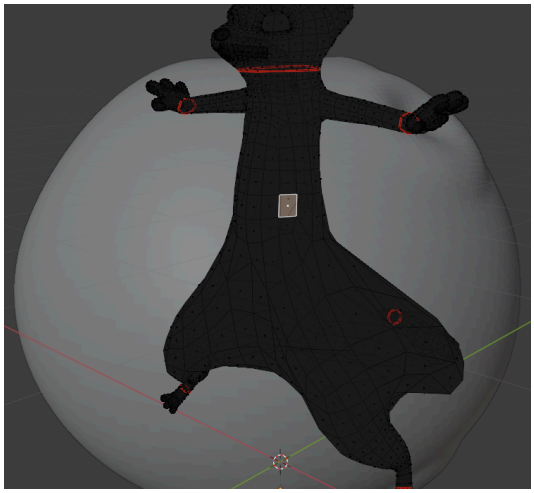


6. Create a new vertex group, it will be under all the bone vertex groups. Give it a name you'll remember like "shrink".

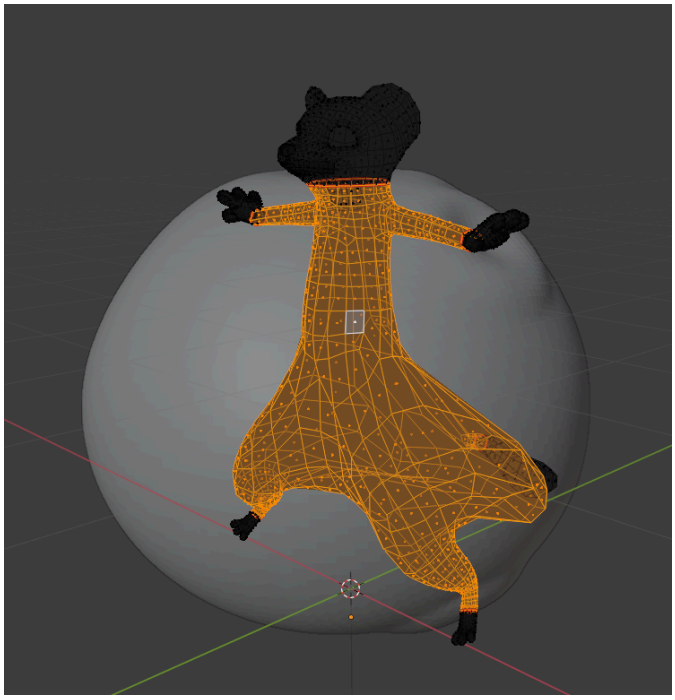


7. In EDIT mode on your model, mark seams (select EDGES>right click>mark seam) at the point where you want the shrinkwrap to stop. The edges will turn red.

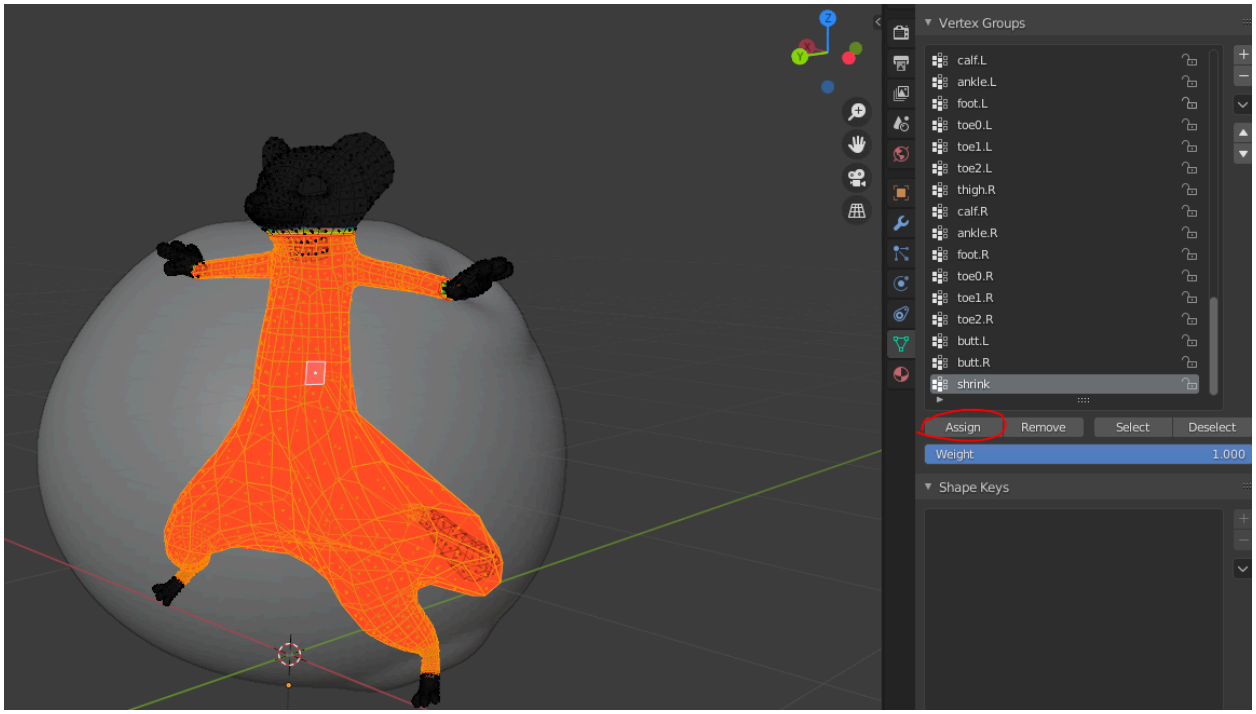
Also enable vertex group weights in the viewport overlays (I marked the options I use in red)



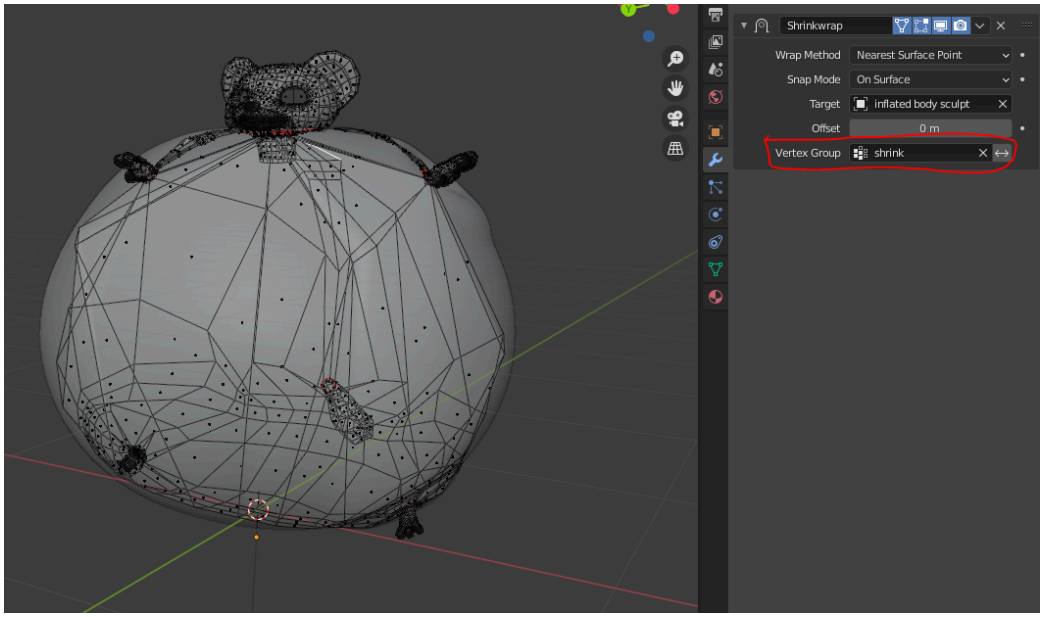
Select one face on the body…



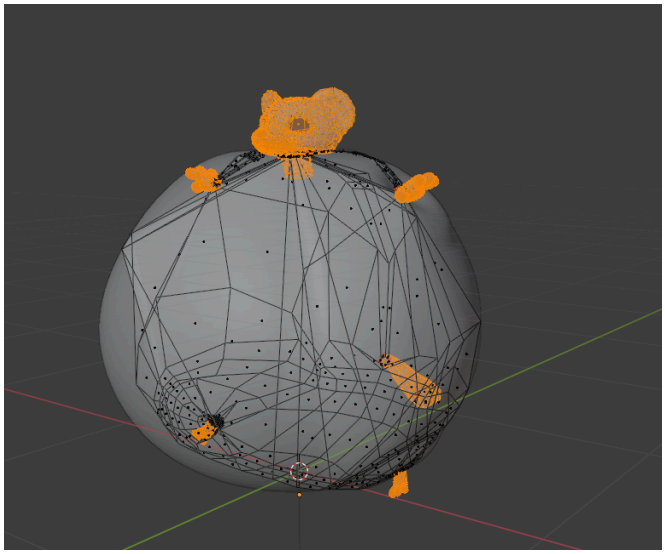
CTRL+L

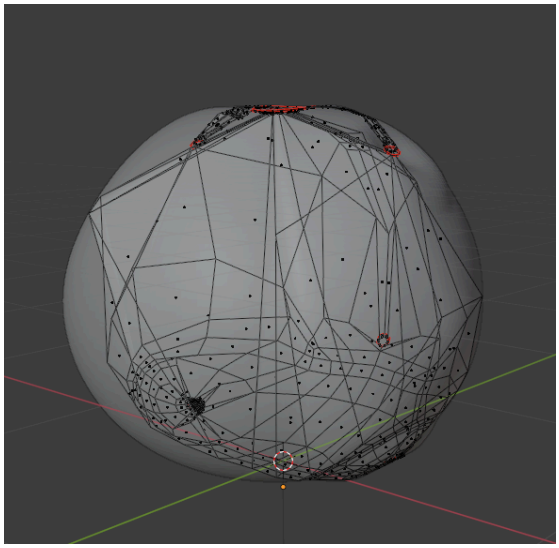


8. Assign with a weight of 1, only the body inside should turn red.

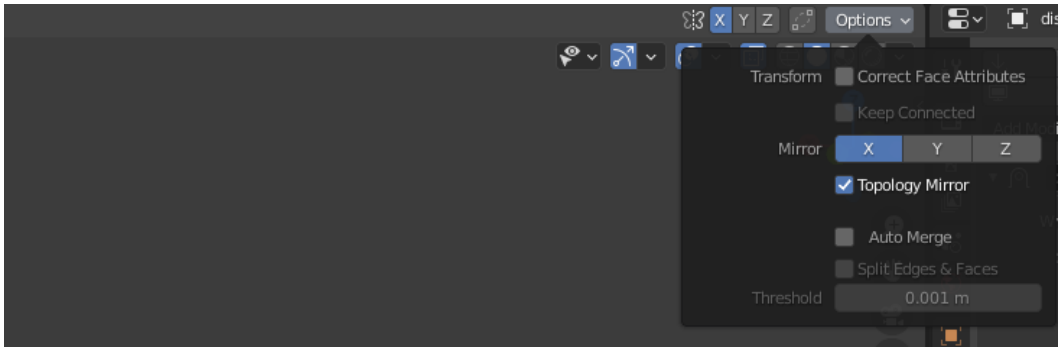


9. Slap that vertex group into the shrinkwrap modifier. Now ONLY THE BODY should be messed up. Now we are ready to adjust the model. I'd recommend turning off "Vertex group weights" so your eyes don't melt during this next step.



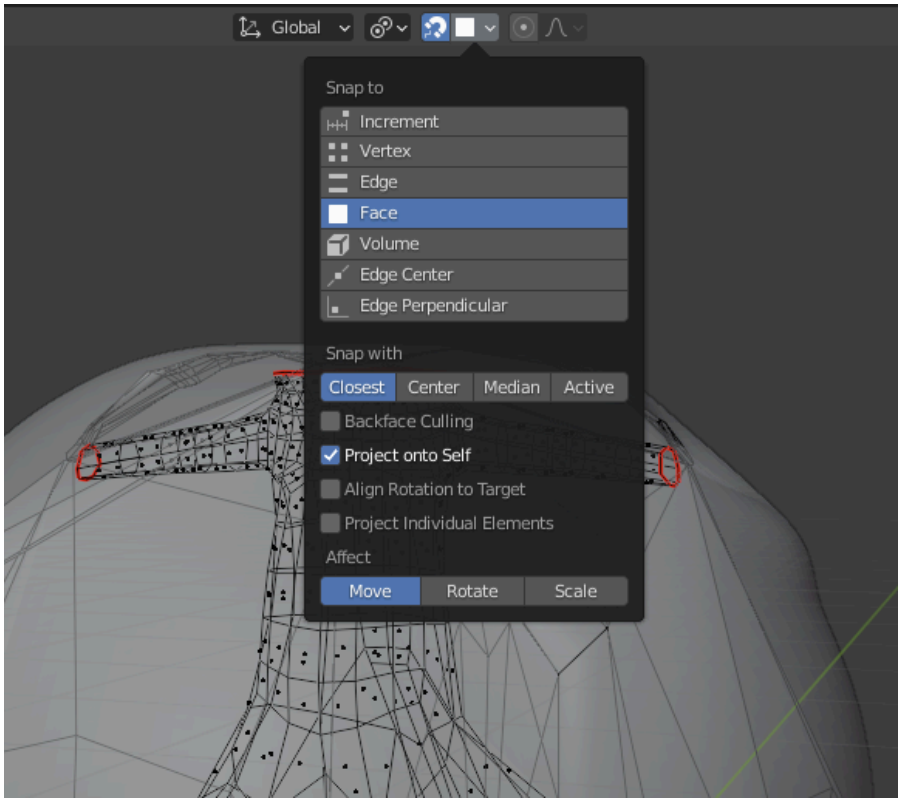


10. Repeat the process of selecting the body with CTRL+L, then invert the selection to only select everything else. Then press H to hide so that we don't accidentally mess with the non-inflating parts.

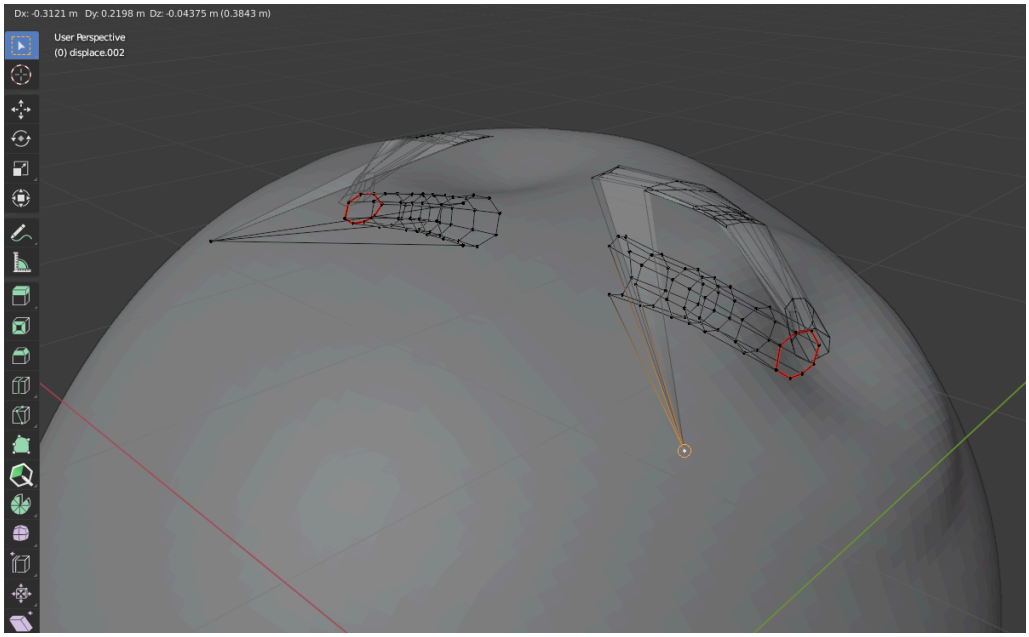


You'll also need to turn on edit mode symmetry because YOU CANNOT USE THE MIRROR MODIFIER

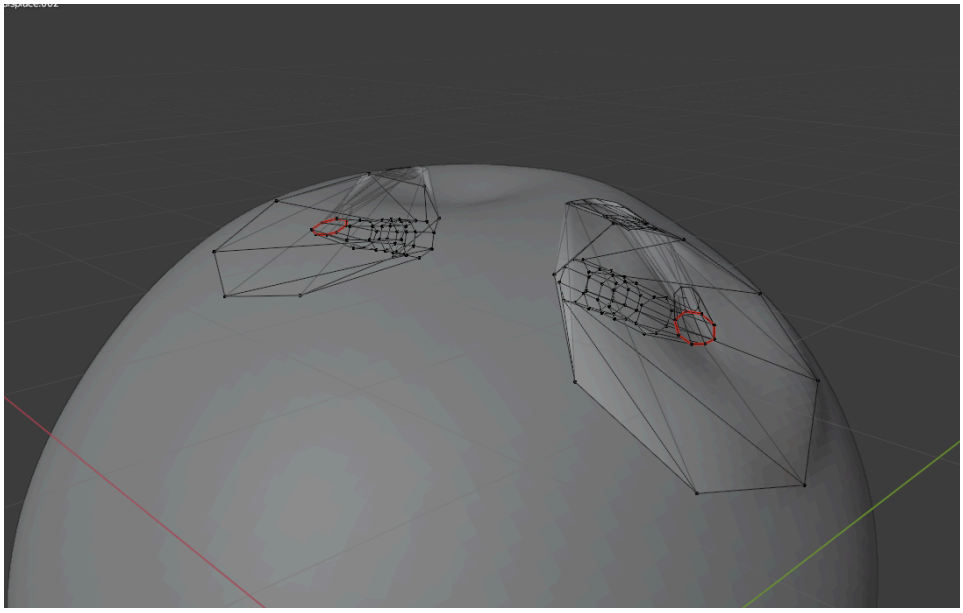
Let me repeat DO NOT USE THE MIRROR MODIFIER.



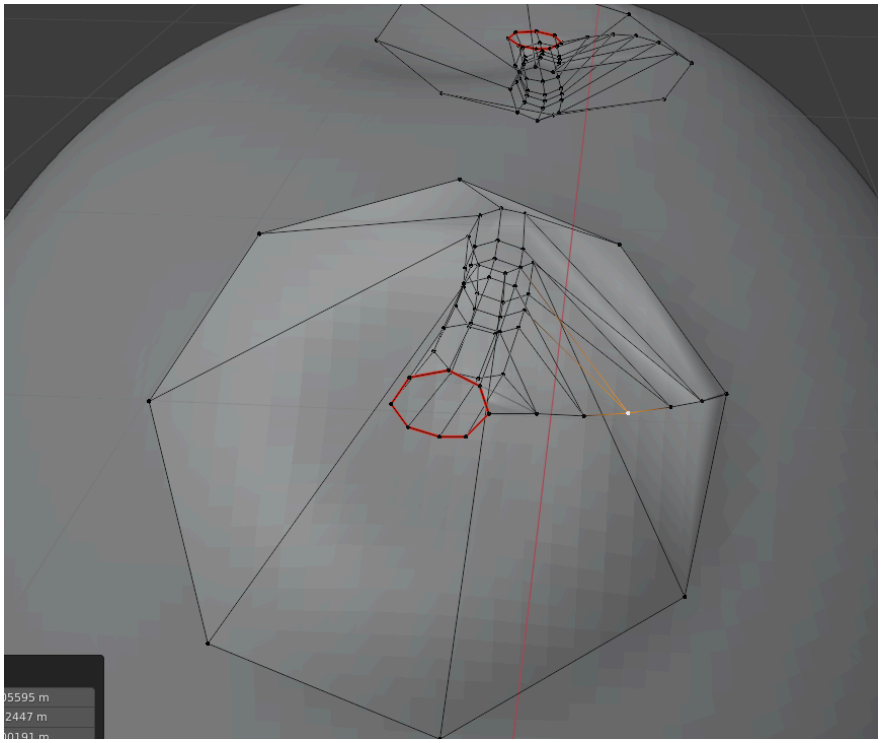
11. Enable face snapping so that we'll be able to easily place the vertices onto the body. We are going to start with the arms. I'd recommend hiding everything but the arms.



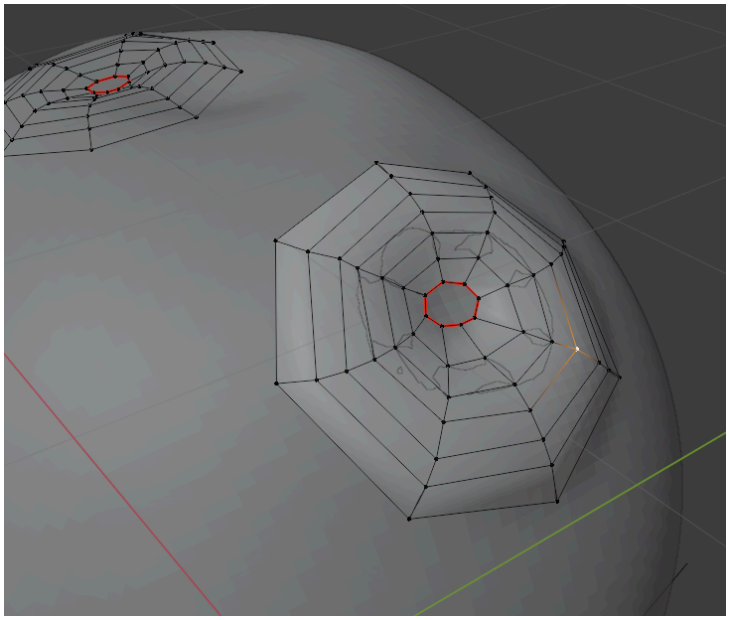
12. Select a vertex (I usually do the upper arm first), hit G to start moving the vertex and move your mouse to the outer ring of your arm divot, it's gonna stretch it out.



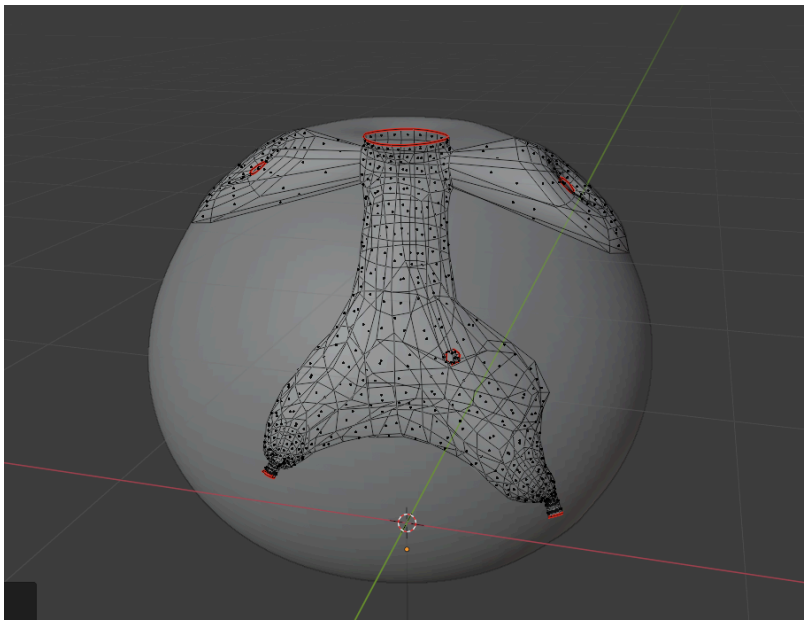
13. Move the vertices of the start and end to outline the divot, see where this is going?



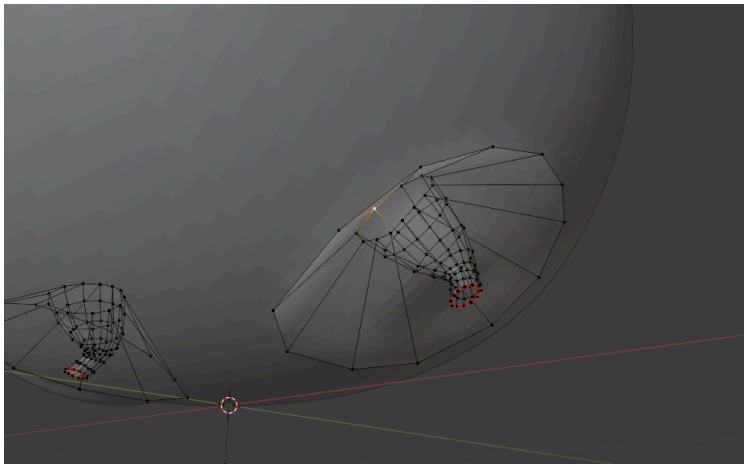
If we stretch out the line to line up in between our two loops, then we can clearly see where we need to place the vertices.

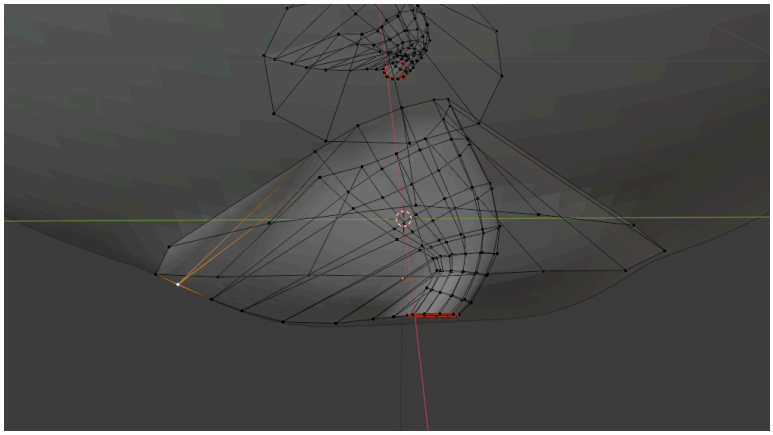


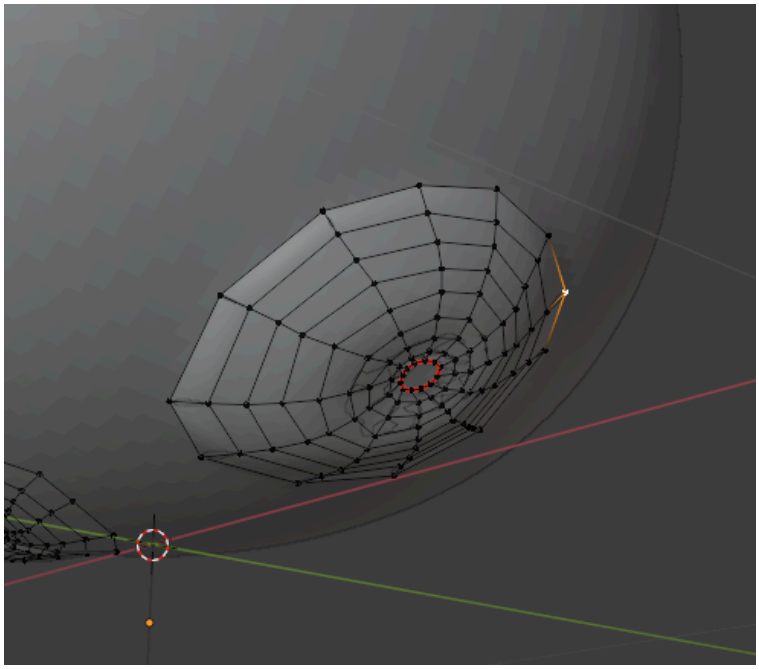
14. Place all of the vertices of the arm onto the arm divot. It should resemble a spider web. Take all the time you need to get it as perfect as possible.



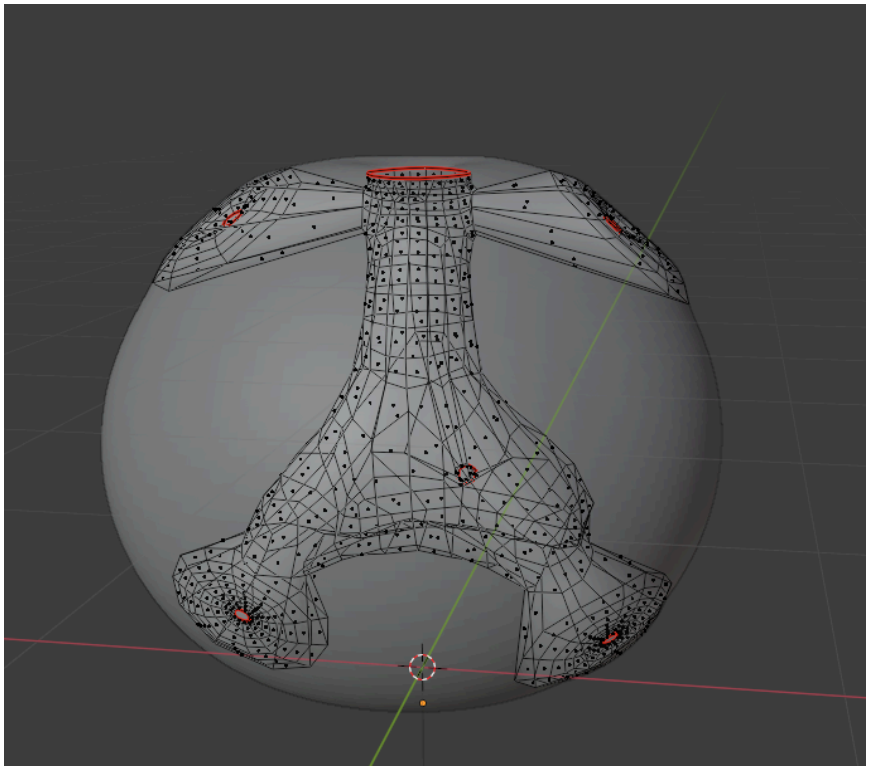
Do the same thing with the legs. A lot of models have a special kind of flow with the thighs which might make it a little more difficult.

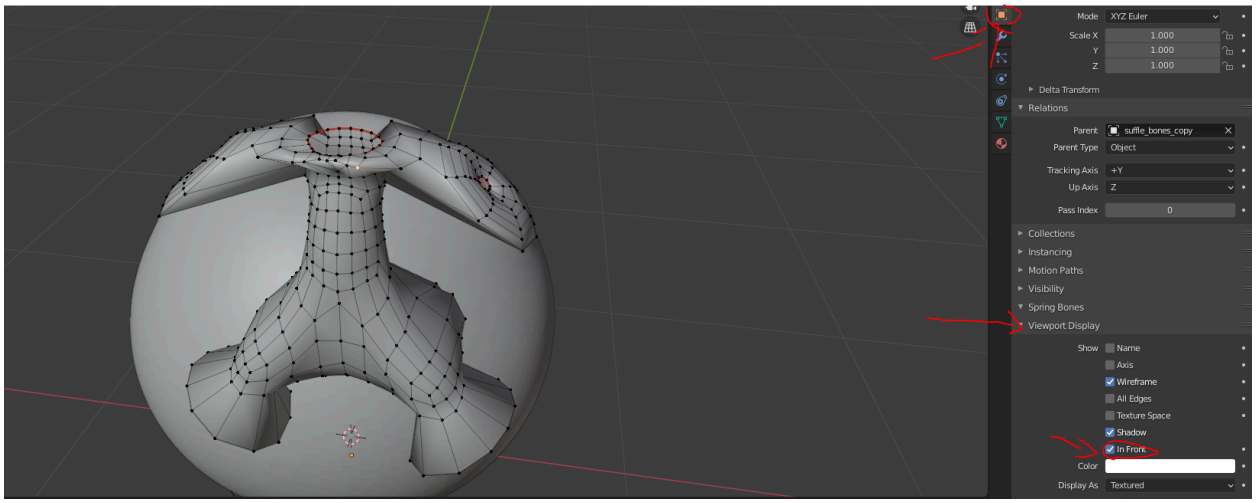






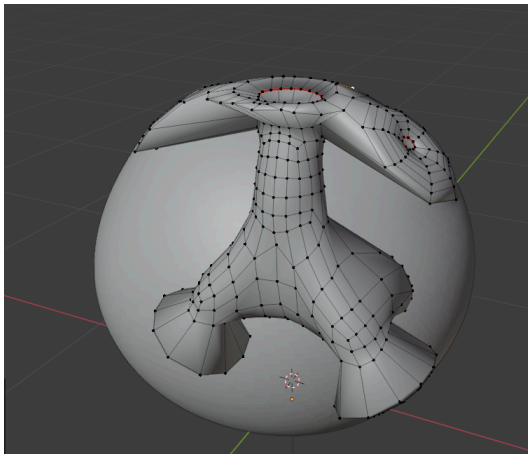
15.Repeat this process with the legs your model should look something like this



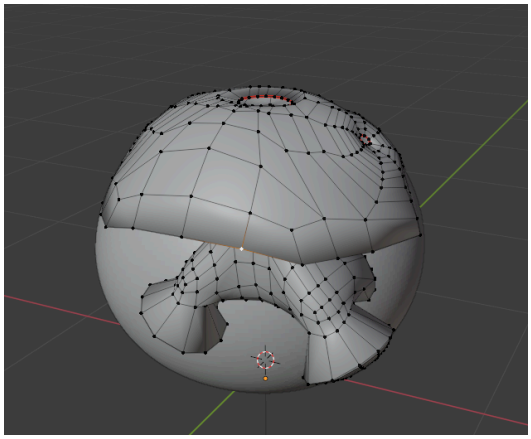


Alright, all that is left to do is the rest of the body. The hardest part about this getting the poly flow to look clean. I start with the shoulders and work my way down. I like to enable “In Front” in the object properties to better see what I am doing.

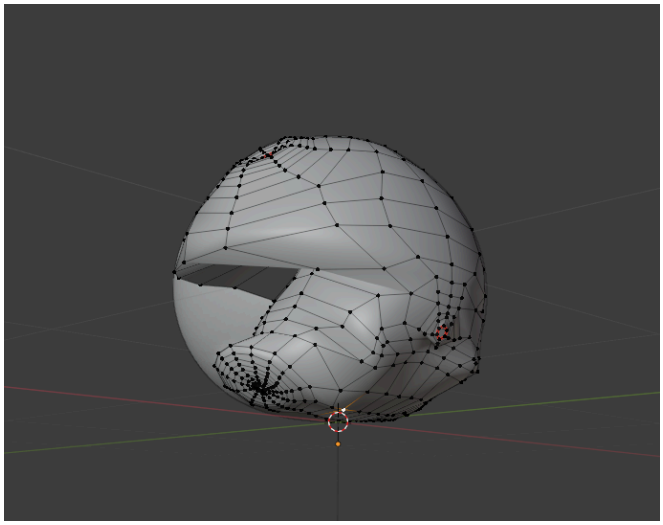
16. Do the rest! Here comes the photo gallery of the process…



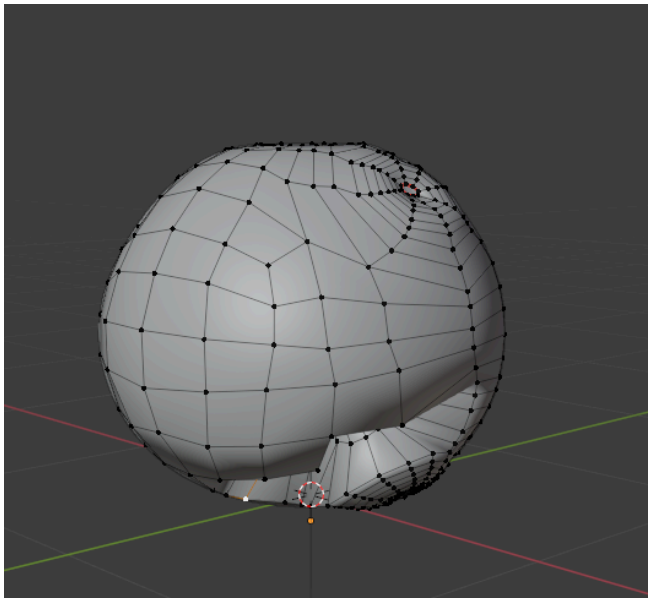
Shoulders…



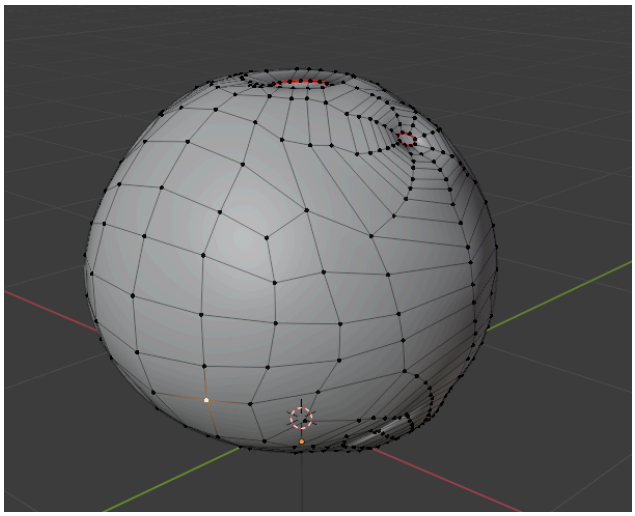
Working out way down, the belly and back flow under the arms…

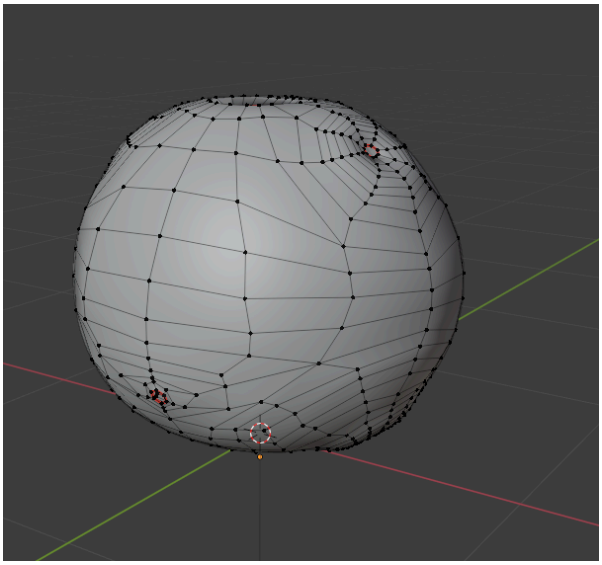


Around the tail, down to the bottom…



Going down the belly to the bottom…





And done!

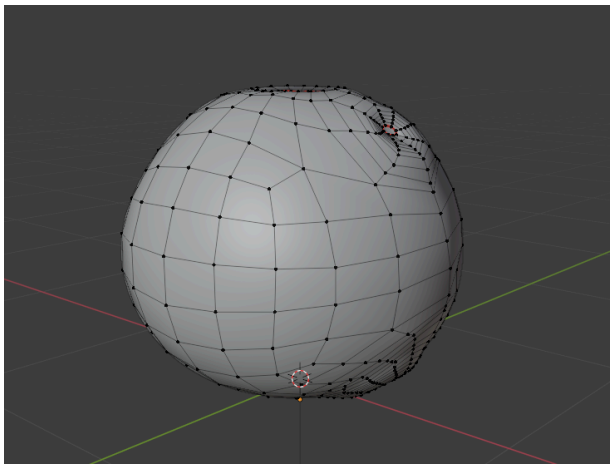
Now, you might notice that your polygons look really tangled. So take all the time you need to adjust the vertices to be as smooth as you want.

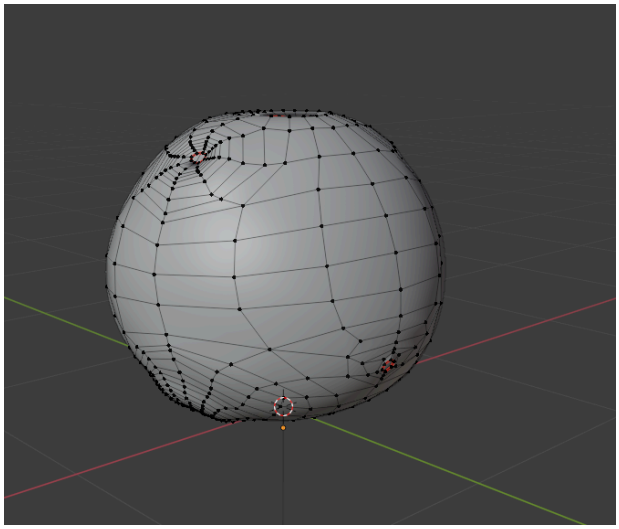
~~I like to use the addon PolyQuilt to smooth things out with the smooth tool. It isn't required, but I find it to be really useful.~~

~~PolyQuilt download~~

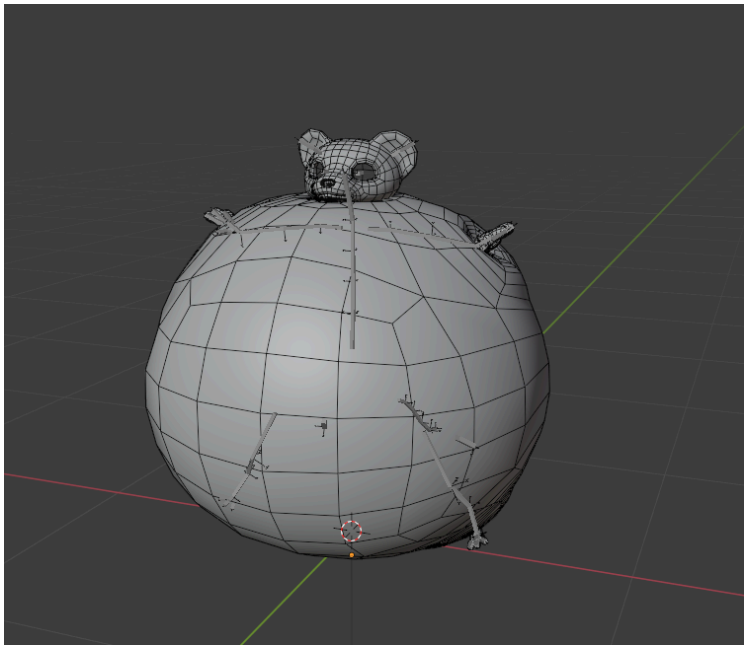
~~PolyQuilt Github~~

EDIT: As of blender 3.1, PolyQuilt no longer works. The “slide relax” brush in sculpt mode does something very similar.

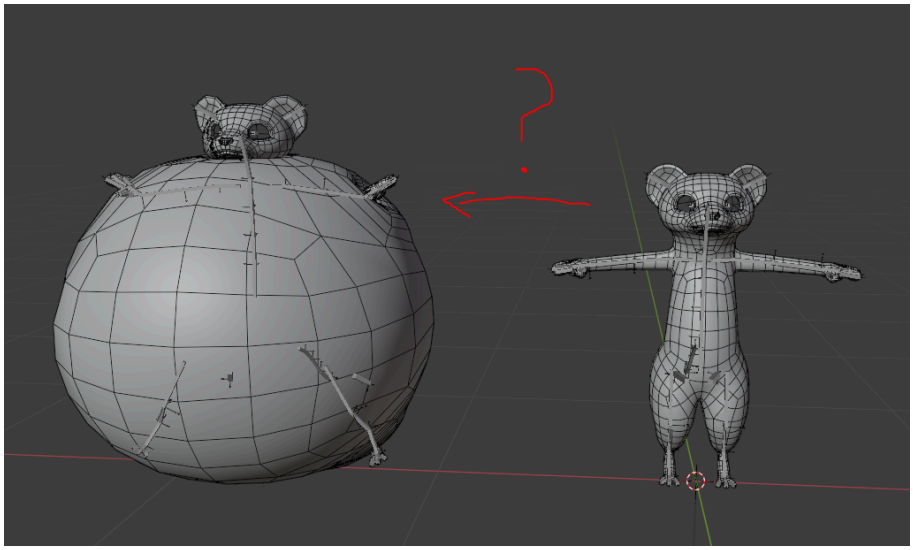




17. Smooth it out! It will still look messy, but the smoother the better! Hopping back into OBJECT mode will show us our now puffed up model. Hopefully you didn’t mess with the hands and feet...



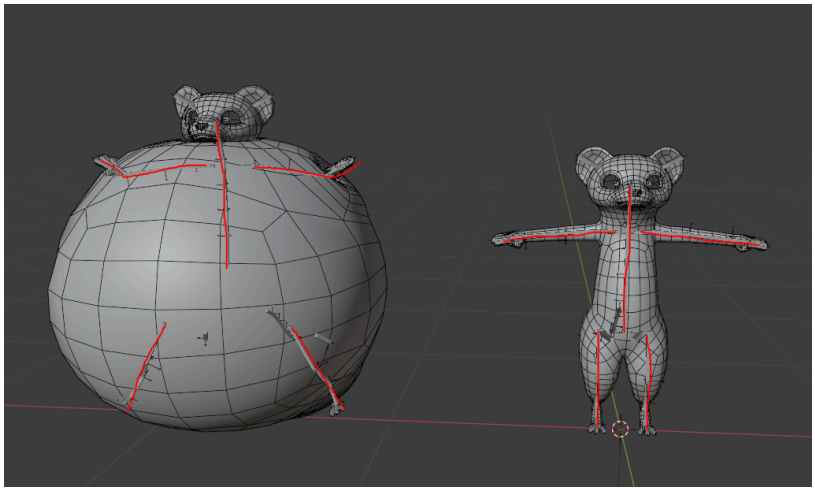
Ok, so at this point you should have two versions of your model in your scene. Each with their own skeleton. Now we need to be able to transition it from skinny to round for a seamless inflation. We will be changing the shape using shapekeys.



Before we get to that, there are a couple things you need to know to understand the process.

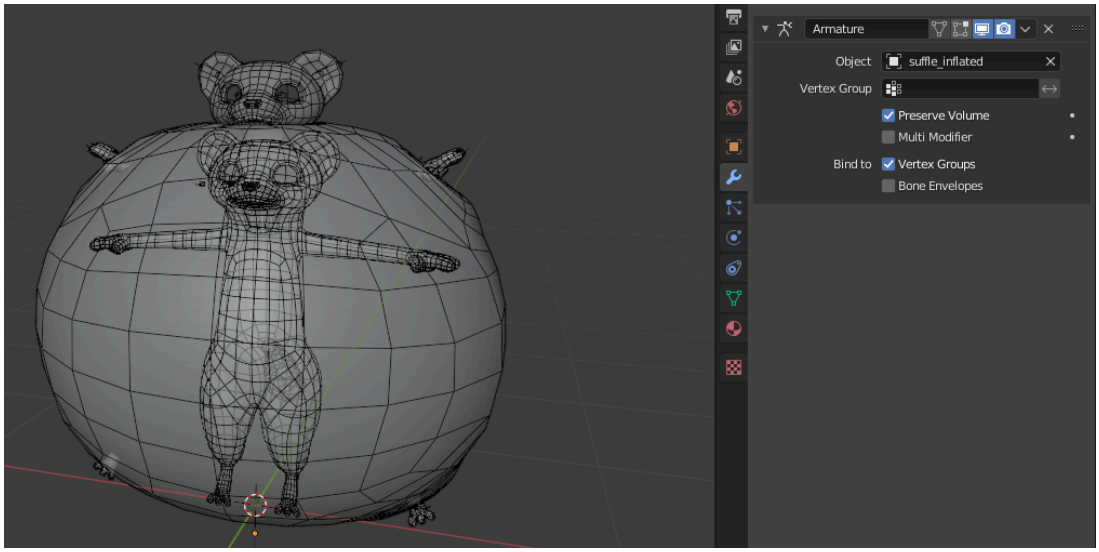
Bear with me here…

We made the inflated form AFTER we had adjusted the skeleton. The pose is different

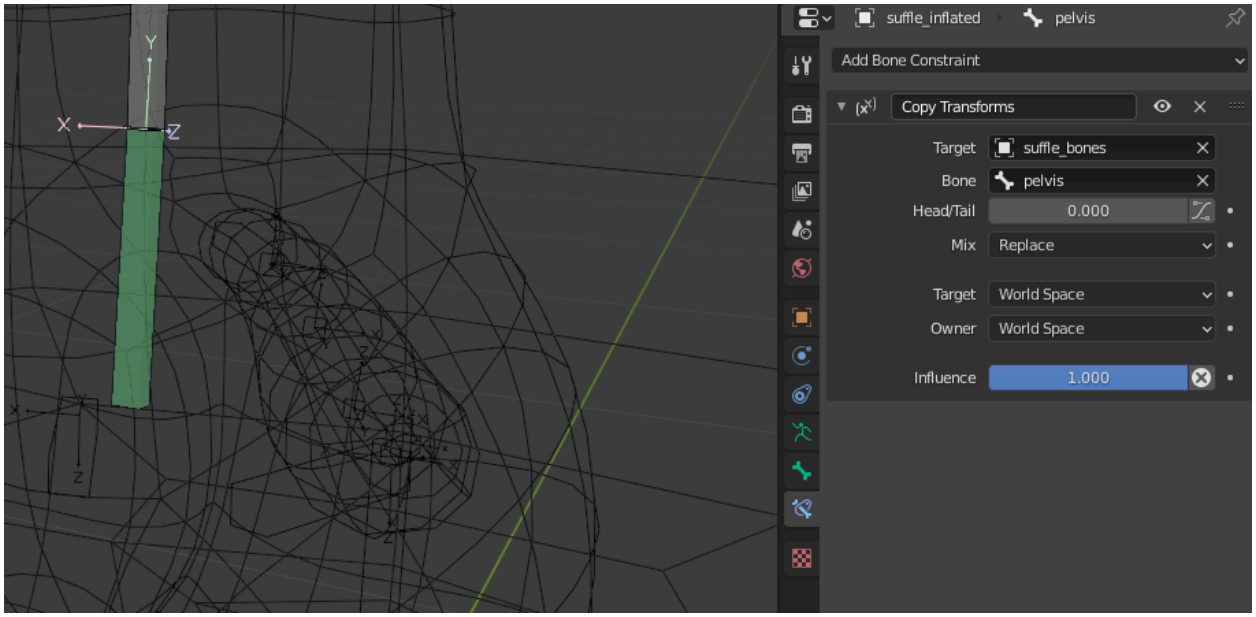


We need to pose it into the character's t-pose before making it a shapekey. That way, the shapekey will look the way we want when we pose the model back into its inflated pose,

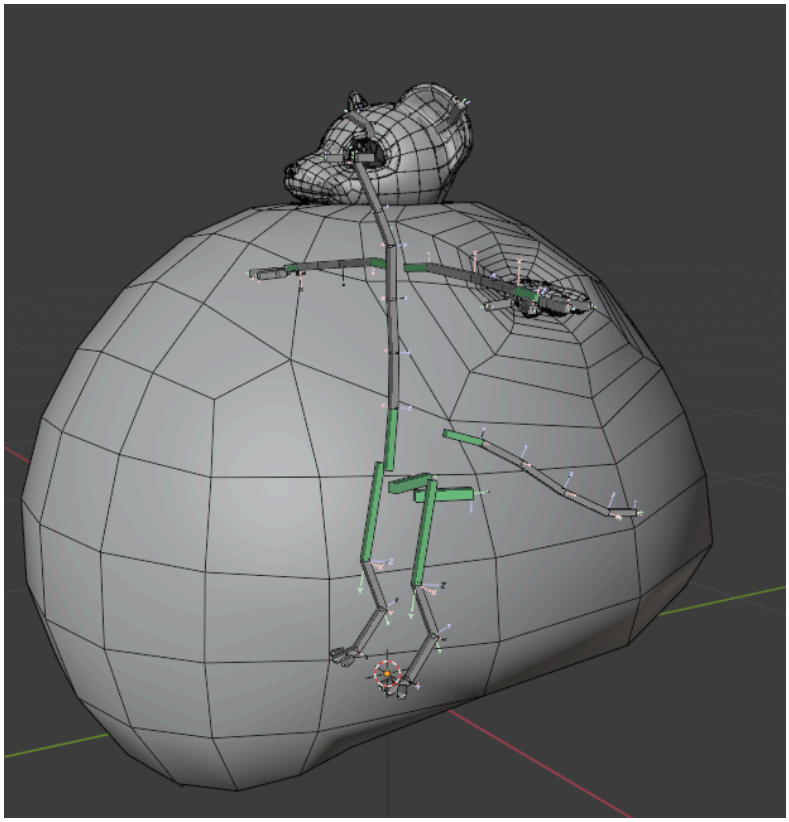
18. First, make sure the model is in the center. We need to add the model back to the armature.



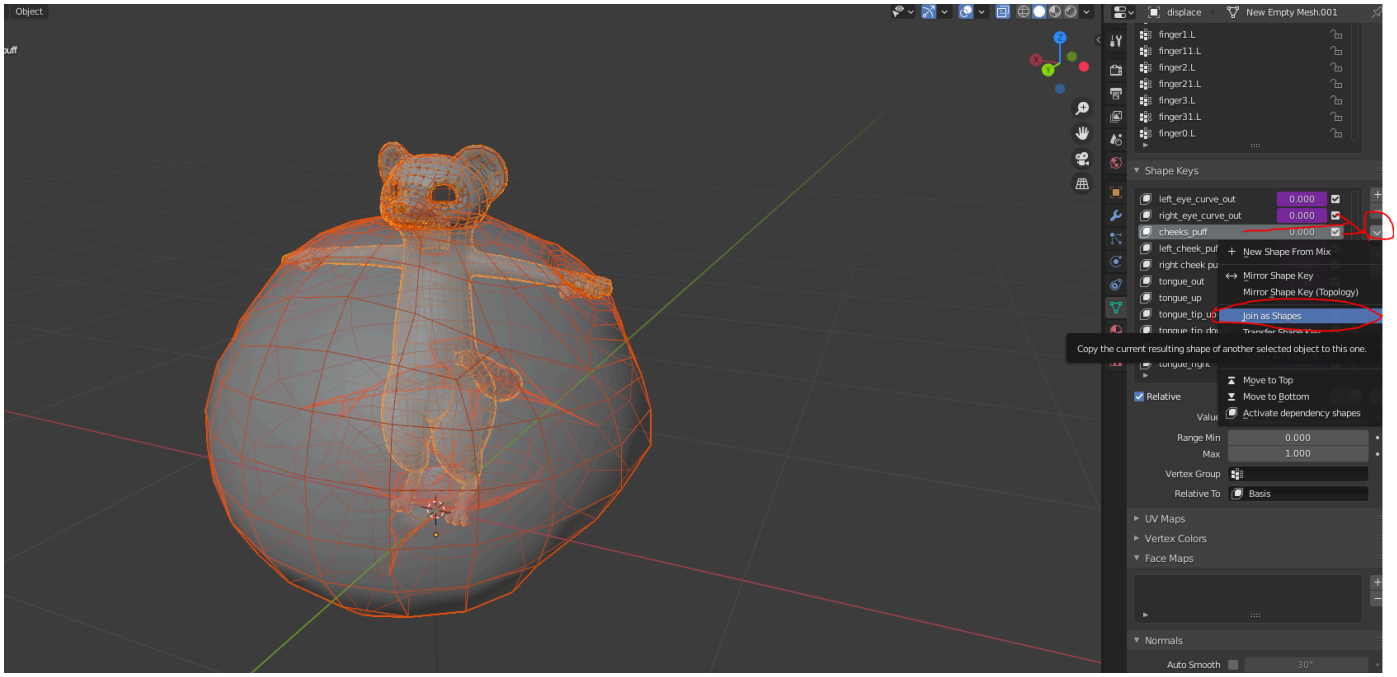
If your original model has “Preserve Volume” on, YOU NEED TO TURN IT ON for the inflated one. Now we need to force it into the original t-pose.



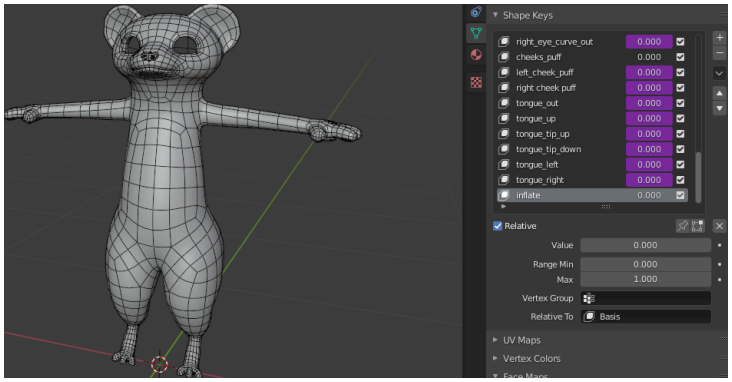
19. In POSE mode on your INFLATED MODEL, select the pelvis and go the bone constraints tab. Create a copy transforms constraint and have it copy the original pelvis transforms. You will need to repeat this process for EVERY BONE YOU MOVED in step 3.

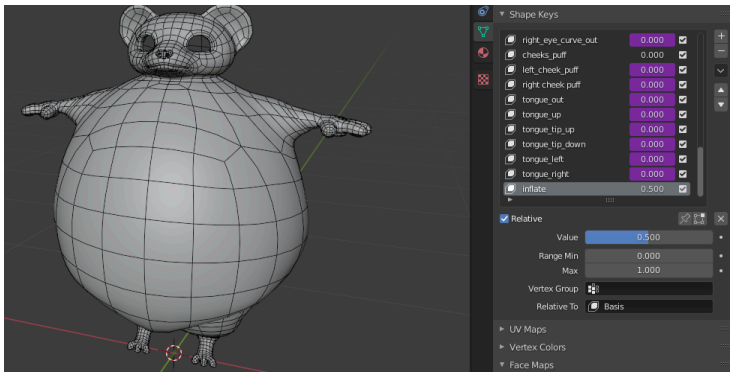


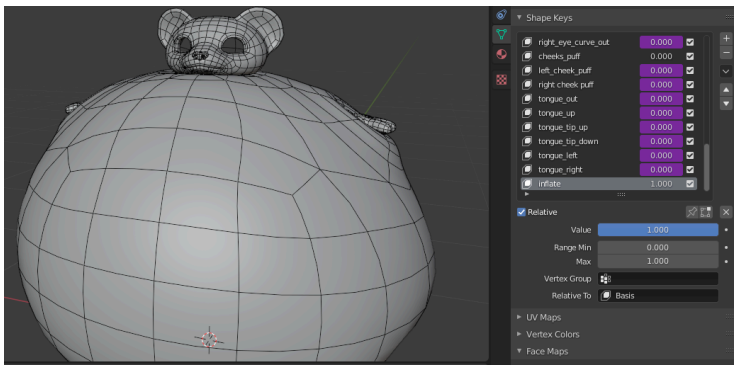
Alright, the shape should be pretty messed up now, but that’s ok



20. Select the inflated body, then the normal one, go to your shape keys. Click the arrow button and select “Join as shapes”. This will create a new shape key, give it a name. Now you can adjust the value to see it smoothly transition to the messed up inflated form.

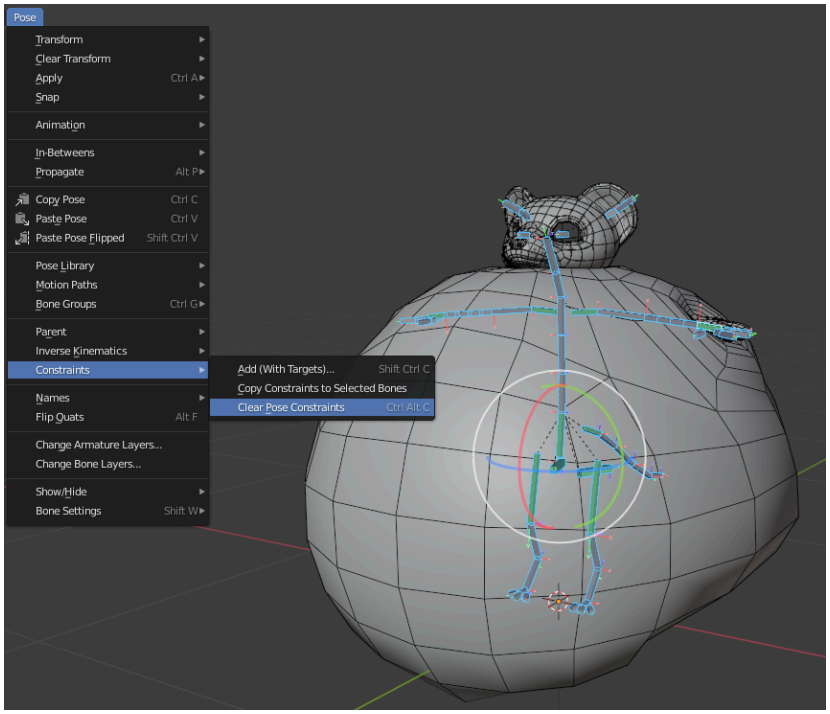




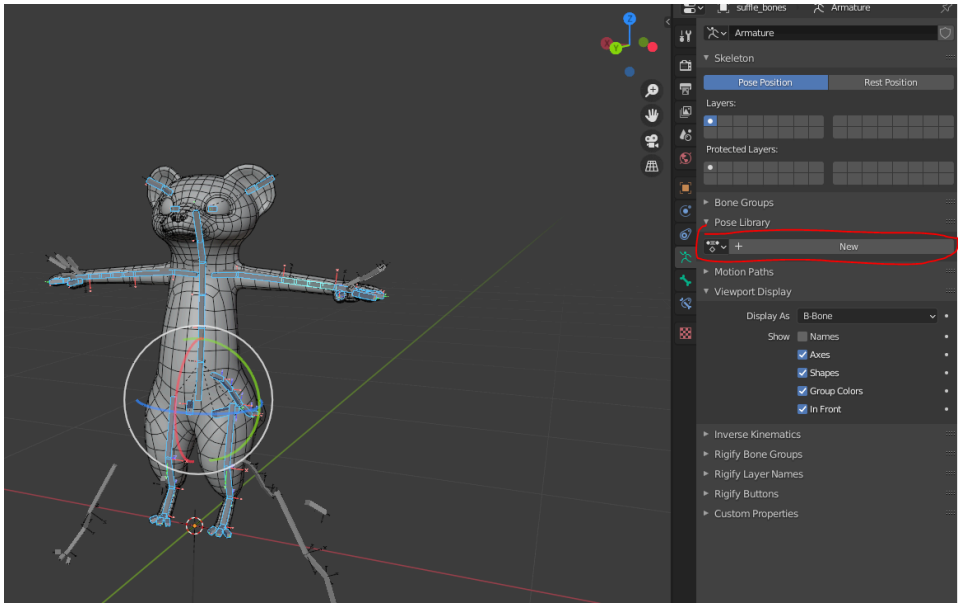


Now all we have to do is pose it back into the inflated pose. You could use bone constraints and drivers to make it automatic, but that's something I'll have to make a tutorial on another time.

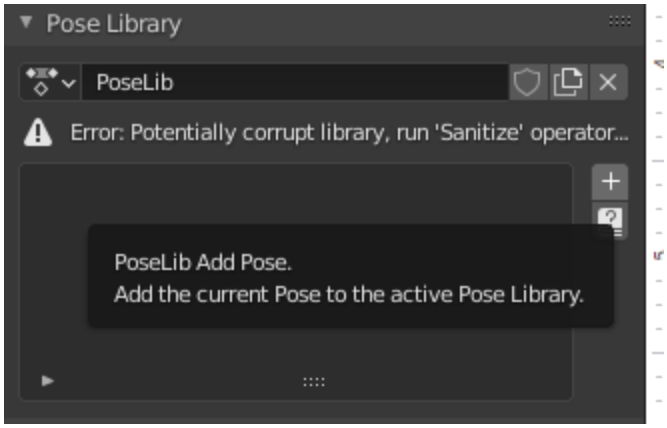
For now, let's use pose libraries.



21. Go back into pose mode on your INFLATED SKELETON and go to Pose>Constraints>Clear Pose Constraints, it should go back into its spherical pose.

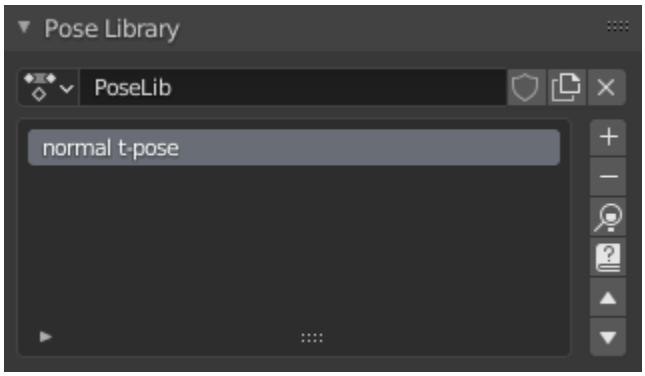


22. Go into POSE mode on your NORMAL SKELETON, go to the armature properties, and create a new pose library.

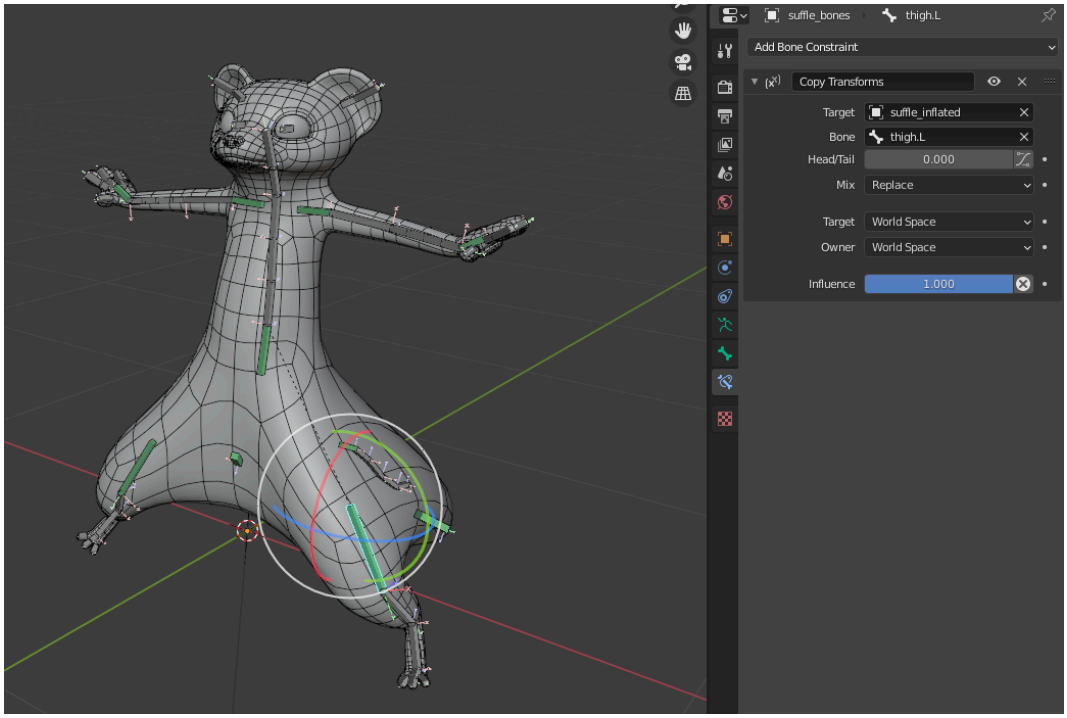


Essentially, this will let us store poses and quickly put the character into a pose with a single click!

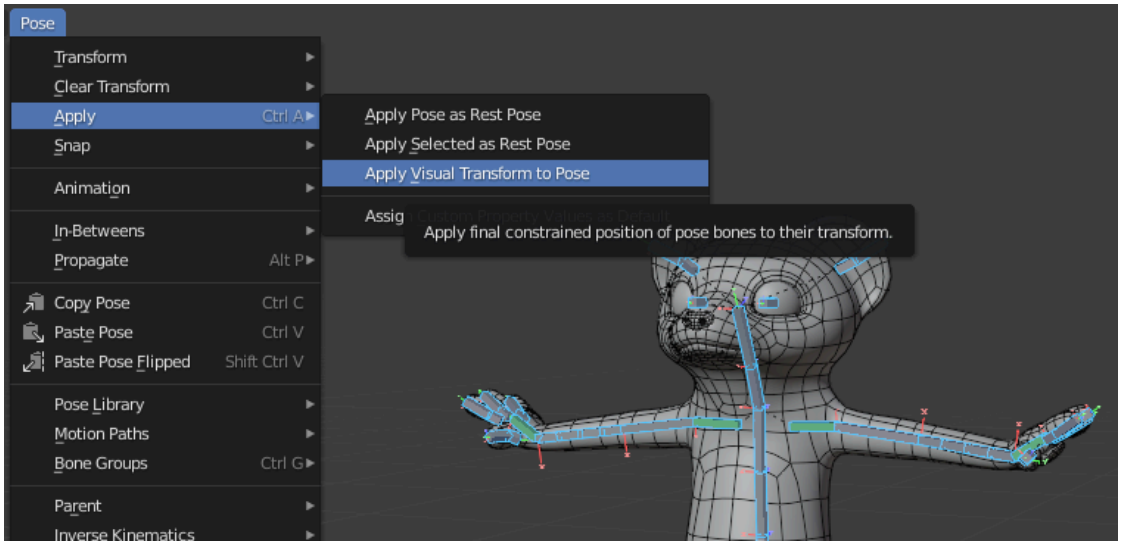
23. Click the plus and click “Add Pose”, give it a name



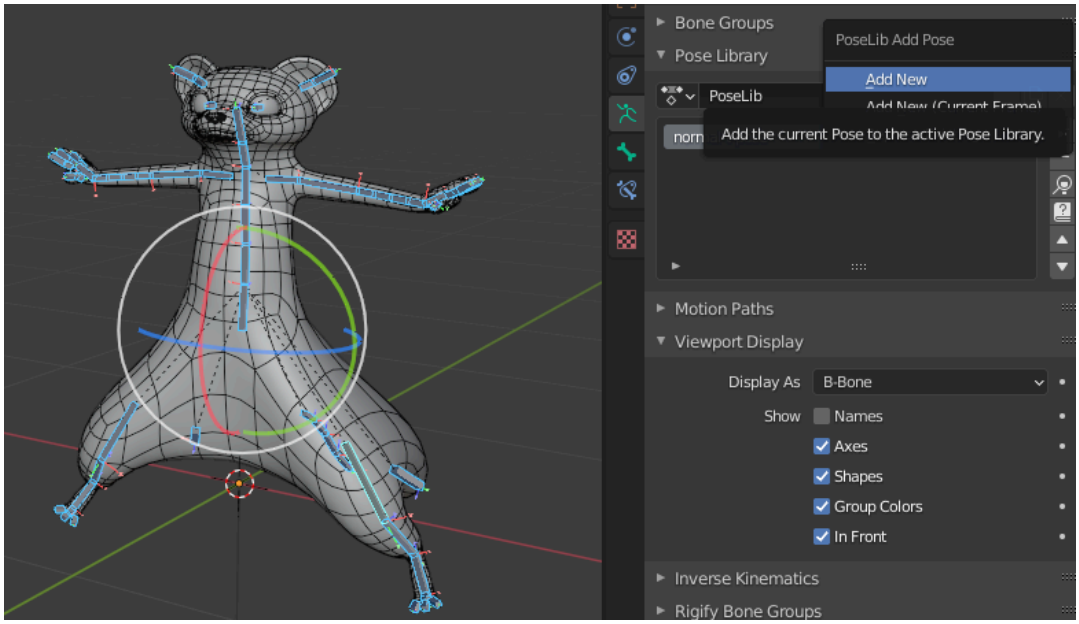
Now, let’s put it into the inflated pose by repeating step 19, only this time on the normal skeleton to match the inflated one.



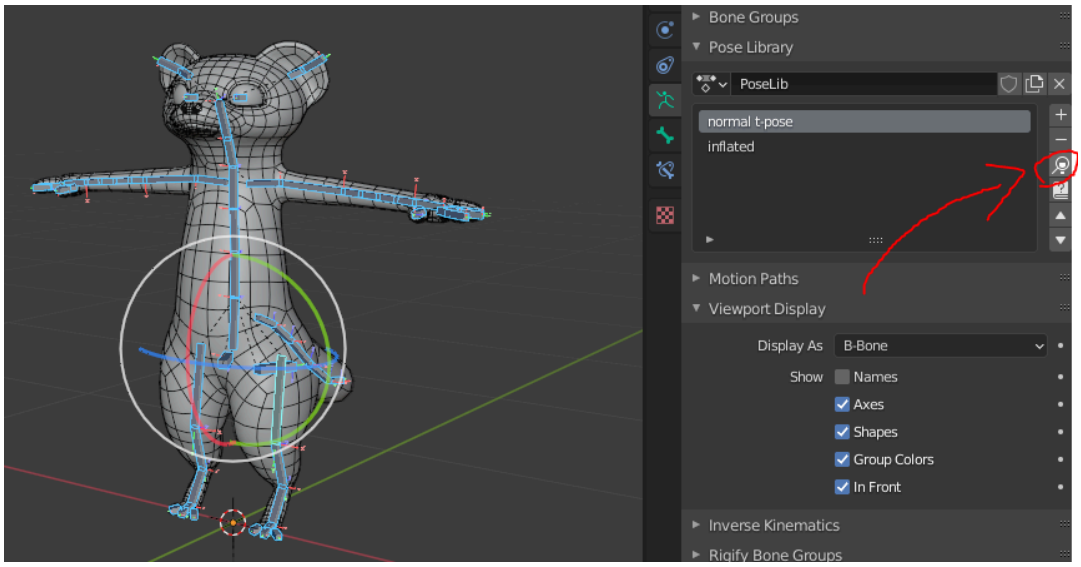
24. Give all the moved bones “Copy Transforms” constraints to match the inflated skeleton.



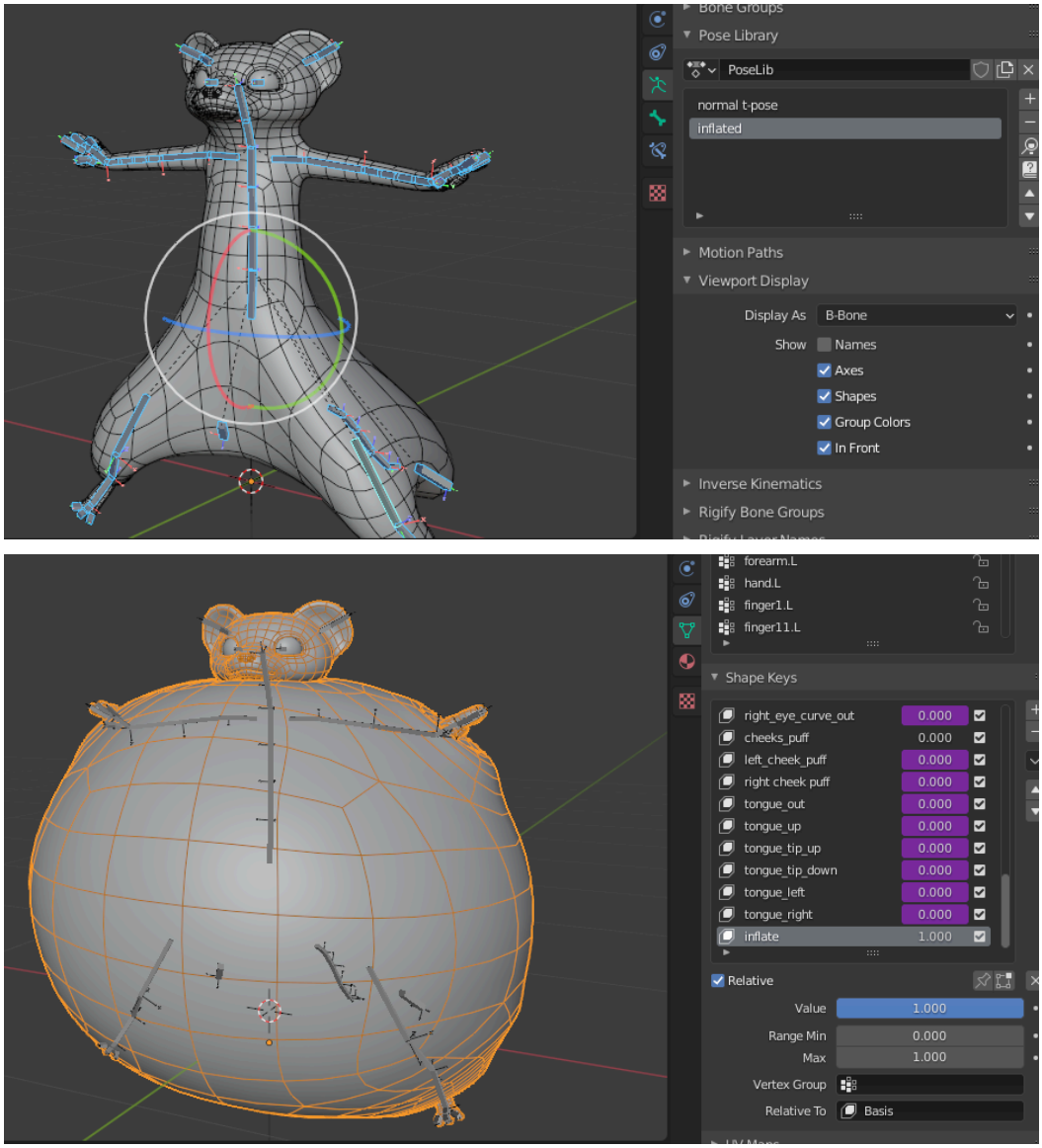
25. Select all the bones, Pose>Apply>“Apply Visual Transform to Pose”. Then go to Pose>Constraints>”Clear Pose Constraints”.



26. Add the pose to the library by clicking the plus, “Add New”. Name it.



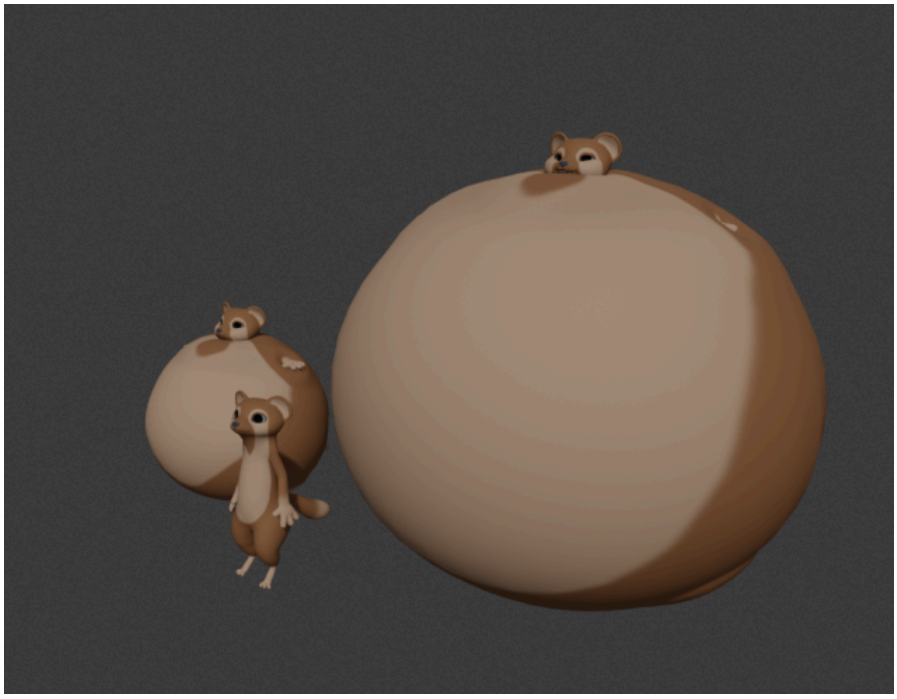
See that little magnifying glass button? If you select a pose and click it, the selected bones will snap to that pose. Let’s try using the inflated pose and setting our inflation shapekey to 1



VOILA! Your model has become spherical. You can keyframe the pose and shapekeys if you want to animate it.

If you know how to use drivers and constraints, you can make the transition process much easier to animate and control.

Go crazy! Try different shapes and sizes and experiment!



Hopefully this wasn’t too confusing, I’m not the best at explaining things. Feel free to ask me for my discord if you have any questions!