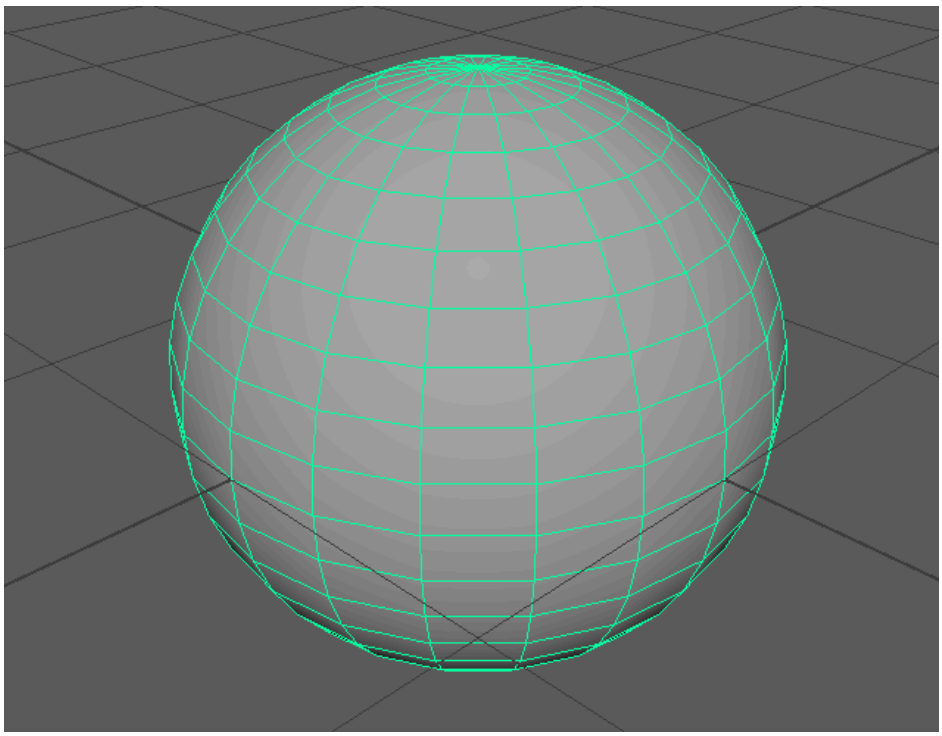
Cluster Deformer.

Is used to modify a selected area of a poly mesh:

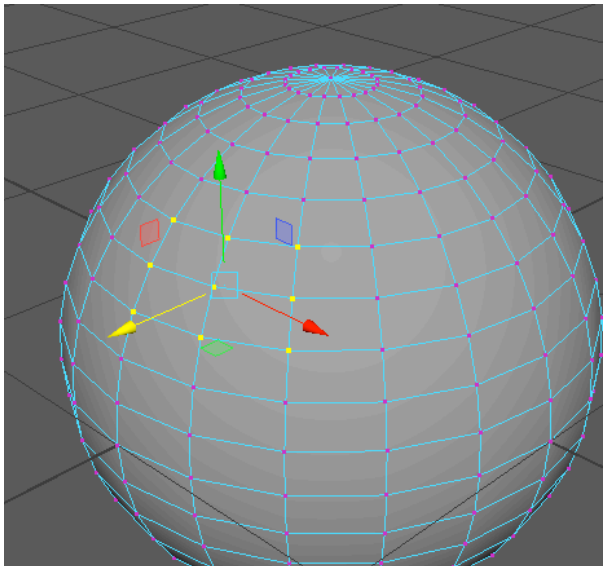
Try This:

Create a Poly sphere



Poly sphere

Select some vertices on the surface:



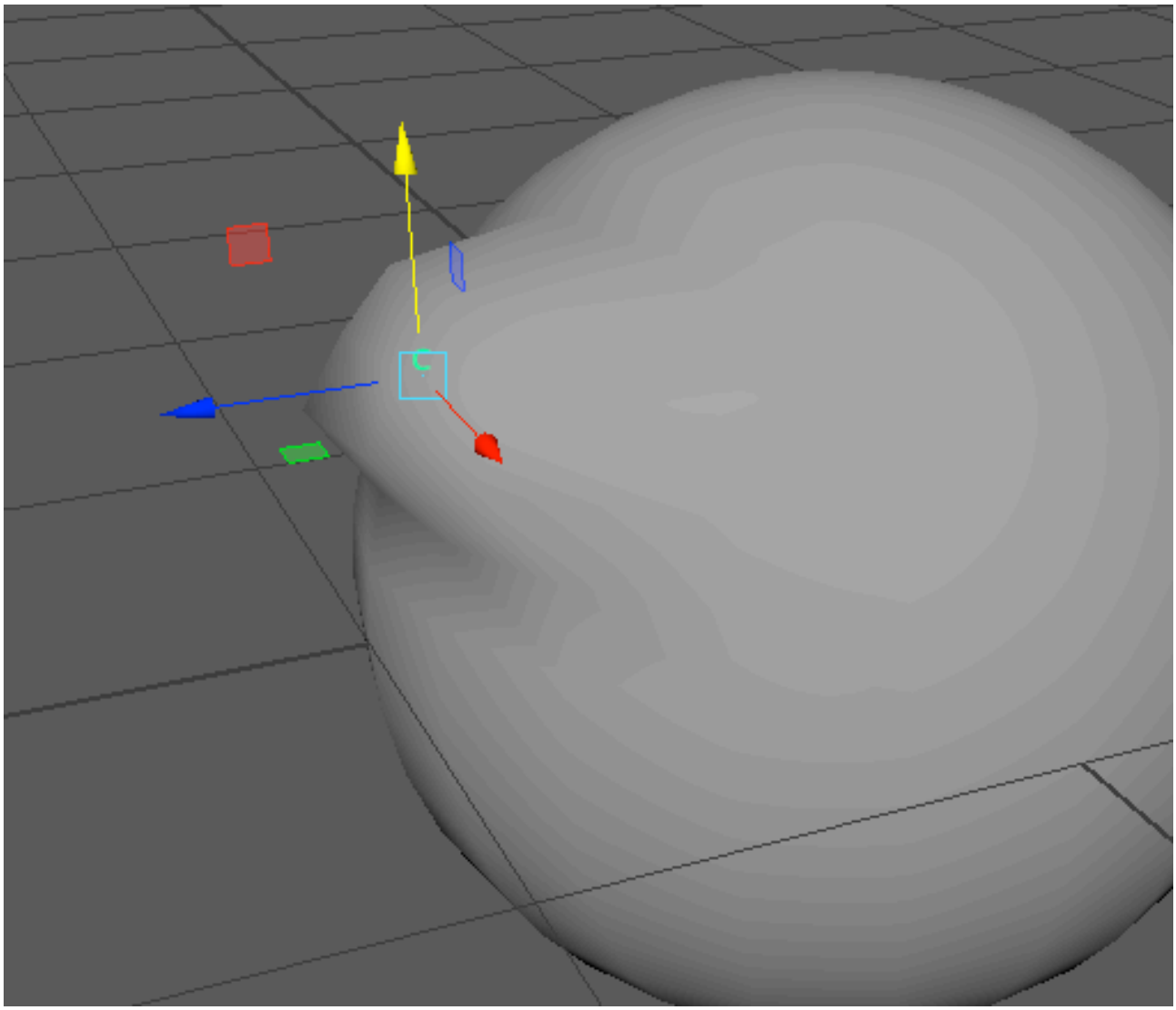
Vertices selected

Choose

Deform > Cluster

You get a small cluster handle make with a C

Use this to deform the object.

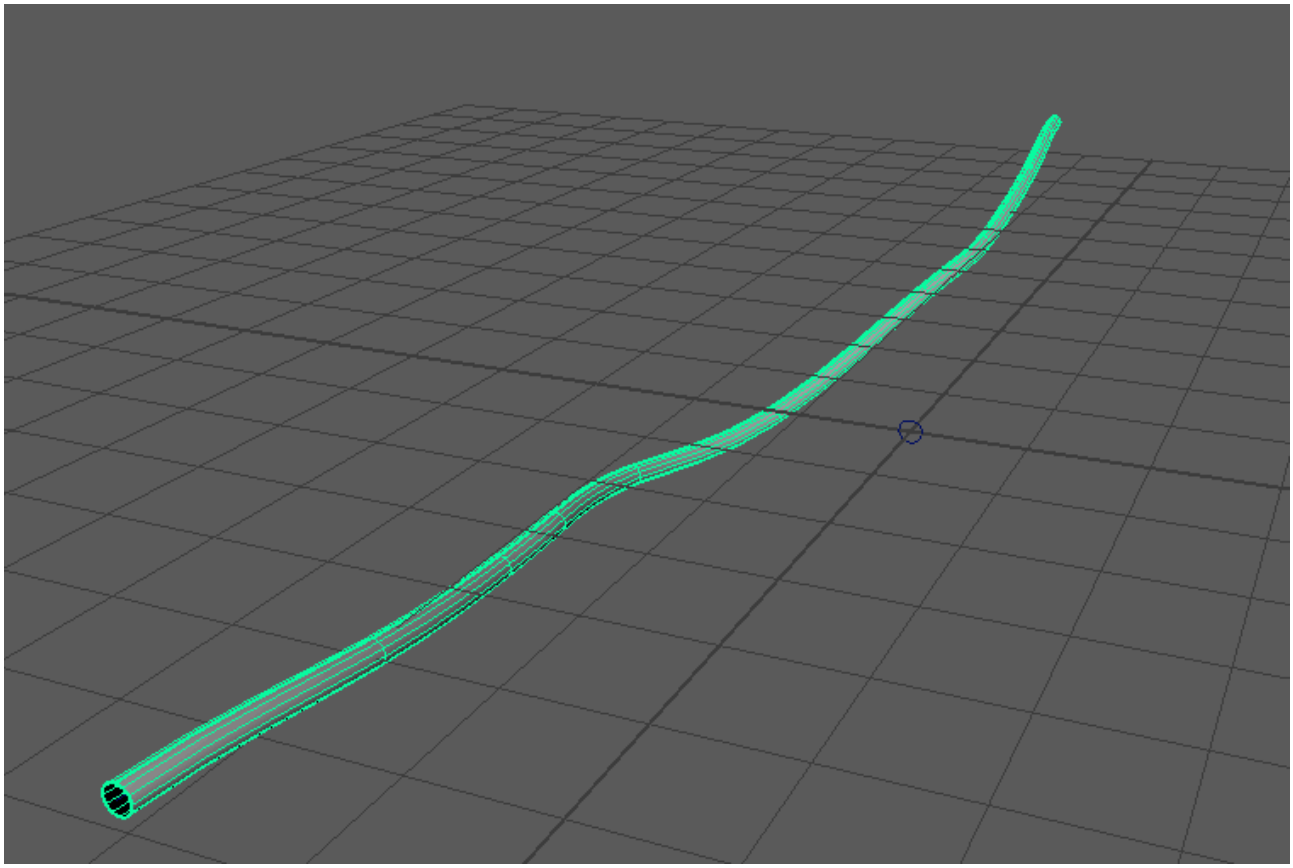


Cluster used to deform sphere

Another great use for clusters is as a marker to snap to:

Open up *NurbsCable.ma*

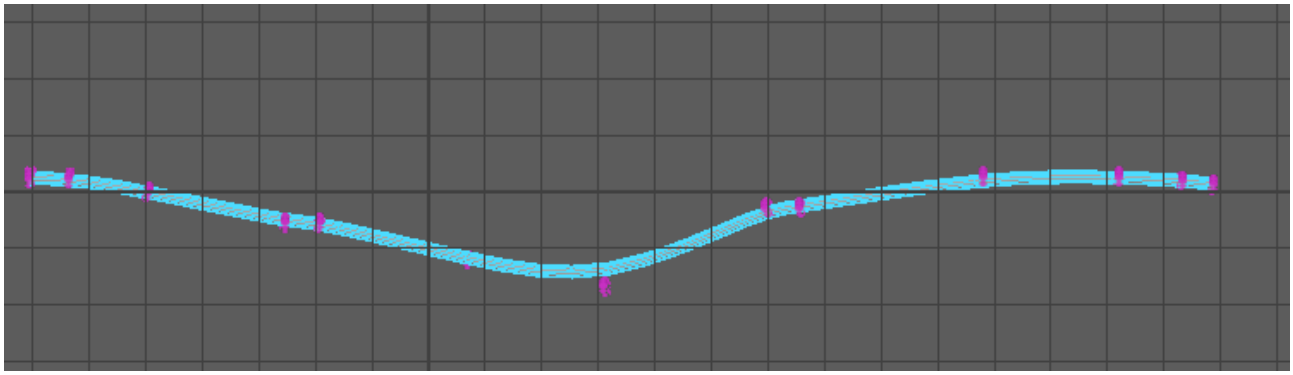
This is a wavy CV curve that has had a nurbs circle extruded along its length.



Nurbs Cable

Suppose we want to draw a joint chain inside the cable:

RMB and choose Control Vertex:

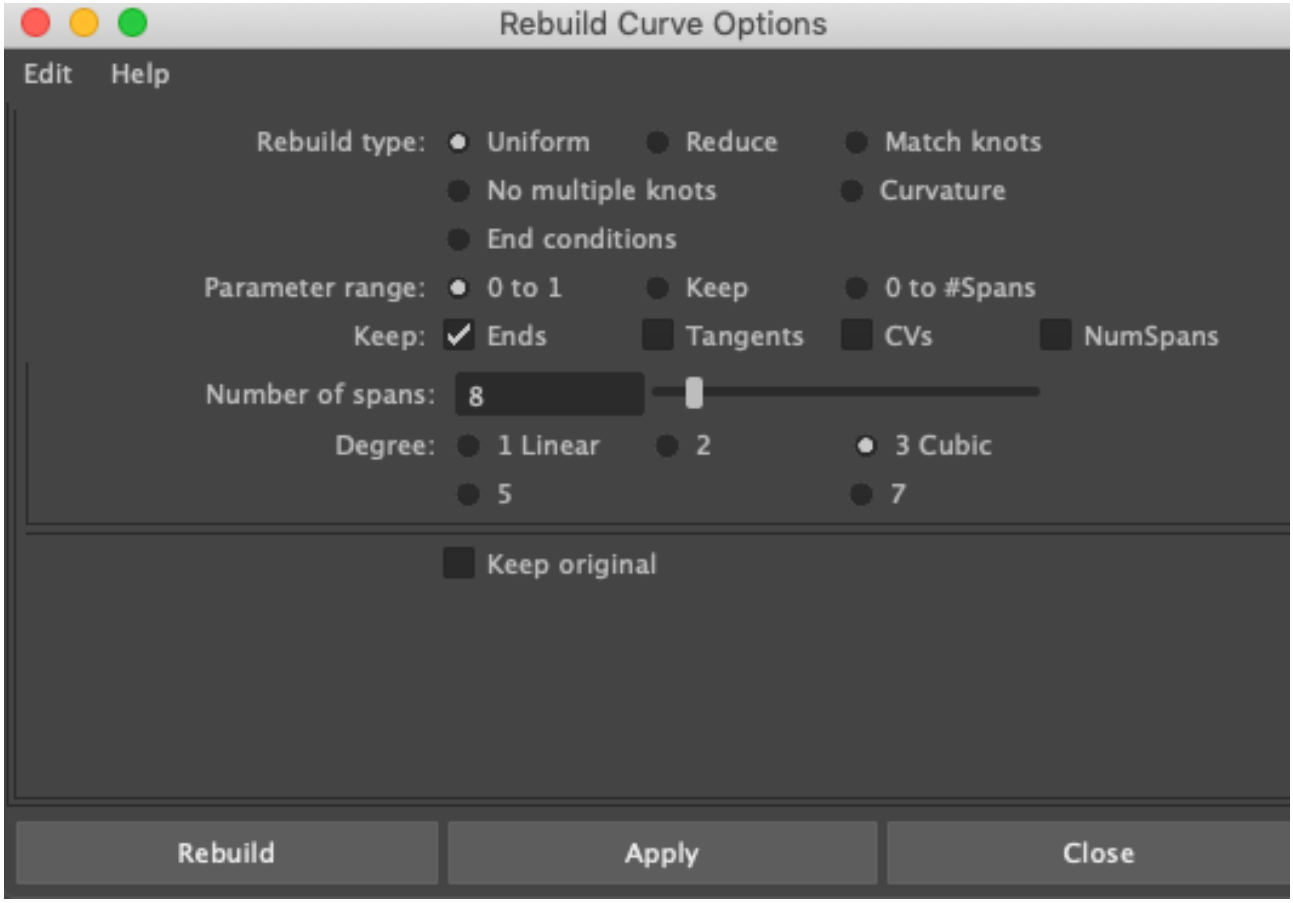


Control Vertices

Its CVs are a bit uneven so

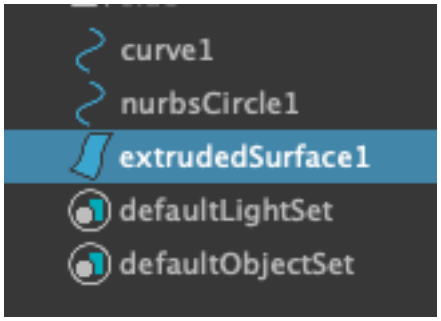
Select the curve and choose

Curves > Rebuild > (Options)



Rebuild options

Set the number of spans to 8 and press rebuild



Delete history

Now Delete the cable's (extruded surface1) history and then delete the curve and circle.

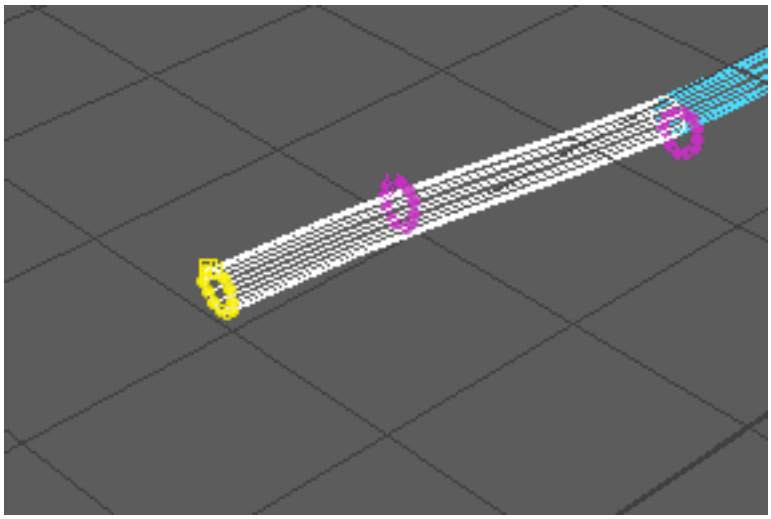
Try Drawing a joint chain inside the cable:

Use snap to point (hold down V)

You will find it near impossible as you cannot see the CVs to snap to

We can snap a cluster to each set of CVs :

Select the first set of cv's in the cable:



CVs selected

Choose ***Deform > Cluster***

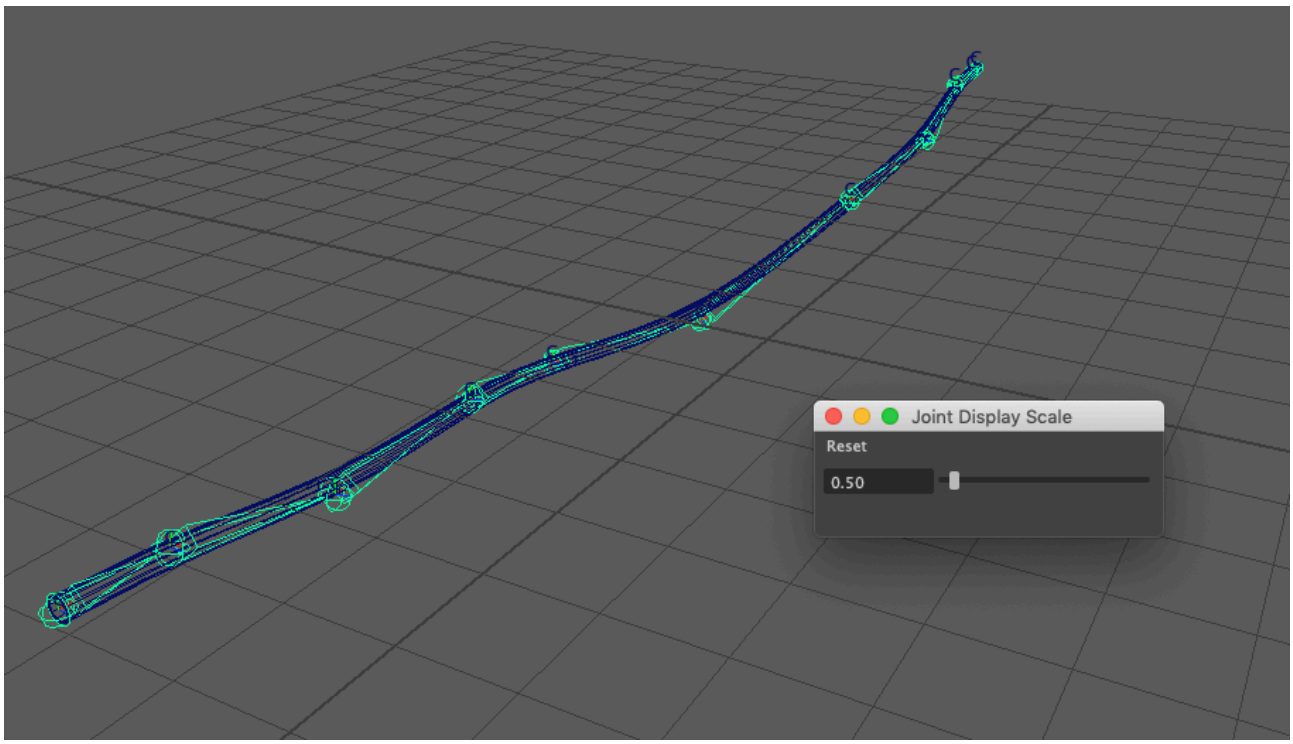
Now place a cluster on every set of CV's

Use the G hotkey to speed up the process.

(This stage is saved as **NurbsCableWithClusters.ma*)***

Now its a simple thing to snap a joint to each of the clusters:

(Hold down V too snap to point)

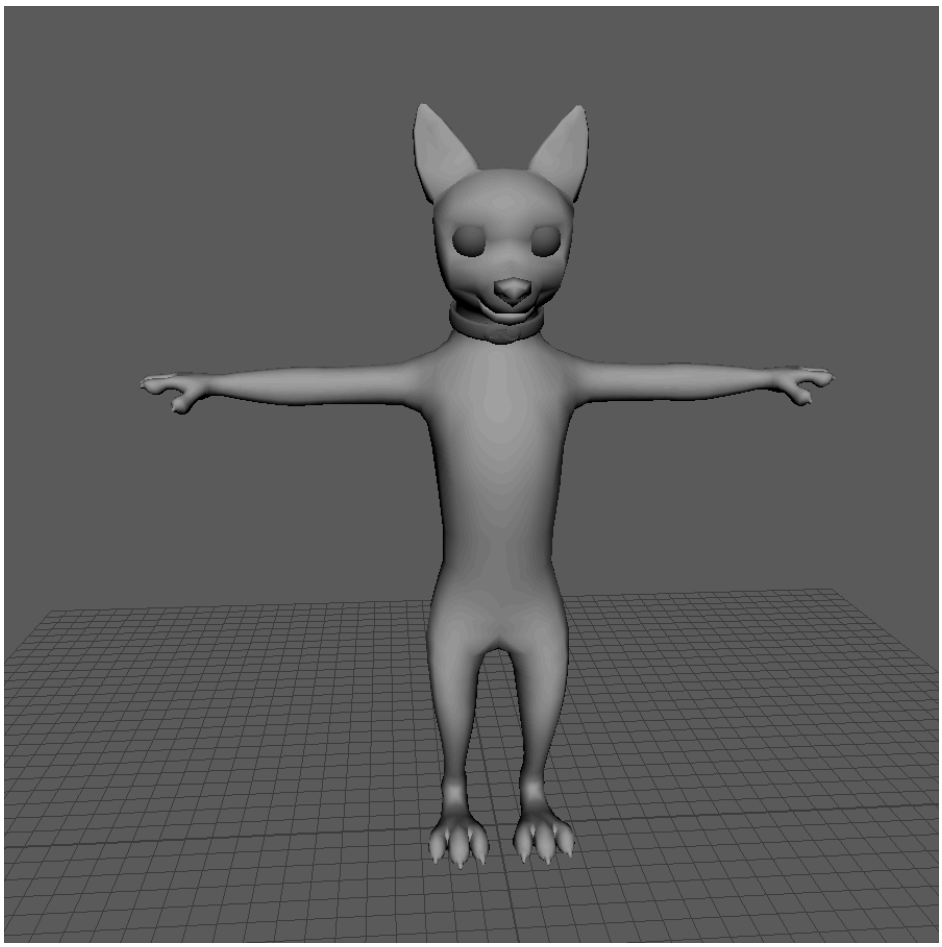

Joint Display Scale
Reset
0.50

Lattice Deformer.

You may have noticed that deformers work on both Polys and Nurbs objects, here are examples of their uses on both types of object.

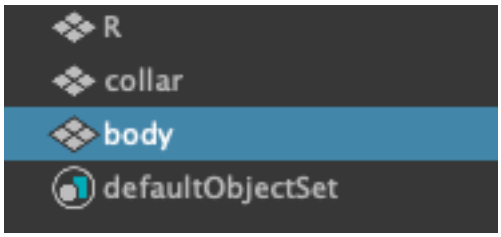
Polys: lattice deformers are great when used in the modelling workflow, you can adjust proportions easily for example.

Open up the scene ***CharacterLattice.ma***



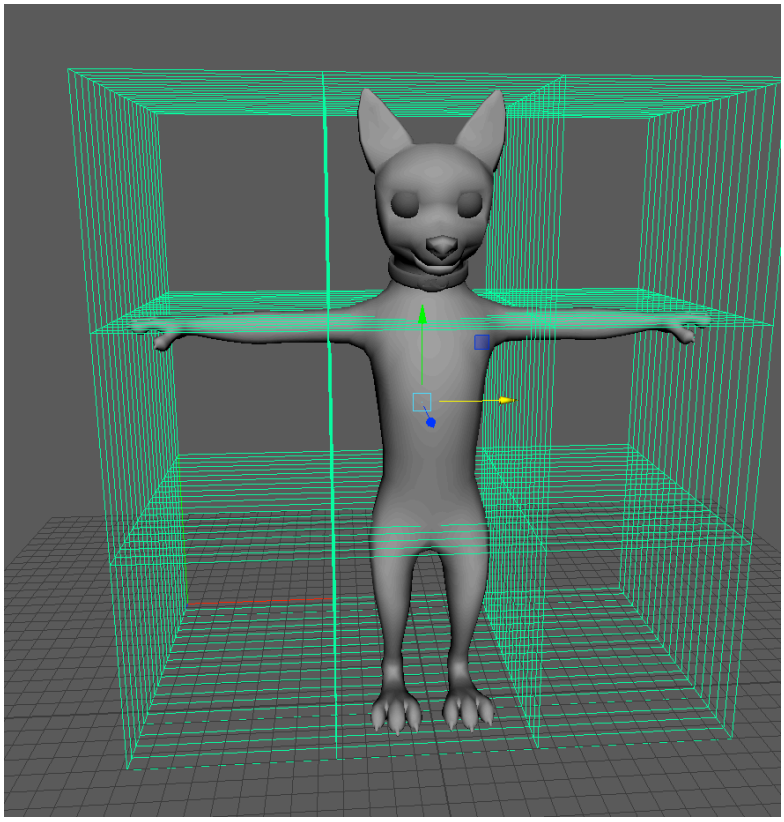
Character Lattice

Select the main body geometry:



Body Geometry selected

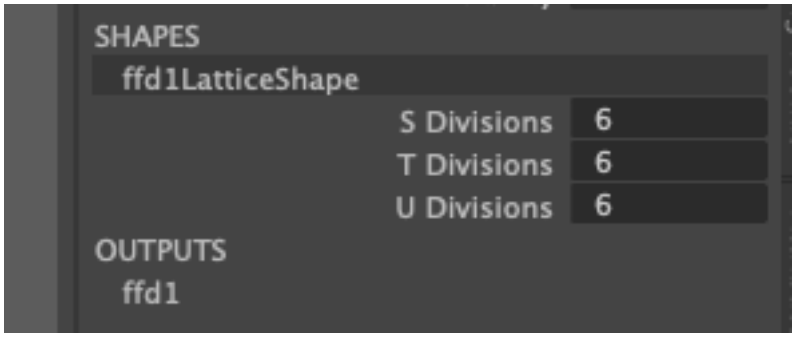
And apply a lattice:



Lattice applied.

In the Channel box lattice node (ffd1LatticeShape)

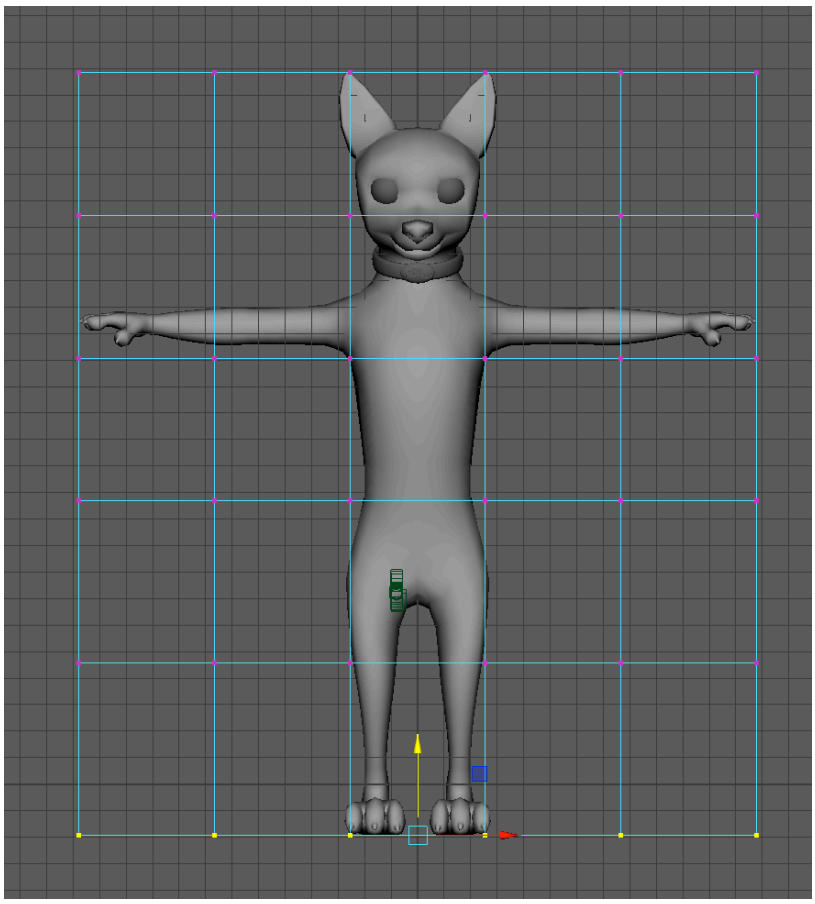
set the divisions to something like 6 x 6 x 6



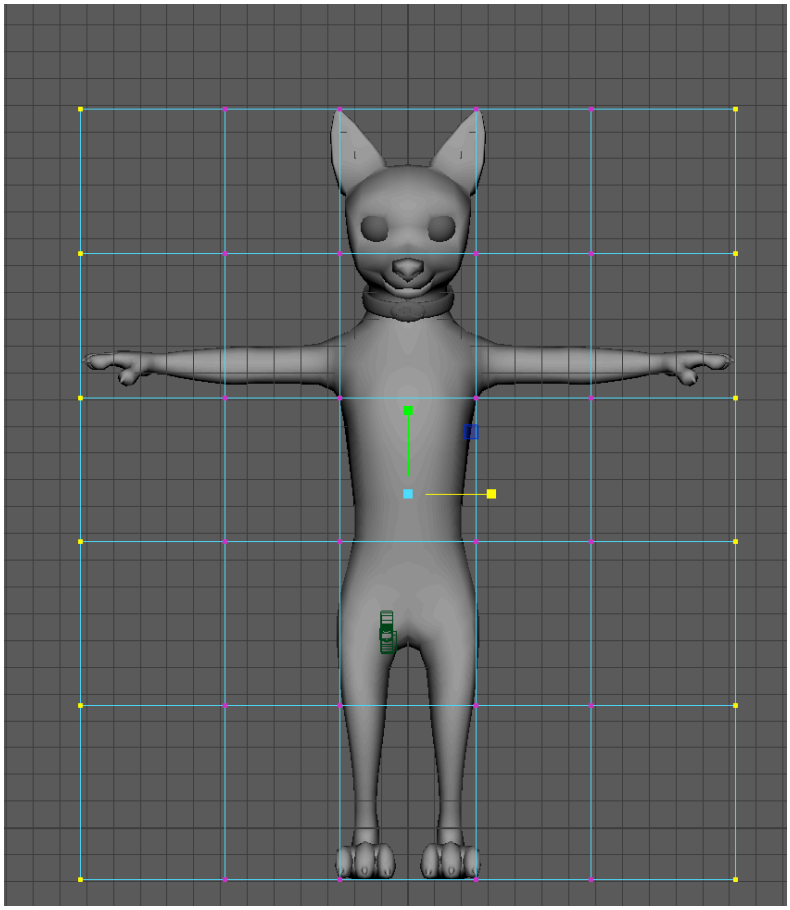
Divisions 6x6x6

Now RMB on the lattice and choose lattice point.

Use the points to change the proportions:



Longer legs



Shorter arms

History

Remember to ***delete the history of the geometry*** within the lattice to make the changes permanent.

Animating Using Deformers.

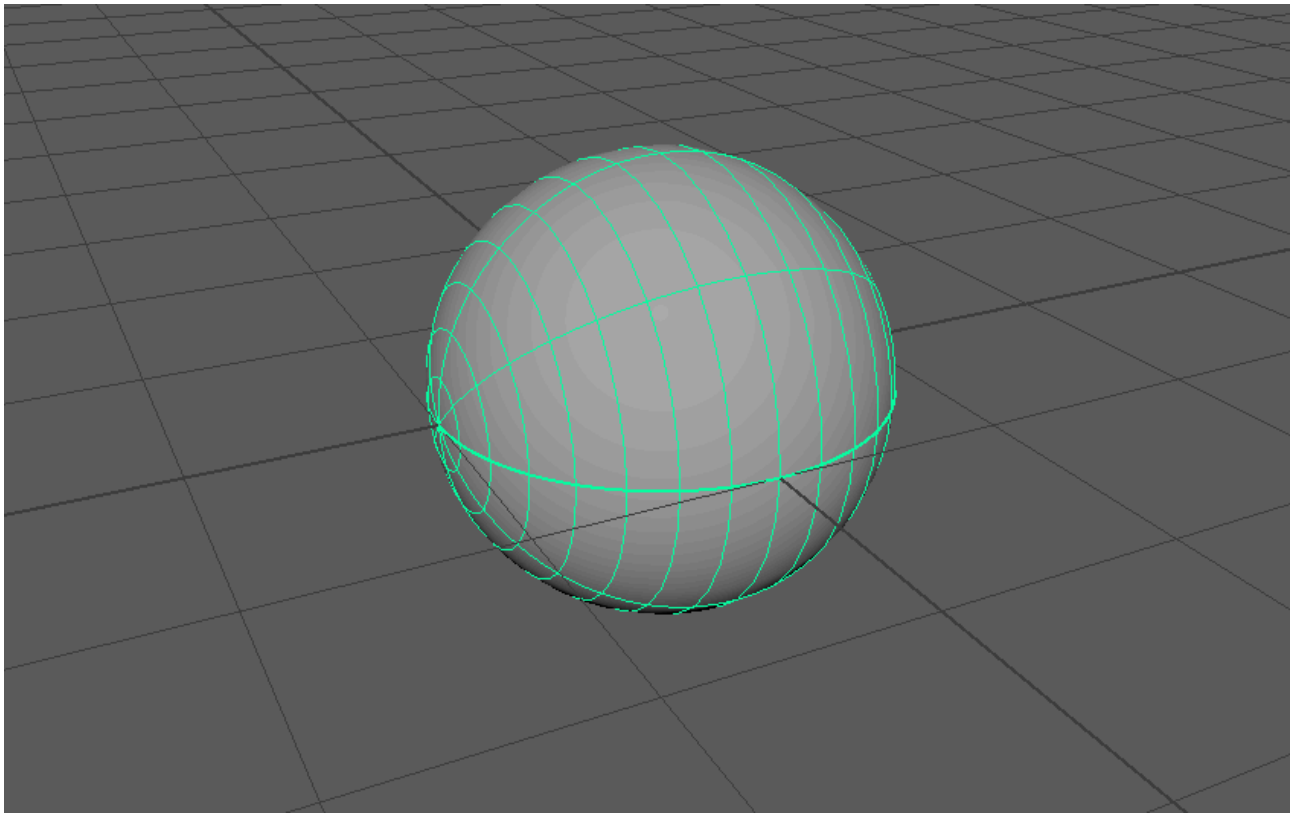
Deformers work on Nurbs too:

Lattice Deformers can also be used to get some nice animations too:

Try This:

Create > NURBS Primitives > Sphere (options),

set the **Sections to 8** and **Spans to 16** and **Z axis** then **click *create*** to make the sphere.



sphere

You get a nurbs sphere with its poles pointing down the z

Now Also make a **Nurbs Cylinder**

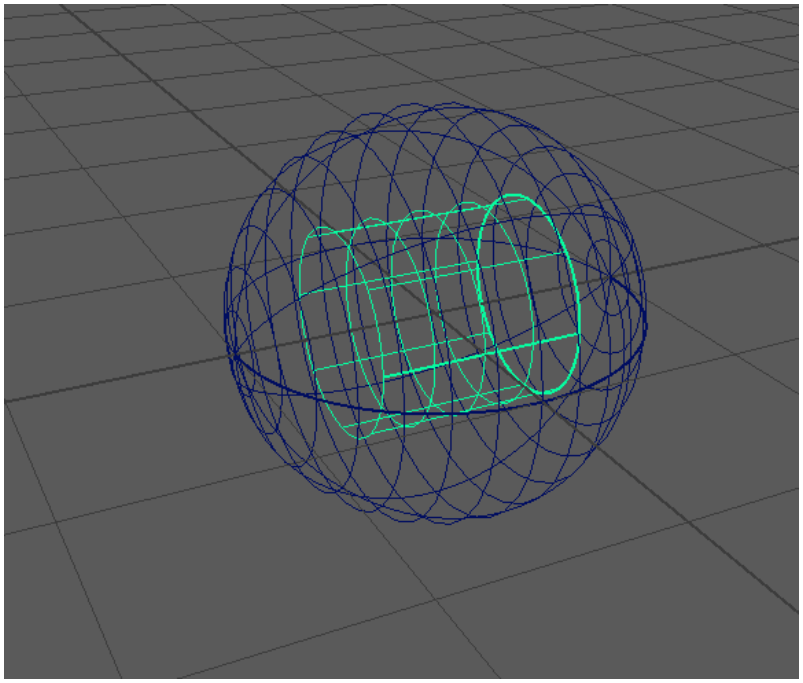
On the z

Caps None

Radius 0.5

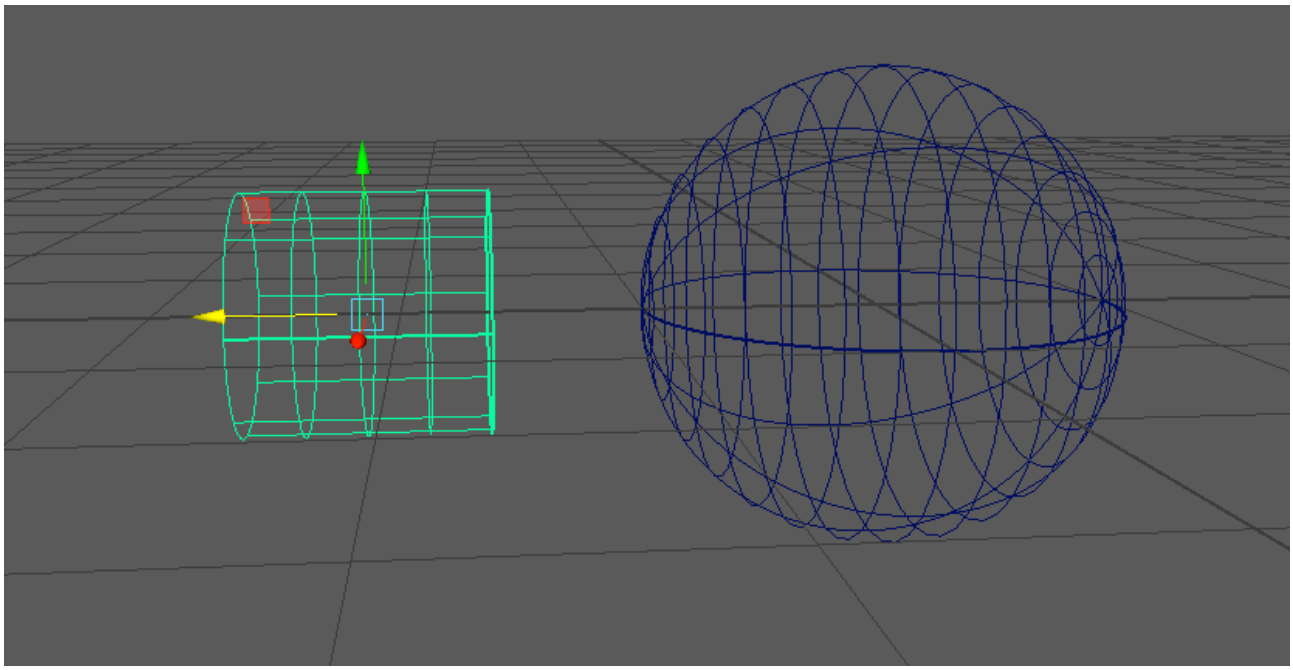
Height 1

Sections 8
Spans 4



cylinder and sphere

Move the cylinder and sphere so they are a little way apart on the z:

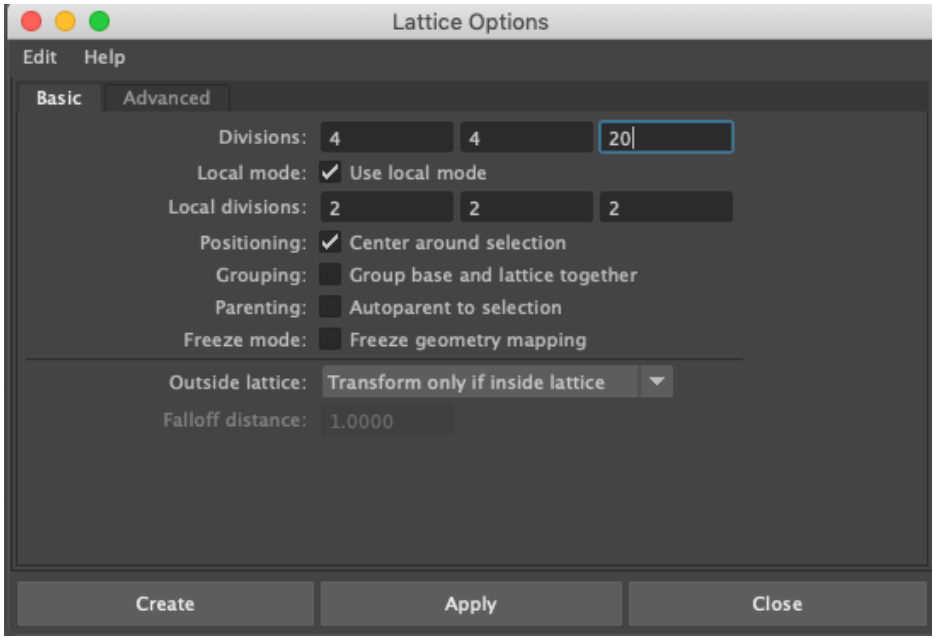


move the cylinder and sphere

We are going to squeeze the sphere through the cylinder, so we need a lattice on the sphere;

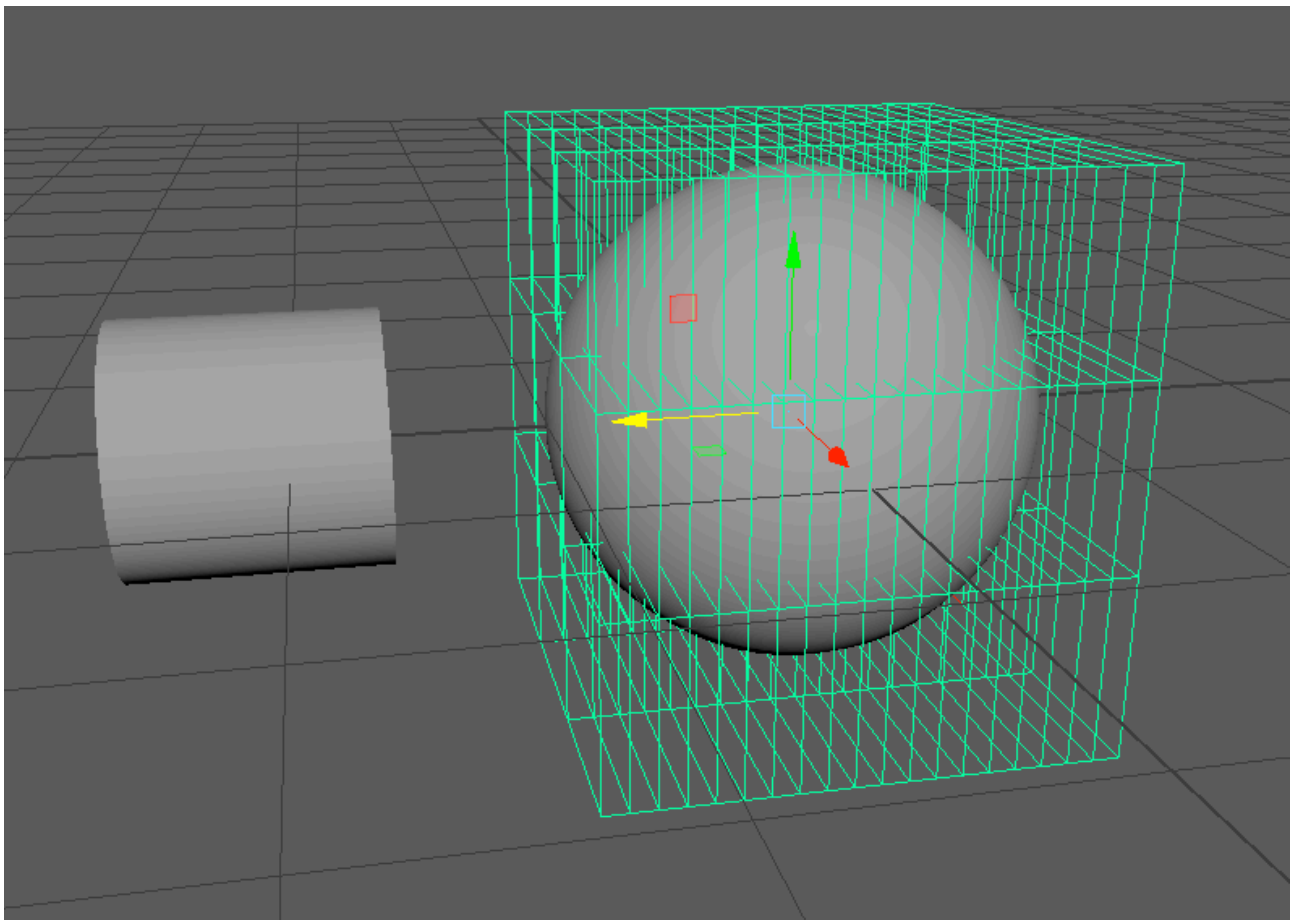
Select the sphere and apply a lattice to it

Choose **Deform > lattice (options)**
Set the divisions to 4 4 20



divisions

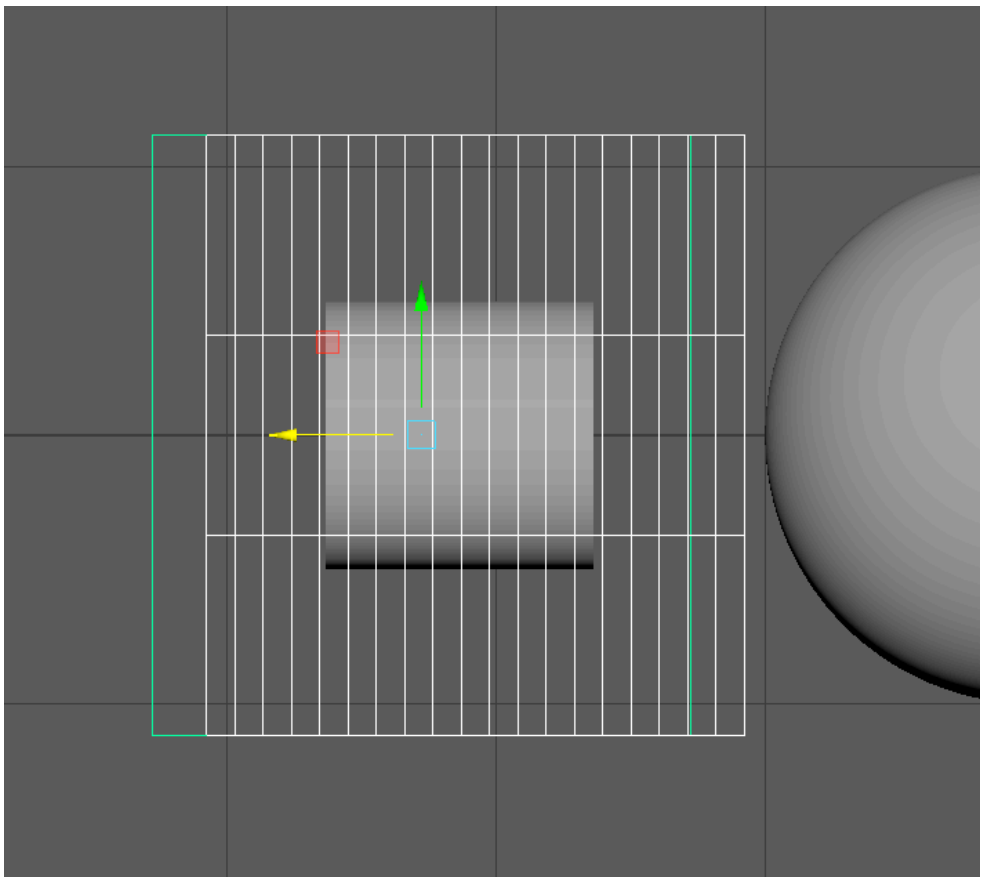
The more divisions you set the smoother the deformation.



Lattice Deformer on sphere

Now select the lattice (both the ffd1Lattice and ffd1Base nodes) and translate it to the cylinder:

Use these view to centre the lattice on the cylinder.

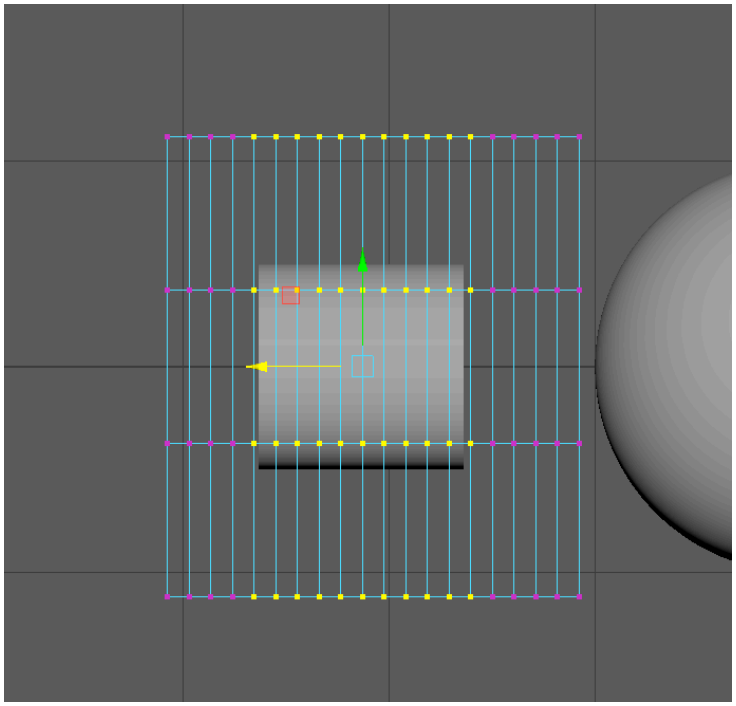


Lattice nodes translated to cylinder

Now **RMB** on the lattice and choose

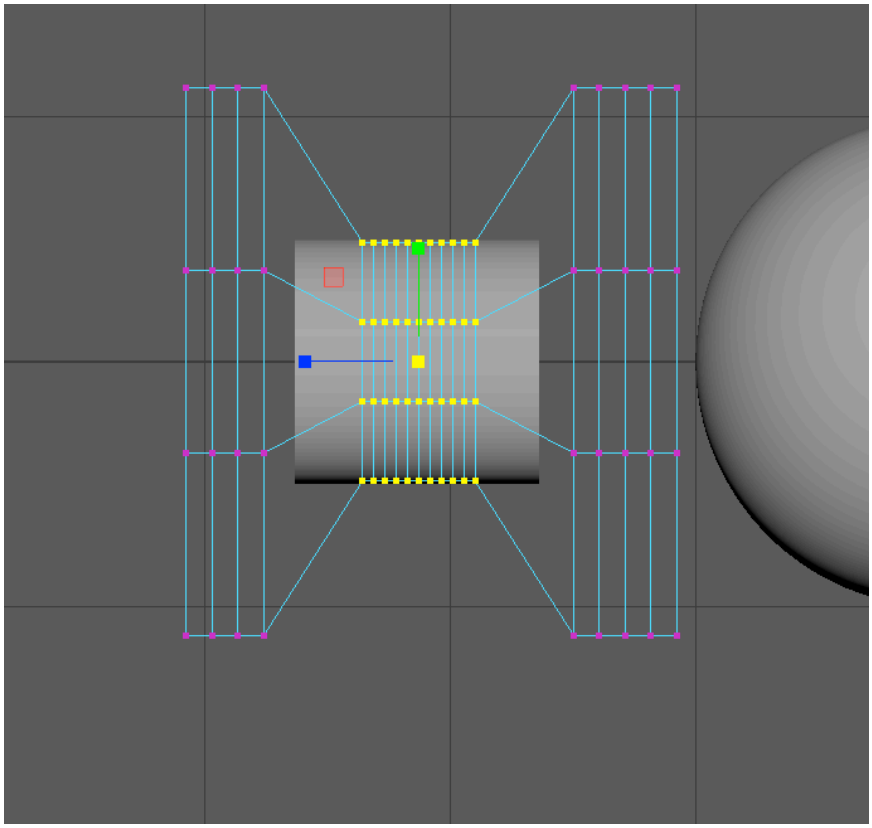
Lattice point.

Select the centre region of the points covering the cylinder:



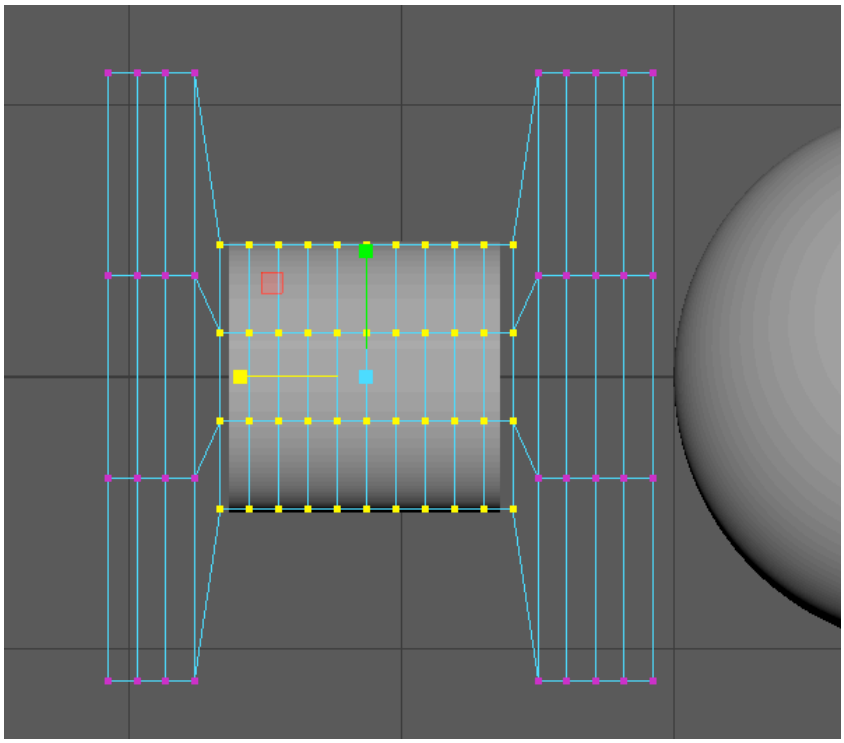
Selected points

Scale the lattice points to match the cylinder like this



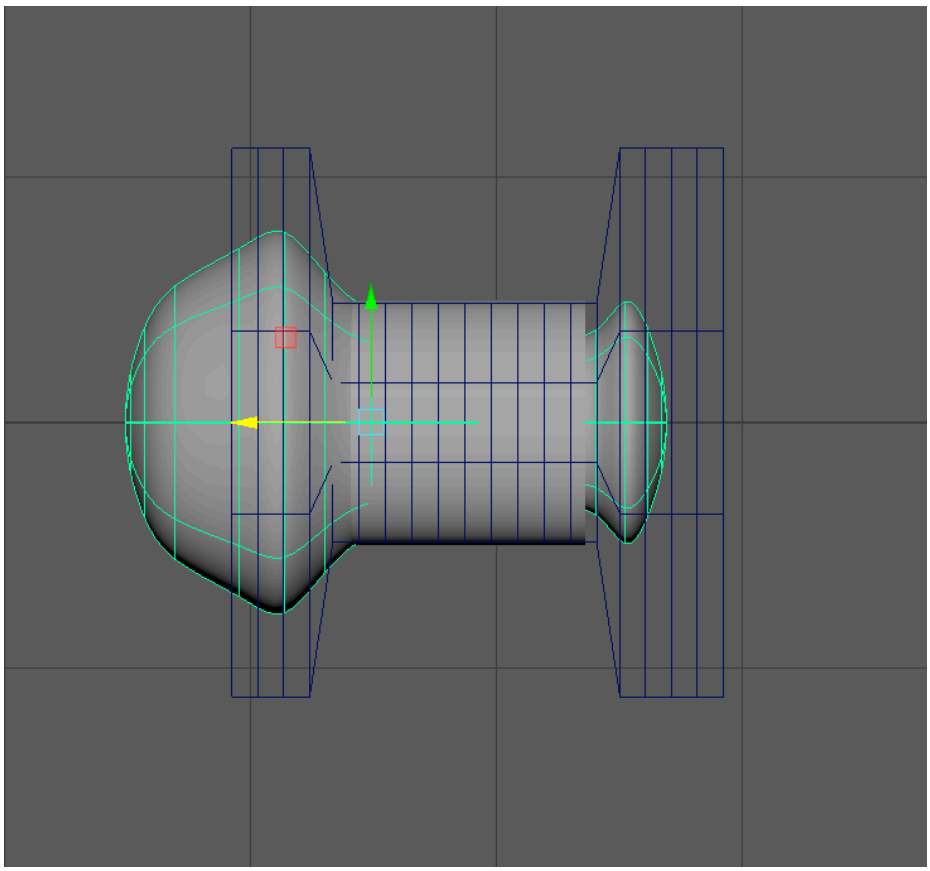
Points scaled

Adjust the scale like this:



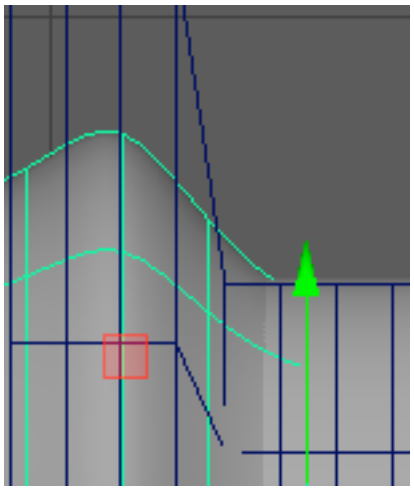
Points scaled and adjusted

Now select the sphere and move it through the lattice:



Sphere translated through the cylinder

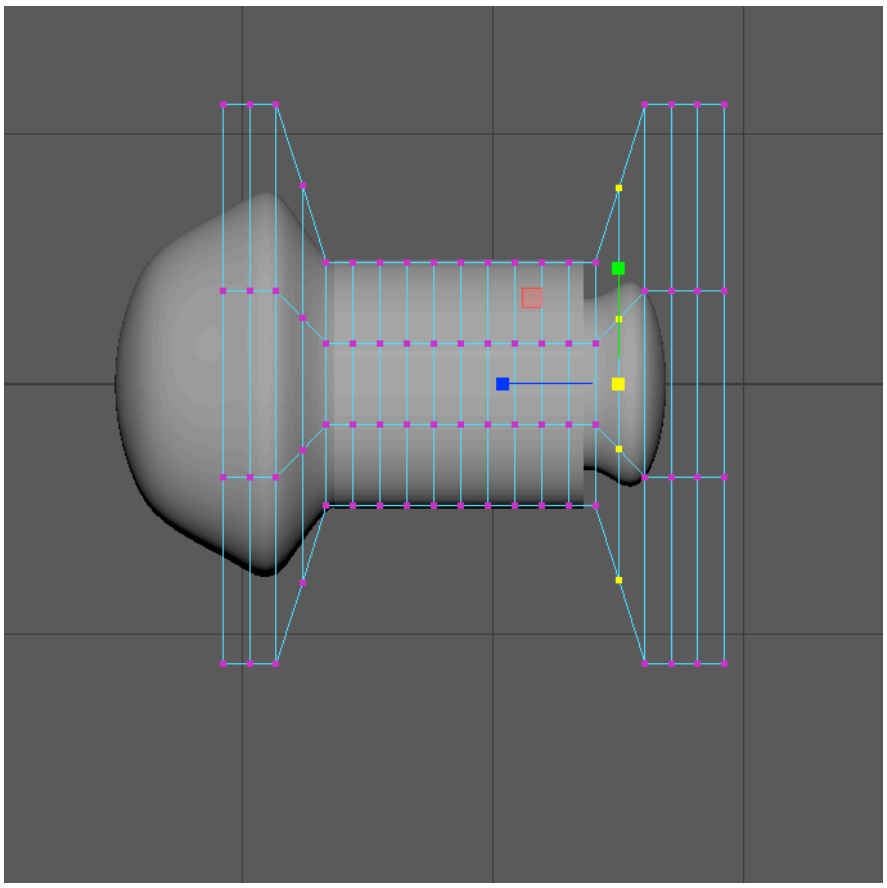
You may notice that the deformations aren't quite right at the mouth of the cylinder:



mouth area

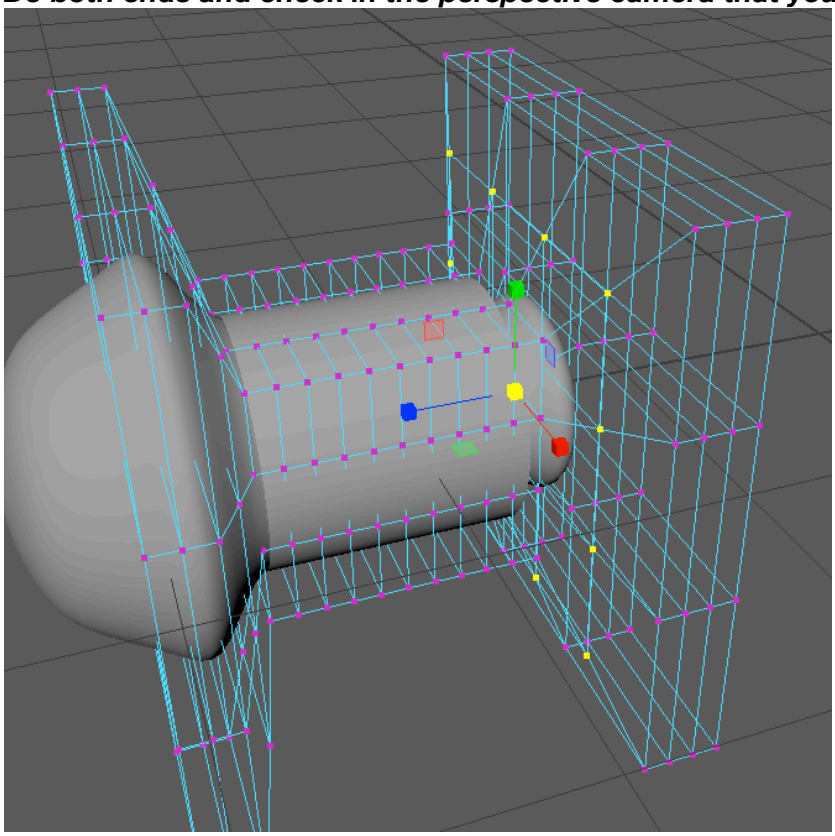
This is because of the large step change in the lattice,

adjust the two lattice lines t***o make an intermediate stage to the lattice like this:***

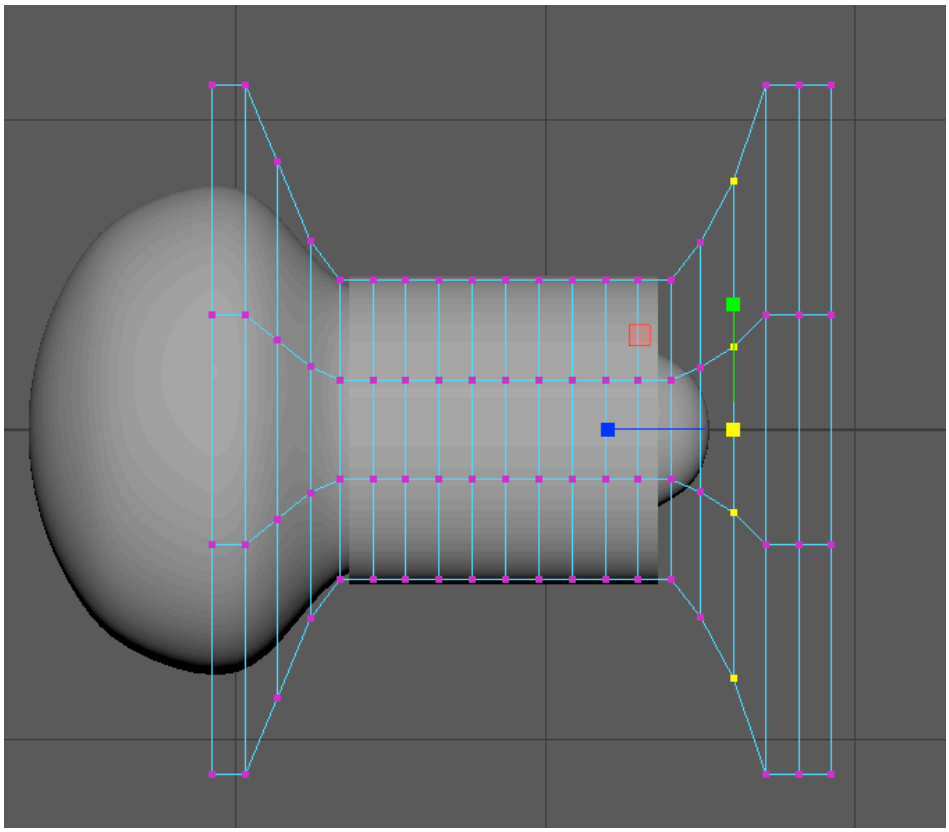


points adjusted

Do both ends and check in the perspective camera that you have scaled correctly:



Check persp view



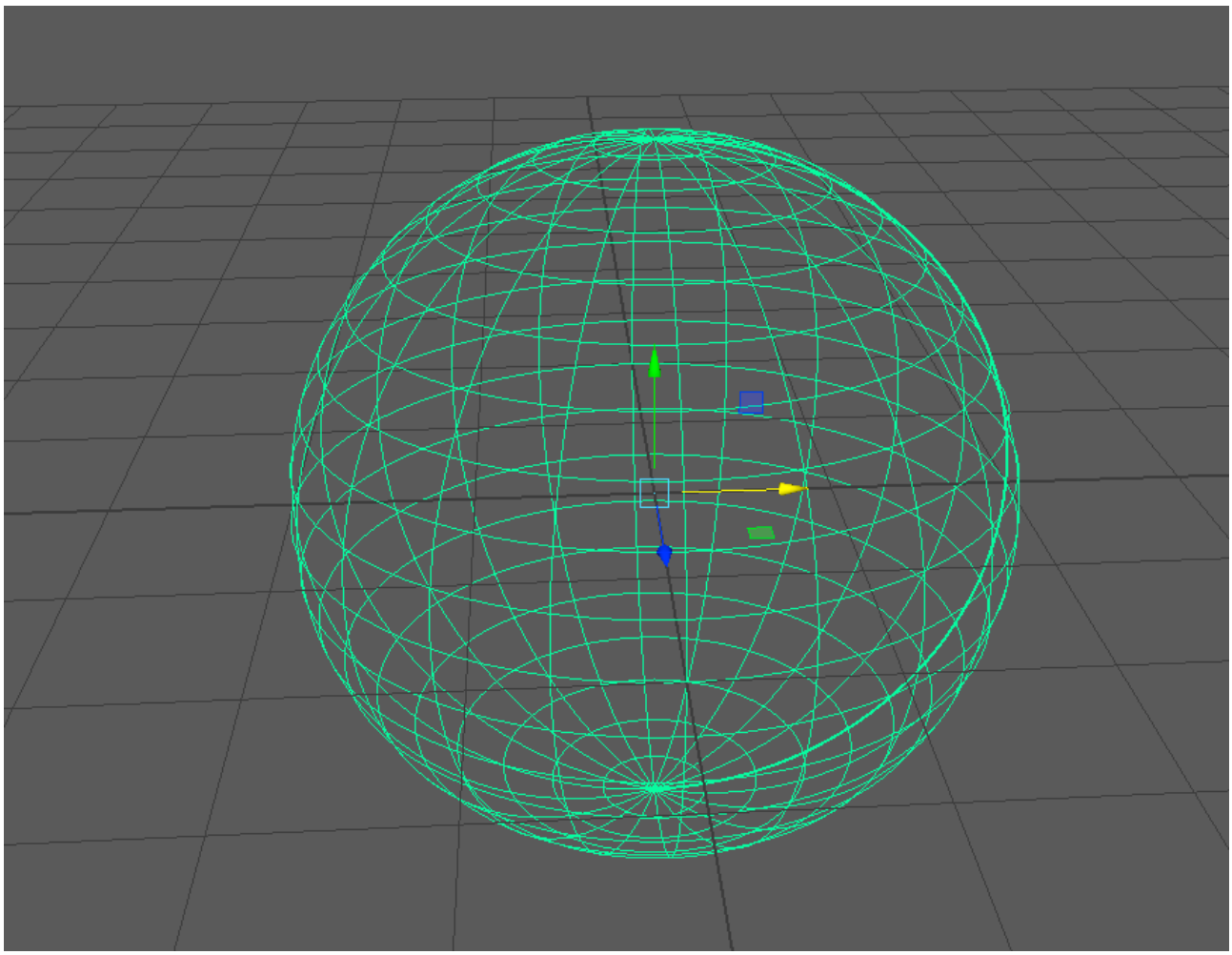
Funnel shape

Try making more of a funnel shape to the lattice at either end by scaling more than one set of edges/lattice points.

Wrinkle deformer

This one's a bit tricky but is worth sticking with it.

Make a nurbs sphere.



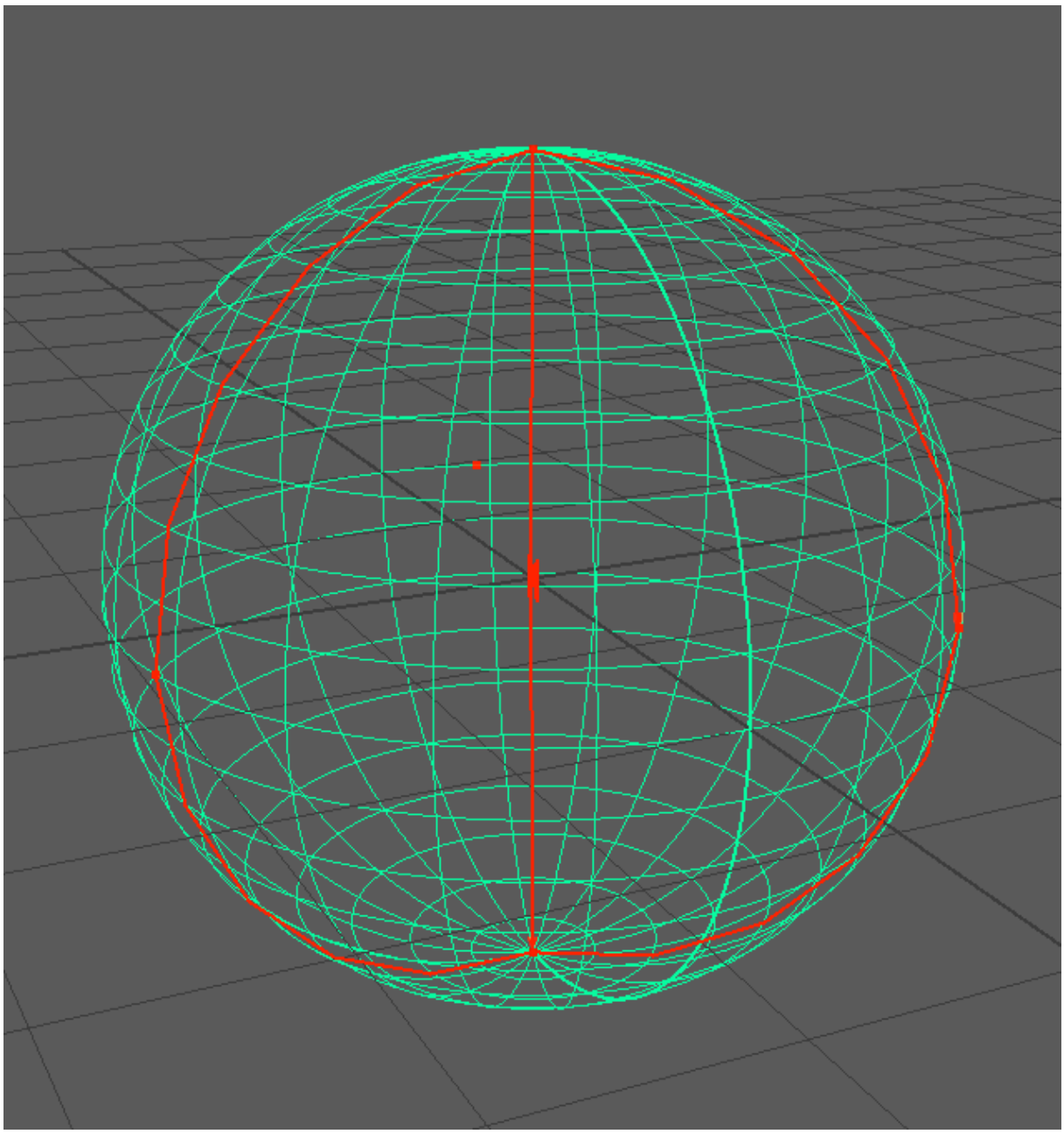
nurbs sphere

Apply a wrinkle deformer

This time, Choose the rigging menu set (yes they are in there too!)

Choose **Deform > Wrinkle**

You get a UV patch area on the surface



UV patch area

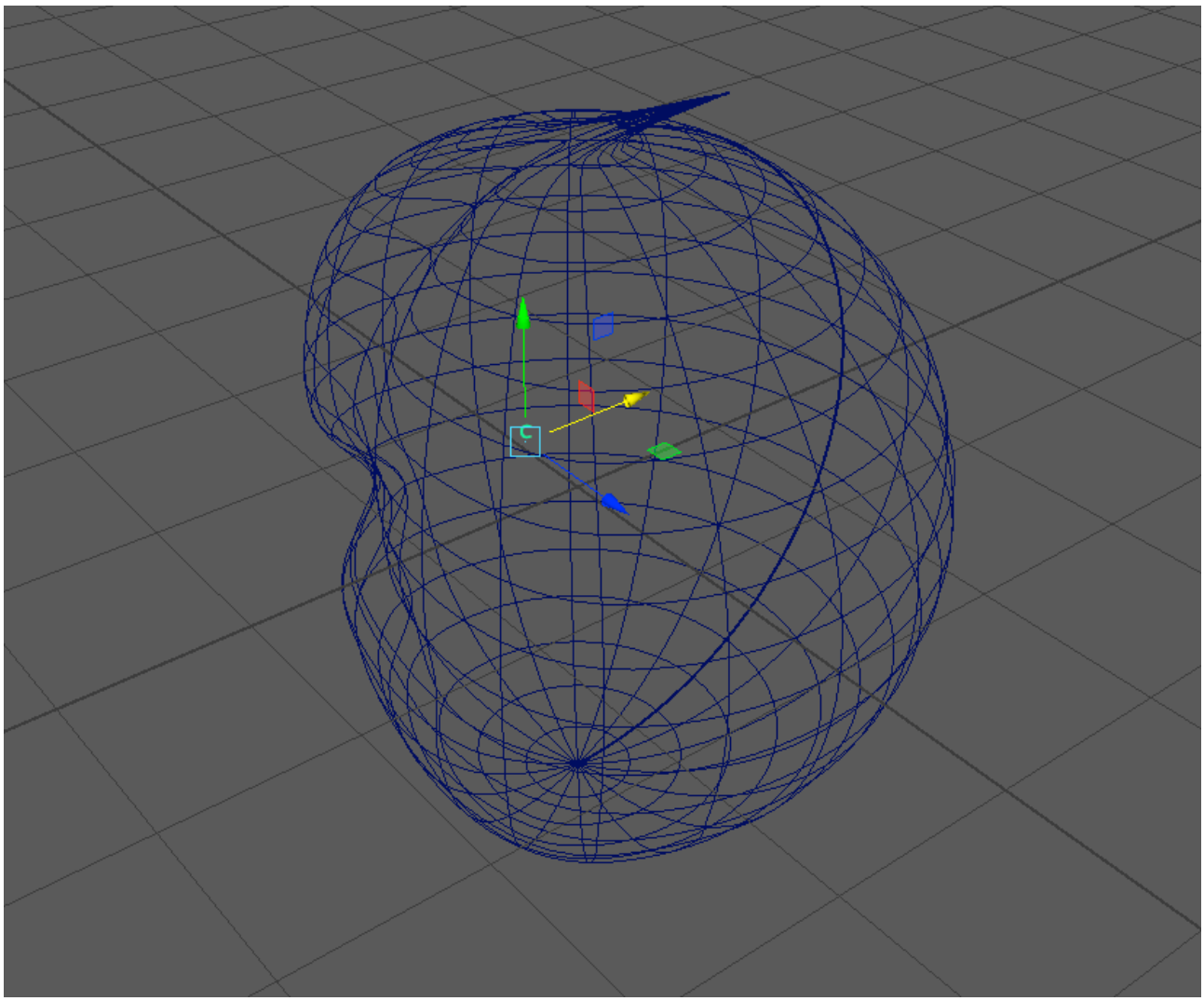
MMB drag the edges of the area to set the shape of the patch

Now press ***return***

You'll see a little C appear

This is a cluster deferrer which works on the area previously set

Move the cluster to see the deformation



Wrinkle deformer result