

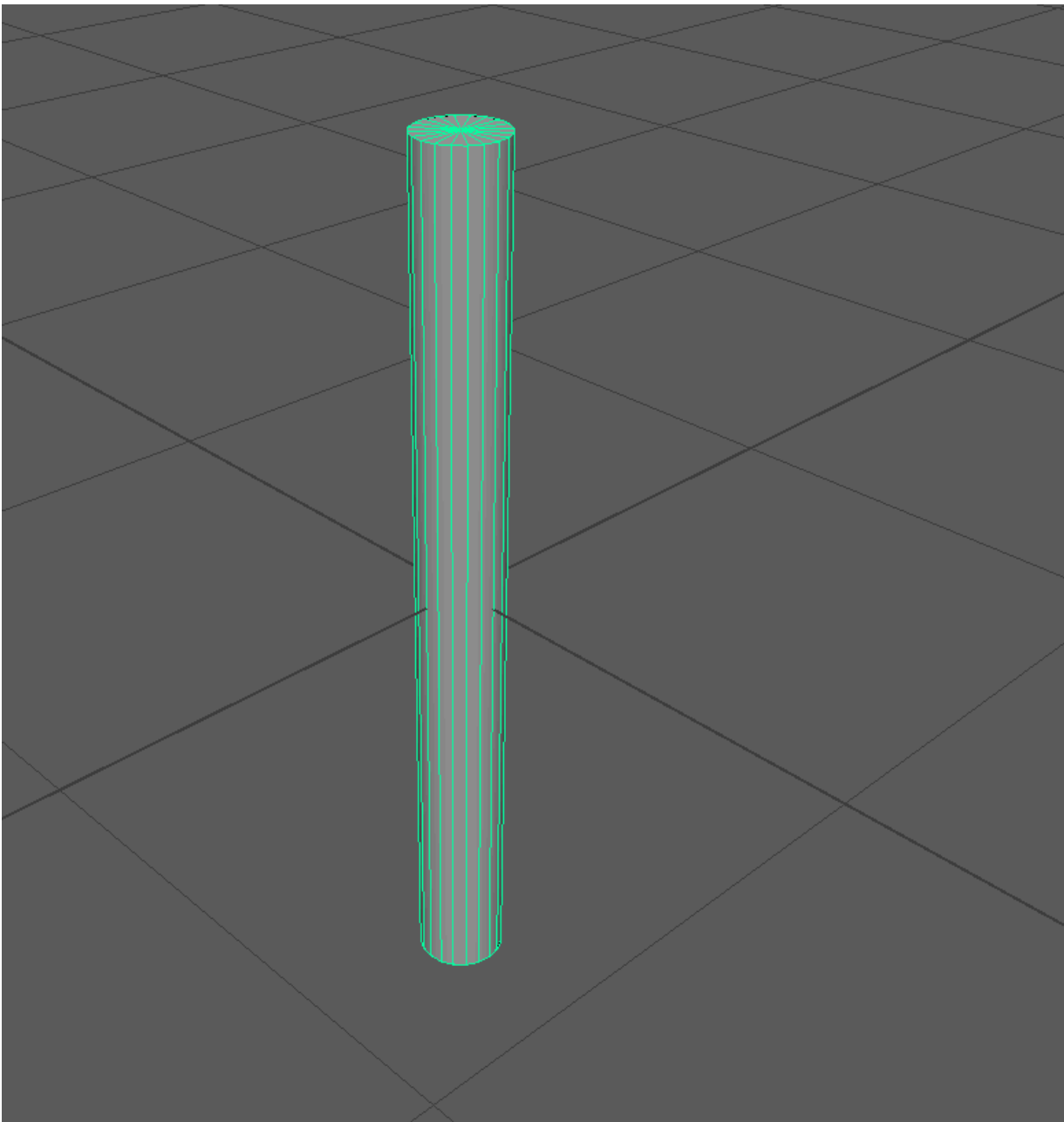
Non Linear Deformers.

Again these are super useful for both modelling and animation, but can also be used in the rigging process, such as blendshapes wiggle or wrinkle deformers.

Bend Deformer

Example, follow this:

Make a poly Cylinder which is 20 high on the Y axis (use the options menu)



Poly cylinder

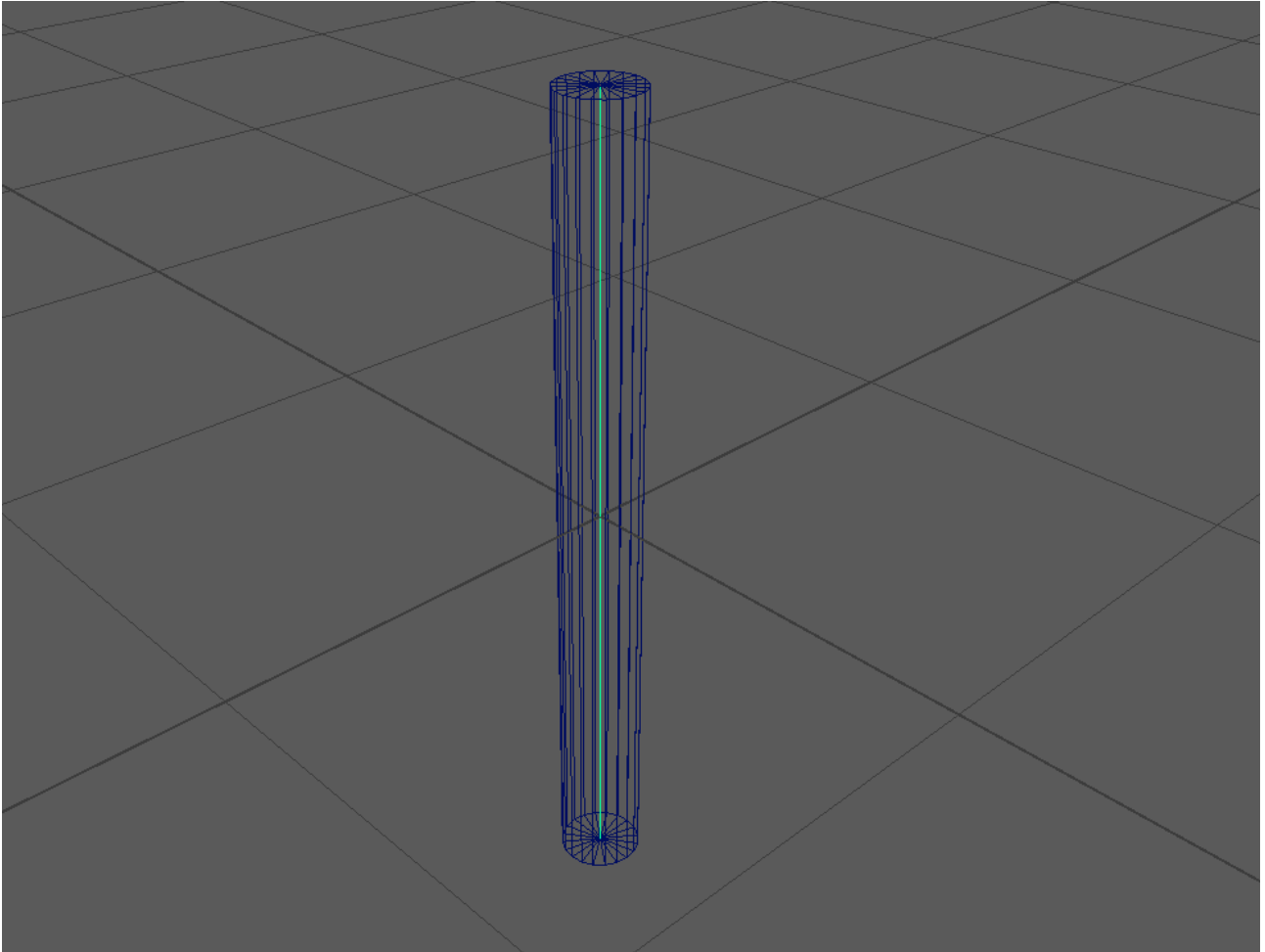
Now with it selected apply a bend deformer:

In either **Modelling** or **Animation** menu set choose:

Deform > Non Linear > Bend

The bend deformer appears as anode on the cylinder object.

Its also there inside the object - go to wireframe to see:

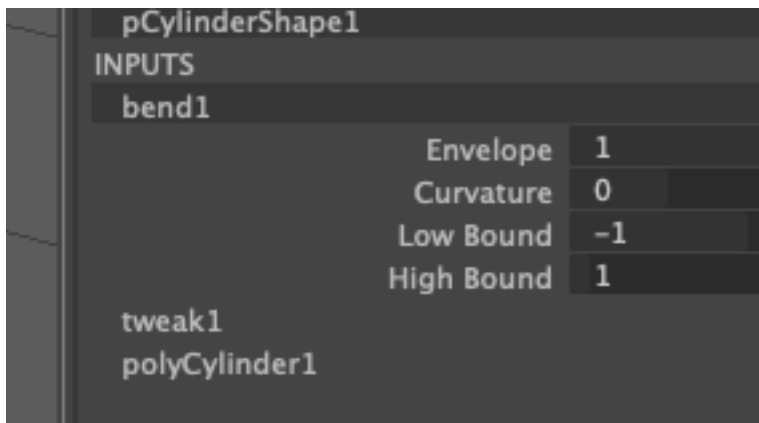


Bend1Handle selected in wireframe mode.

Try adjusting the bend

Select the cylinder,

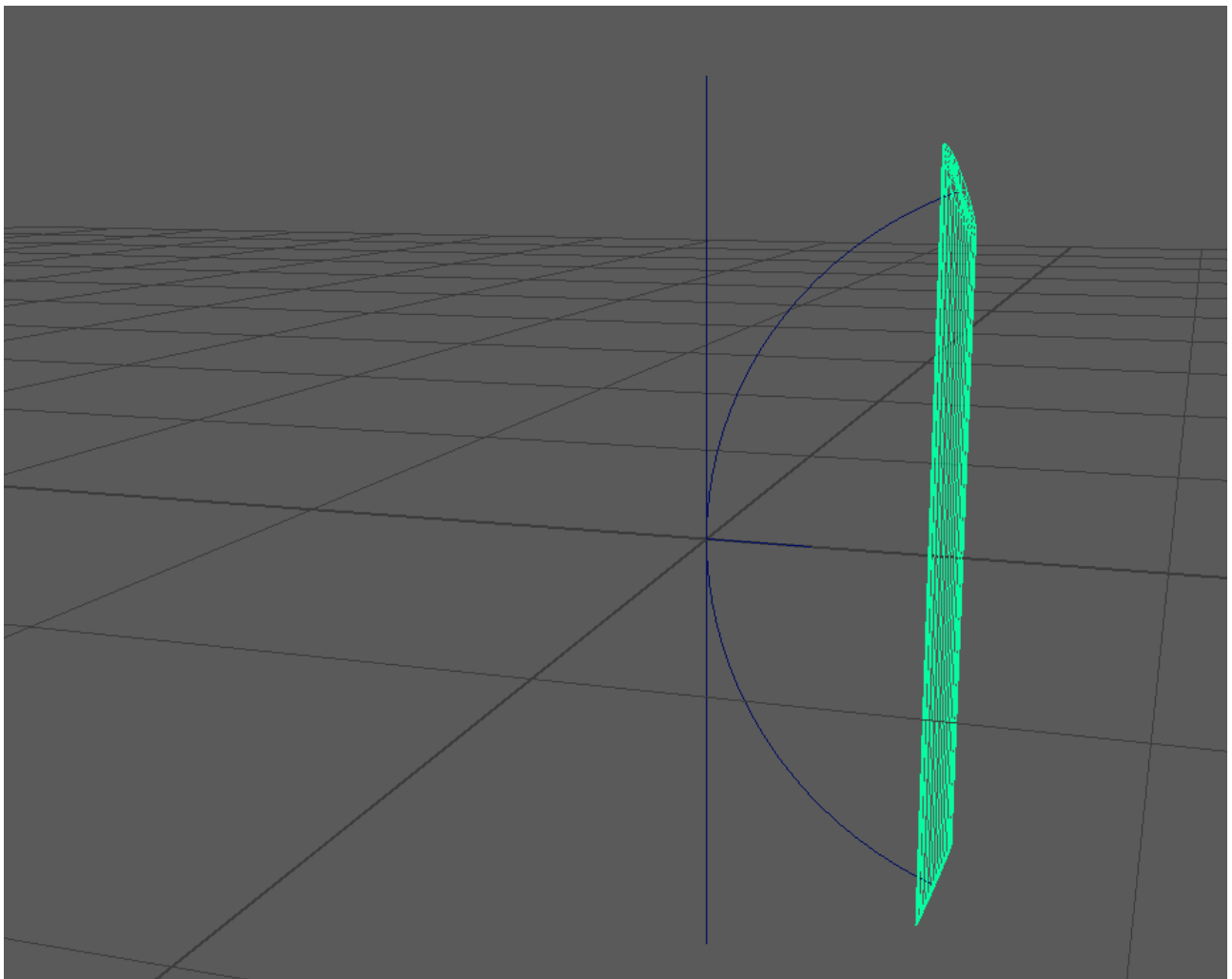
Then in the channel box select the Bend1 node:



Curvature parameter

Its the curvature that will bend it (obviously)

Try a **value of 70** in the **curvature parameter**...



Curvature at 70

The cylinder doesn't behave as expected,

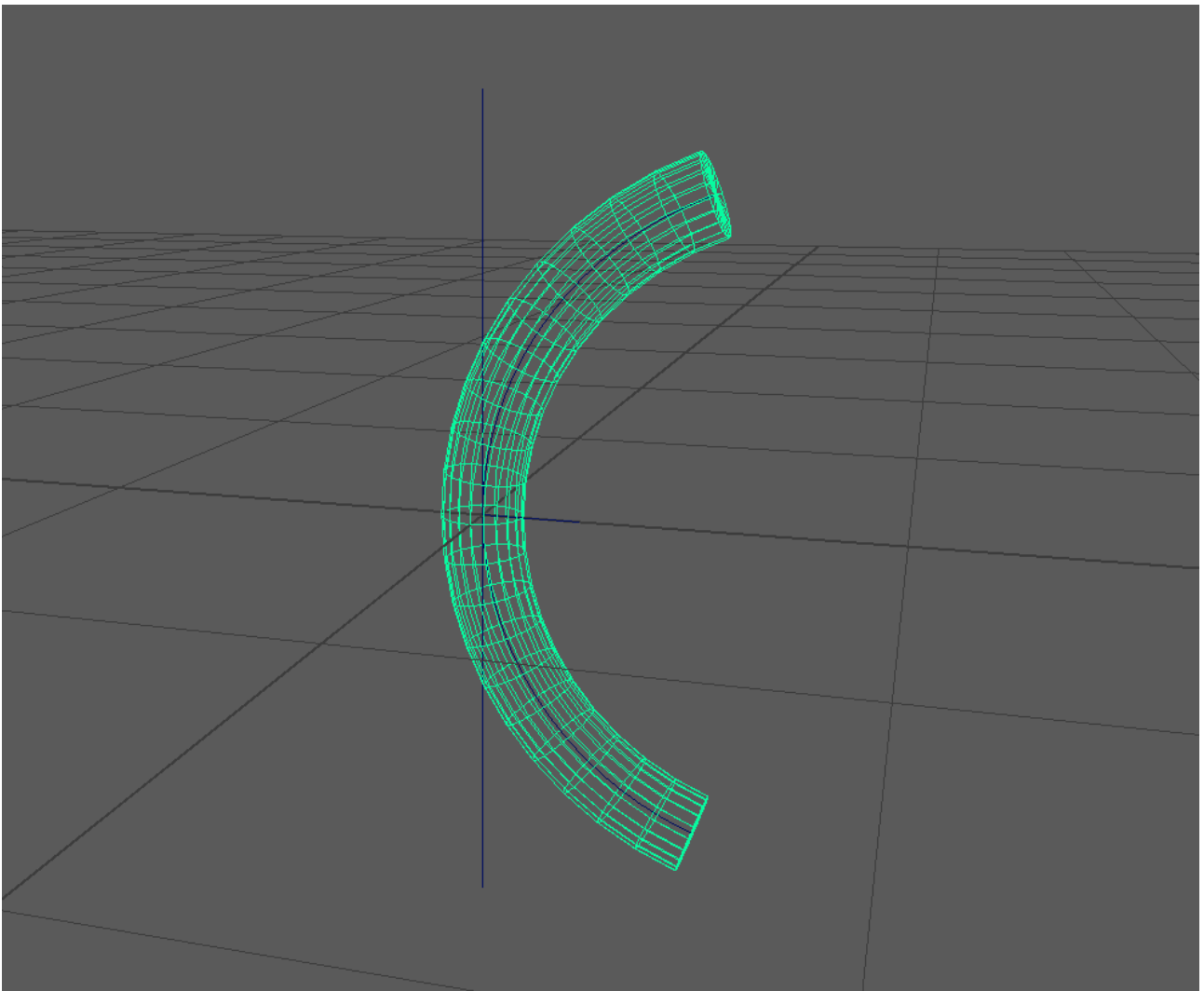
This is because there is ***no resolution along the length of the object.***

Go back to the *input for the cylinder*

MMB drag the **subdivisions height**.

Increase to something like 20

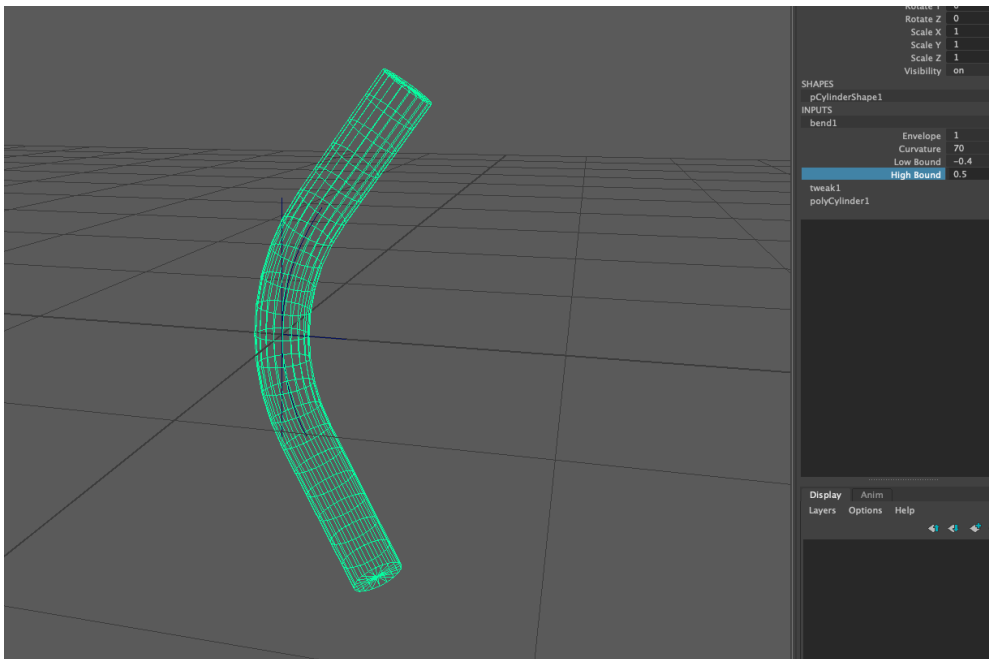
With enough divisions we get a smoothish bend:



Smooth bend with 20 divisions

Tweak the low bound and high bound values

Note that all parameters that appear in the channel box are capable of being keyframed.



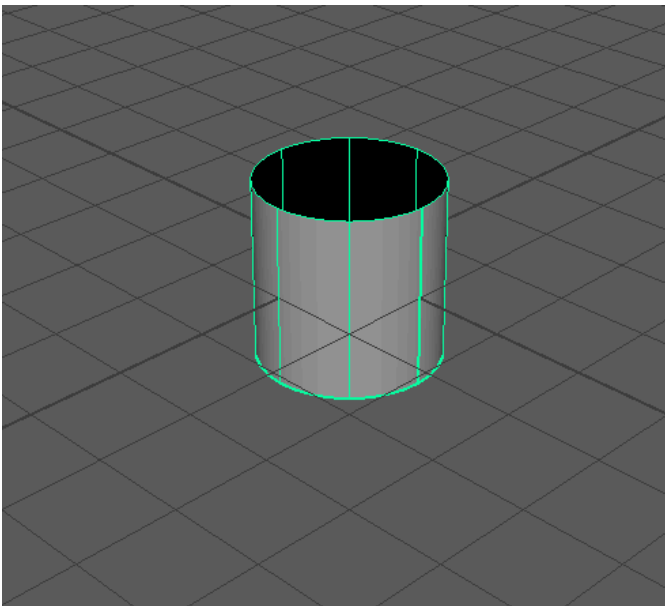
Low bound and high bound parameters

Flare Deformer

is used to introduce a taper or flared shape along two axes:

Example

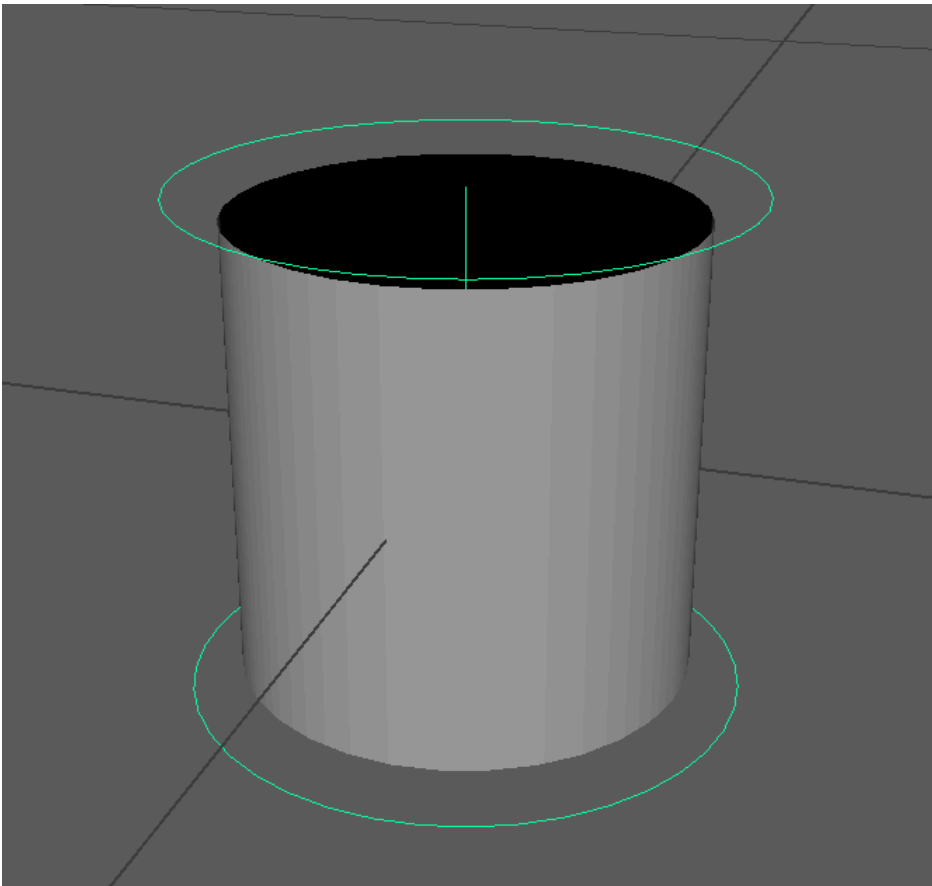
Create a **Nurbs Cylinder**



Nurbs Cylinder

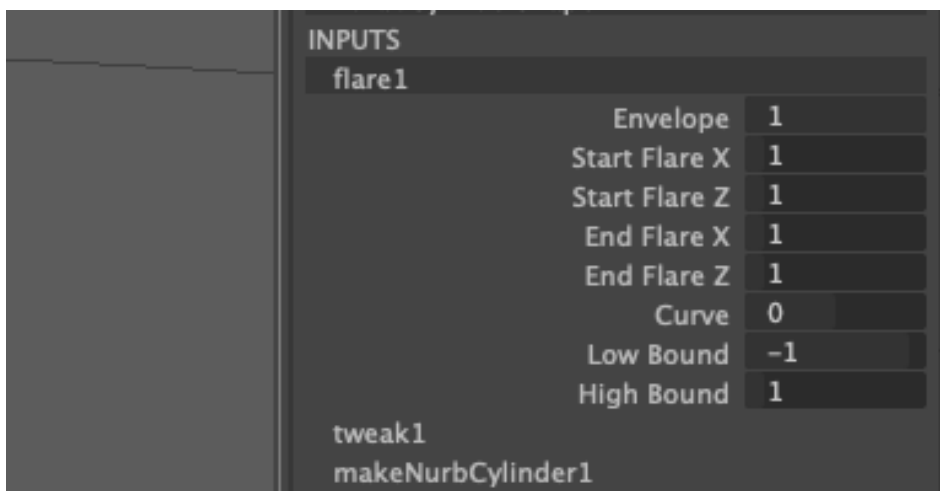
with it selected choose **Deform > Non Linear Flare**

You get two handles on the cylinder:



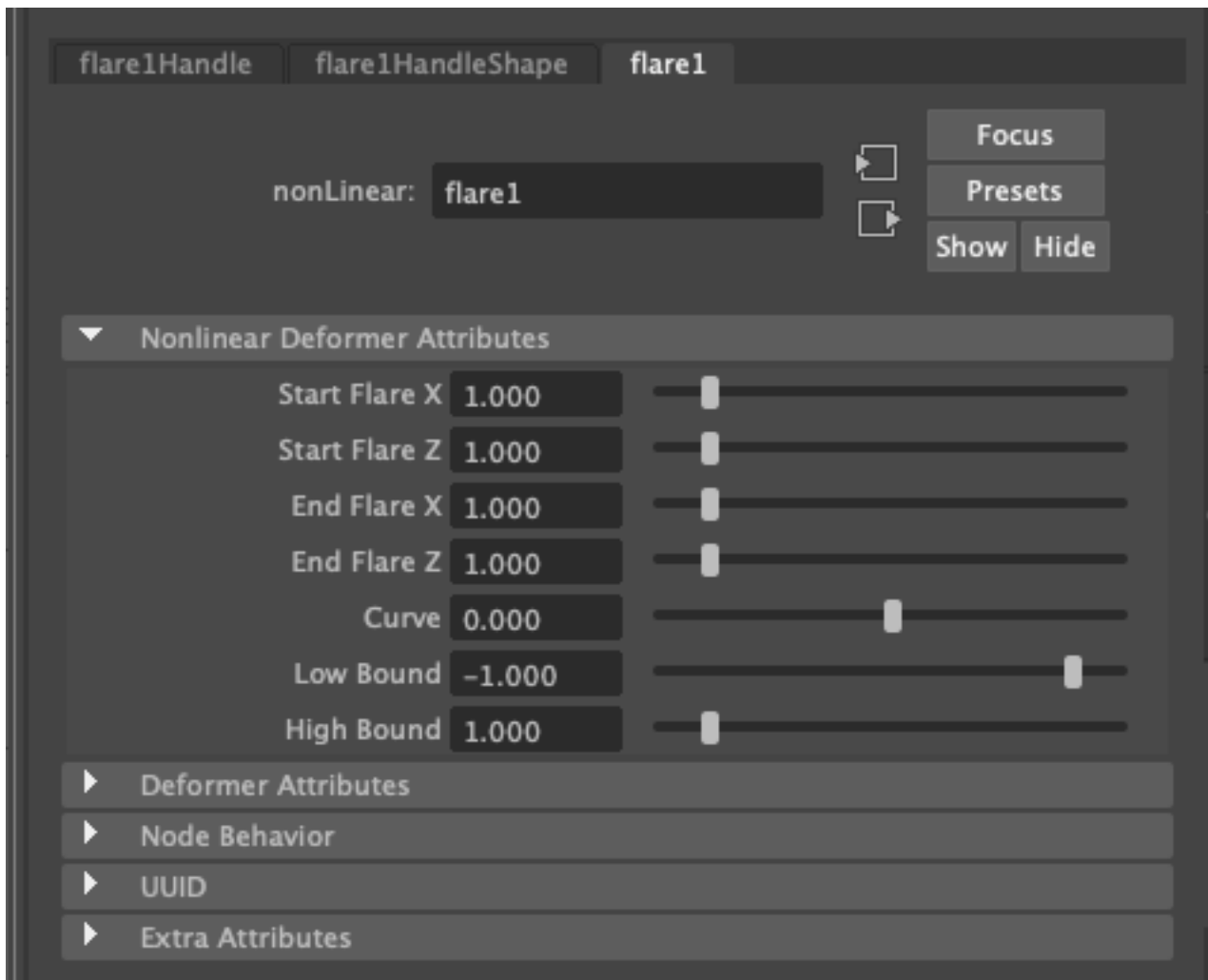
Flare deformer handles

Again the deformer has a node in the channel box where you can adjust the parameters:



Flare 1 input parameters in channel box.

But also you get ***sliders in the attribute editor***



Sliders in attribute editor - flare1 tab

Play about with the parameter sliders

Curve bows the centre

Low bound and **high bound** produce ripples when moved but stick at the centre point of the flare,

Transform the Deformer

Another option is moving the flare with the transform tool.

Select the **flare1Handle** in the outliner and just move it up and down in the viewport, with the translate tool.

You can get some very nice squash and stretch animations using this!

Sine Deformer

As you might expect it deforms an object into an oscillating wave, a sine wave.

Create a poly cylinder as before (use the same settings of

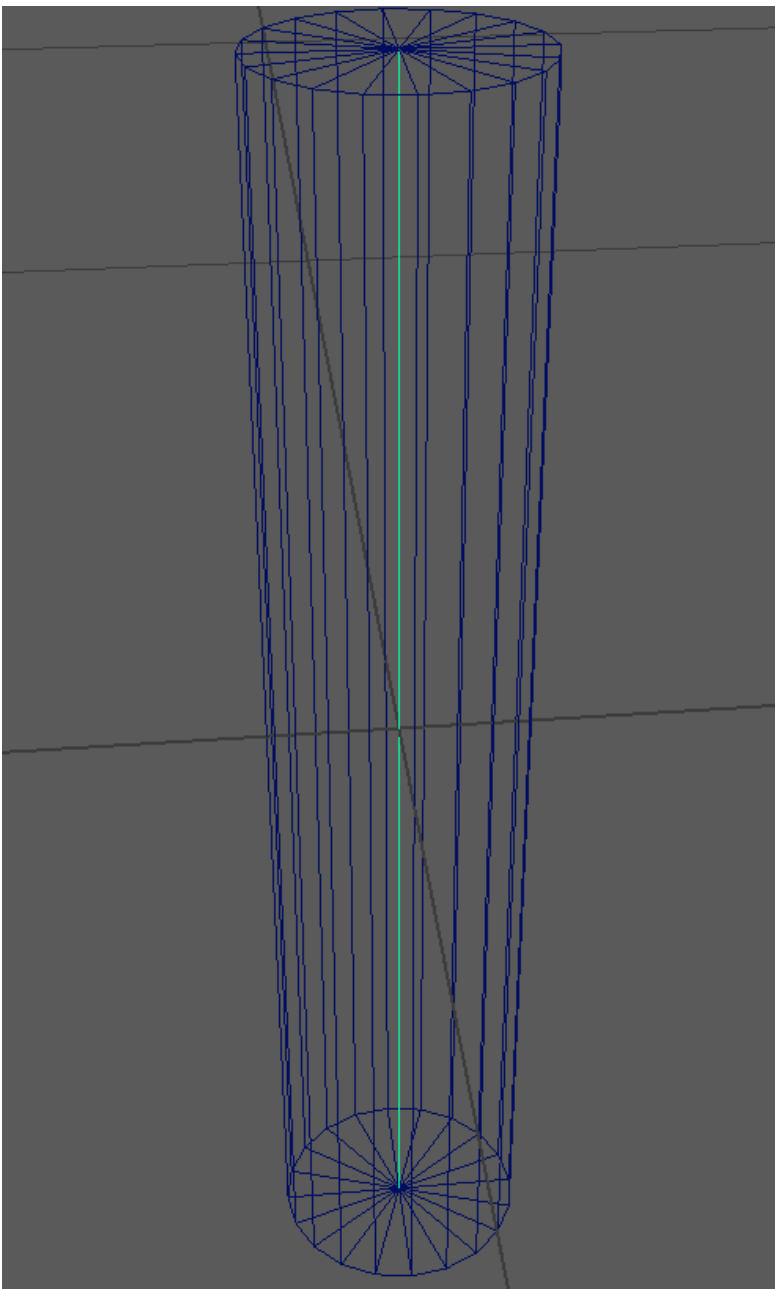
20 high

1 Radius

1 Subdivisions Height

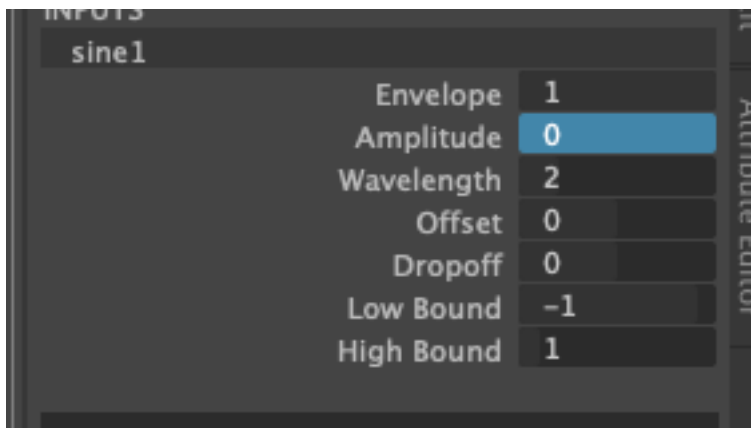
with the object selected,

Choose **Deformer > Non Linear > Sine**



Poly cylinder

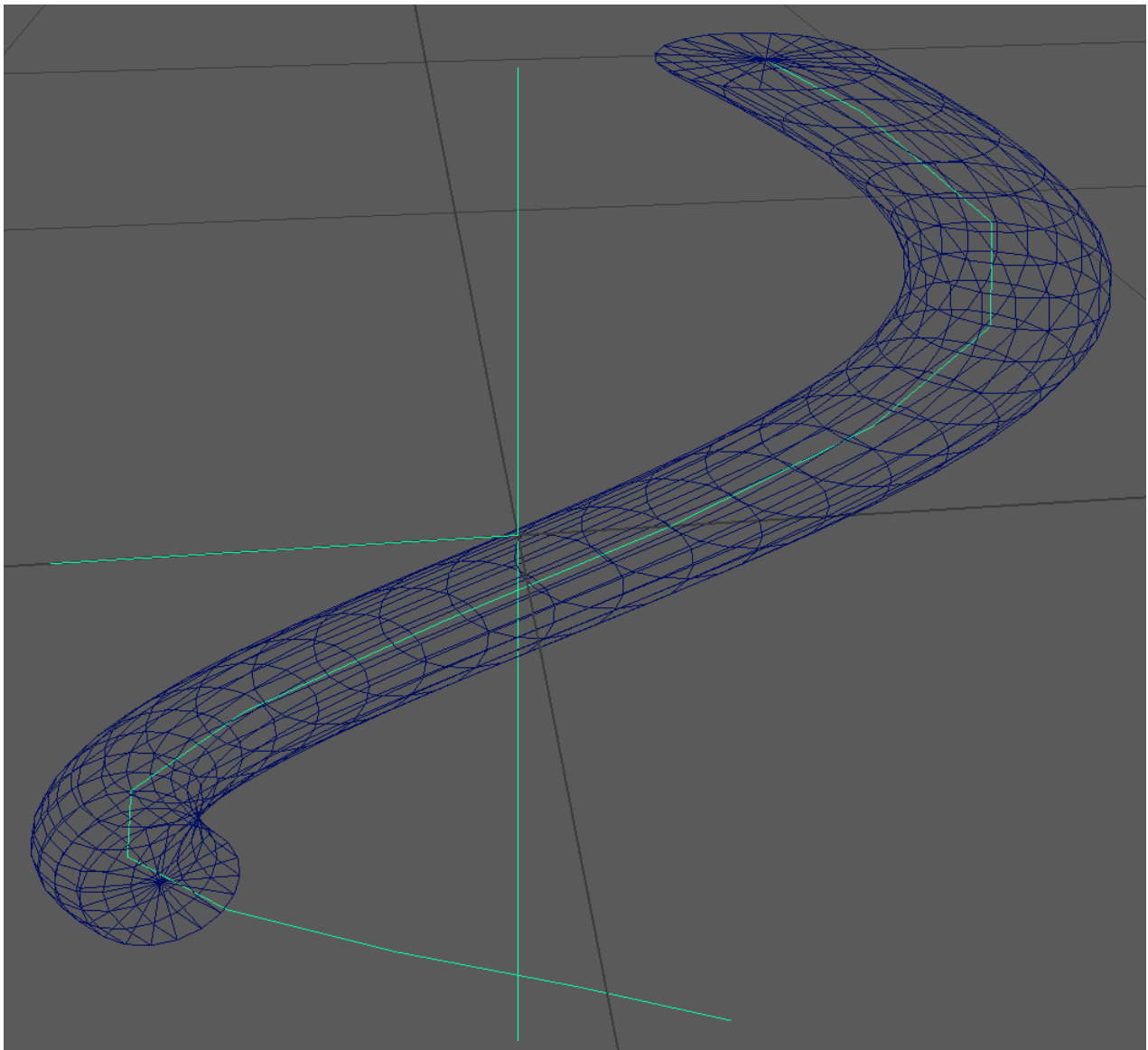
We get a deformer with its node as before



Deformer parameters in channel box - inputs section

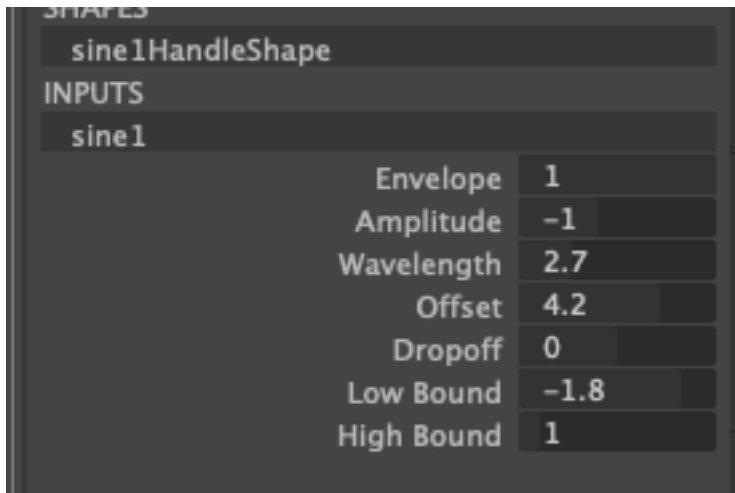
and as before it won't work without divisions in the height.

Make the **subdivisions height 20** units or greater.



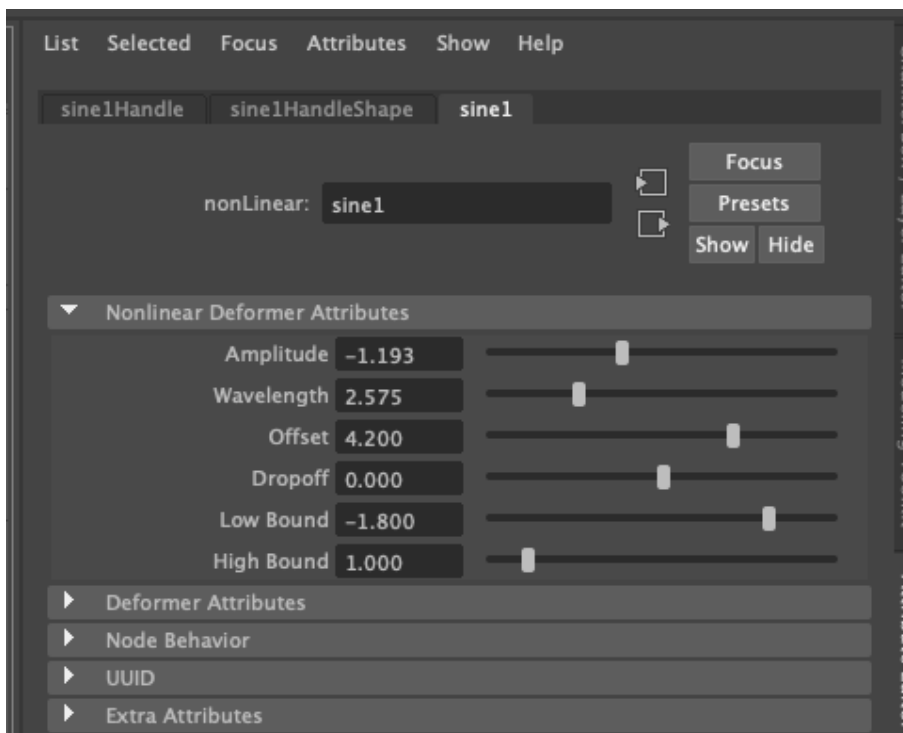
Sine deformer results, cylinder has 20 divisions as before

Play around with the parameters in sine 1 or its attribute editor:



Sine deformer parameters - channel box

Which again has sliders in the attribute editor:



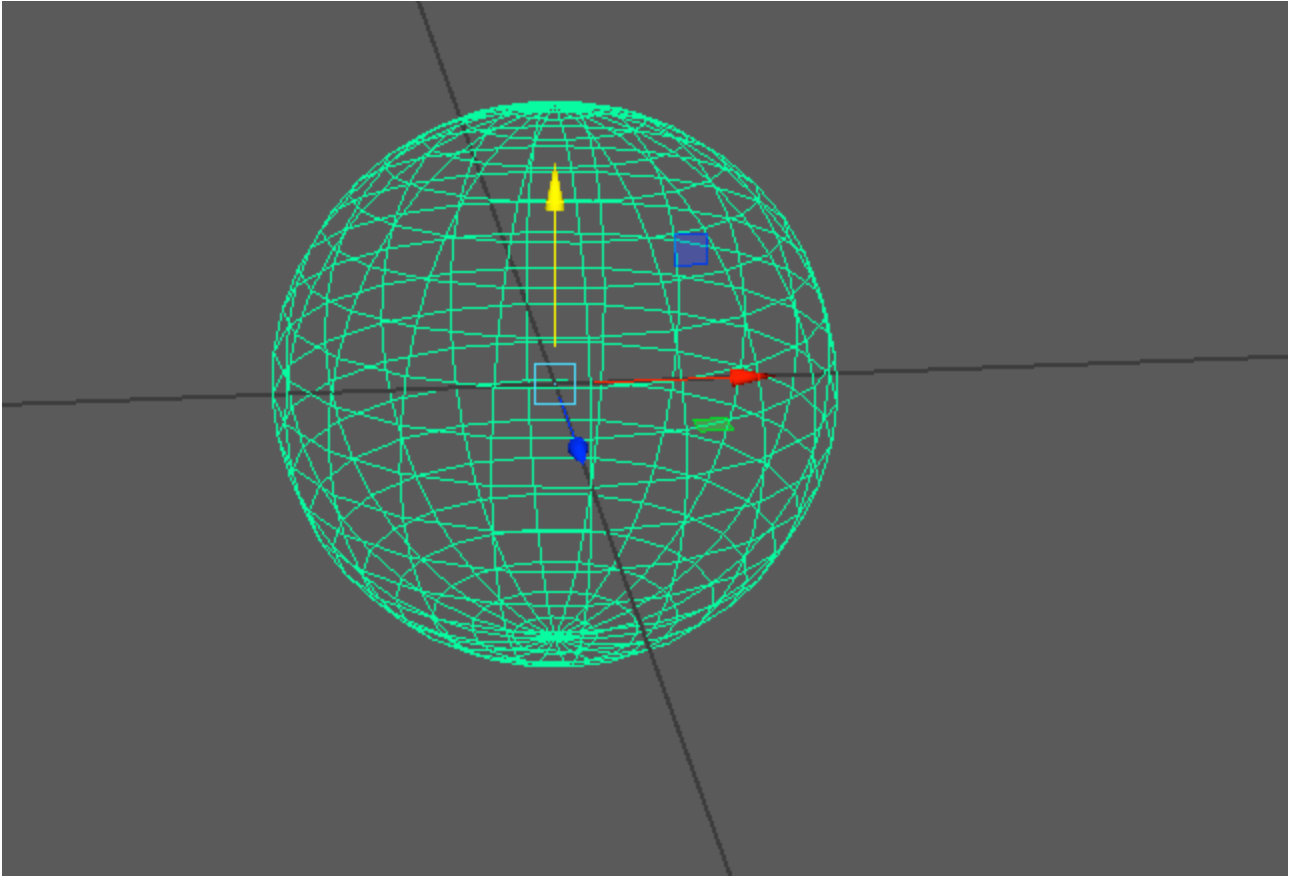
Sliders in (sine1 tab) attribute editor

Translate the deformer:

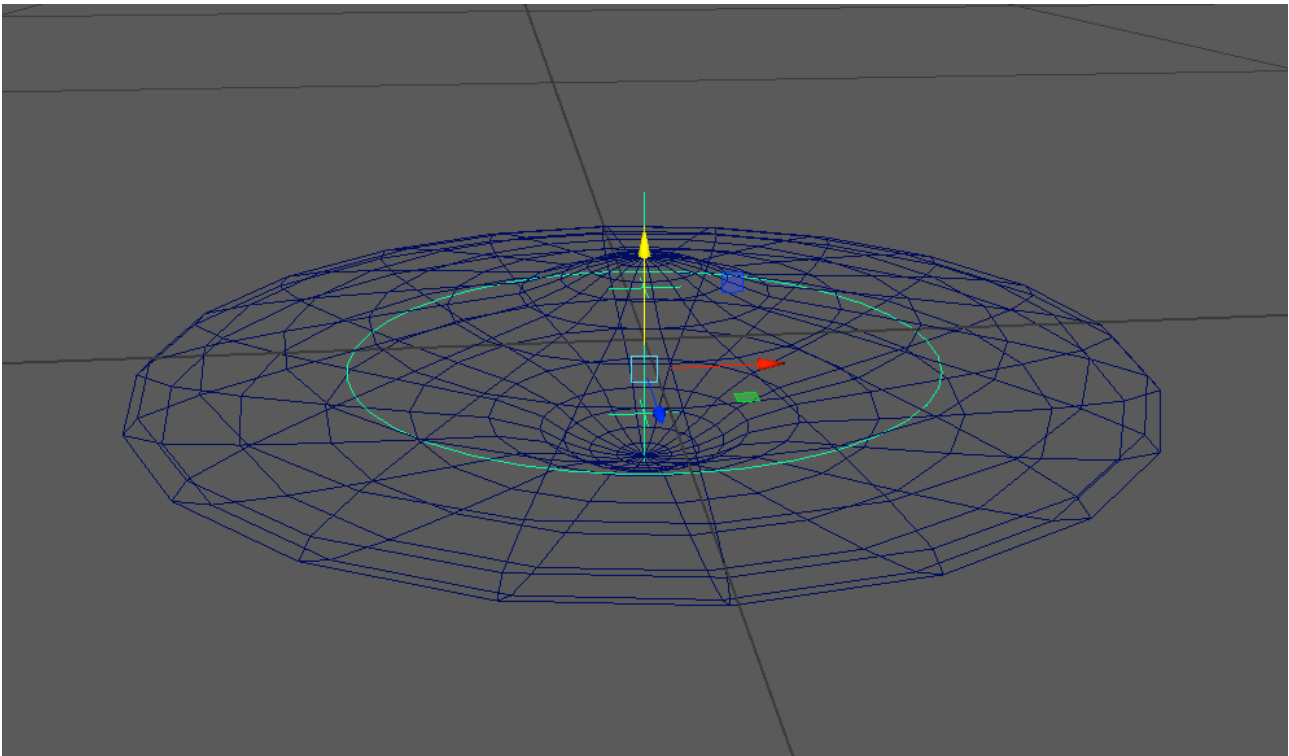
Also try animating the translate y values of the deformer

Squash Deformer.

Create a poly sphere and apply a squash deformer to it:



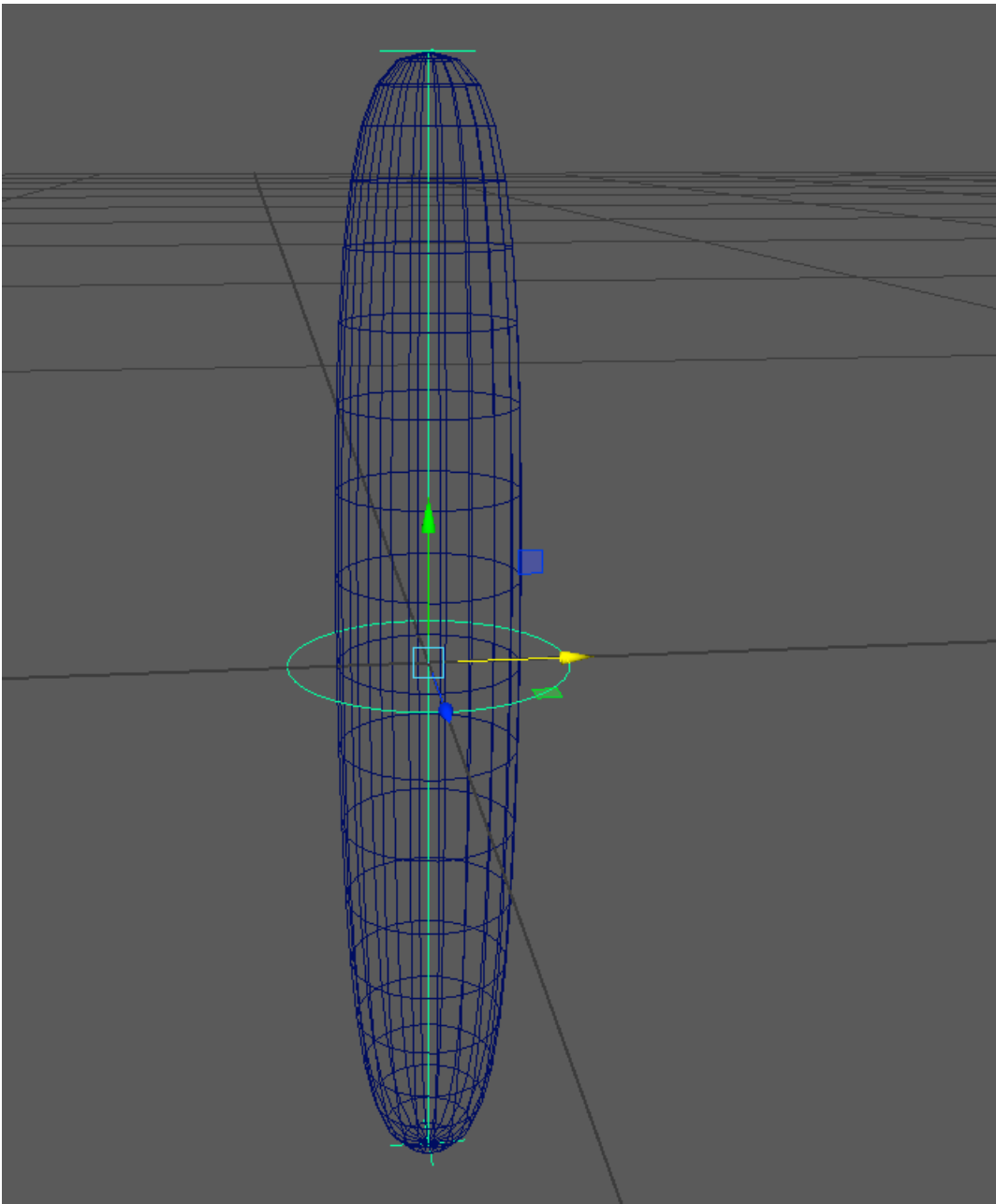
Poly sphere



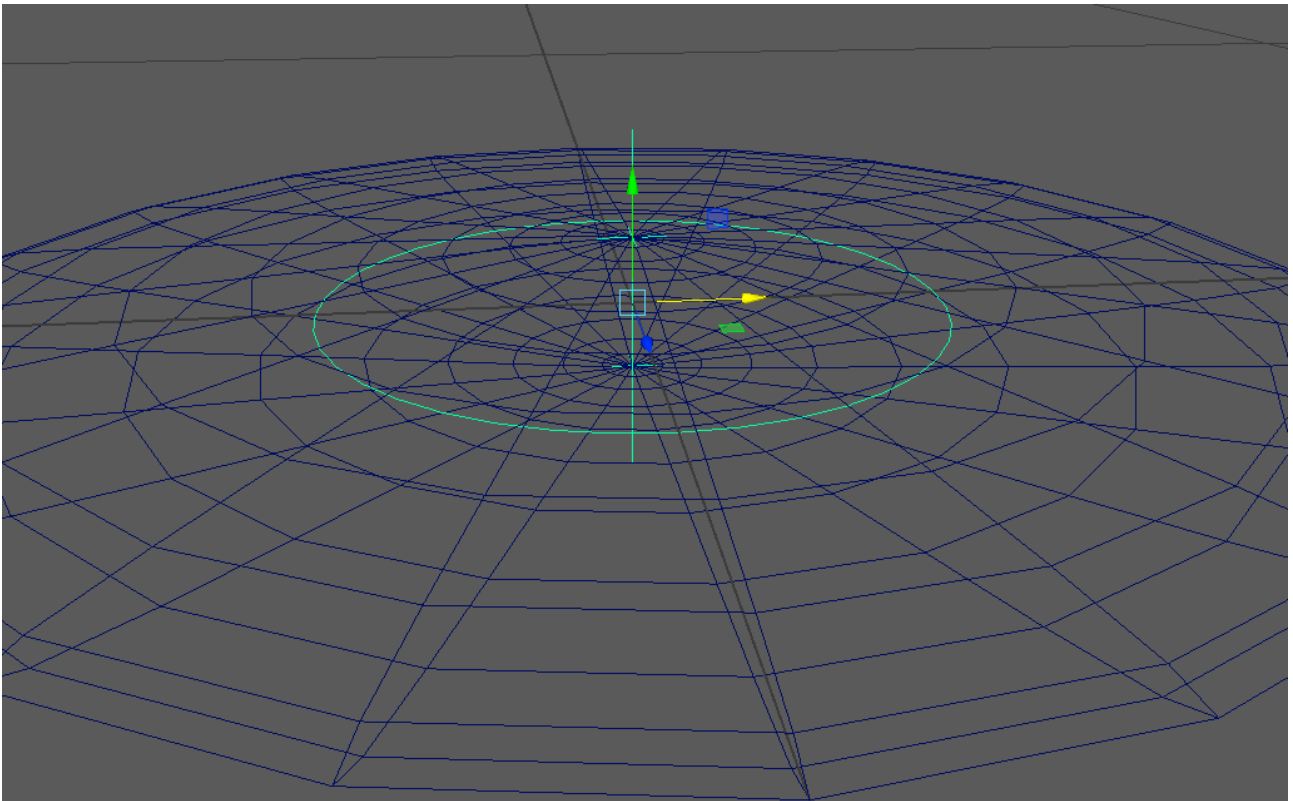
Squash deformer applied

In the attribute editor play about with the Factor slider,

This alone is just great because it retains the volume according to Johnston's and Ollie's twelve animation principles. (Principle 1: Squash and stretch)



Higher Factor



Lower factor

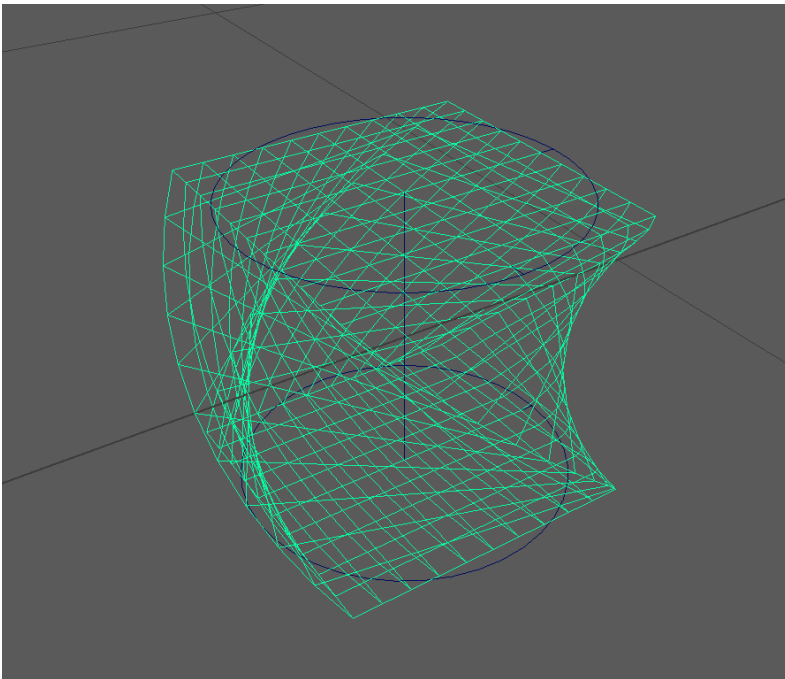
Again play with all the parameters but also move the deformer with the translate tool.

Moving the deformer with the object:

It is obviously useful to have the deformer move with the sphere if animated, you can simply parent the deformer to the sphere, or apply a constrain to it if you want to avoid parenting.

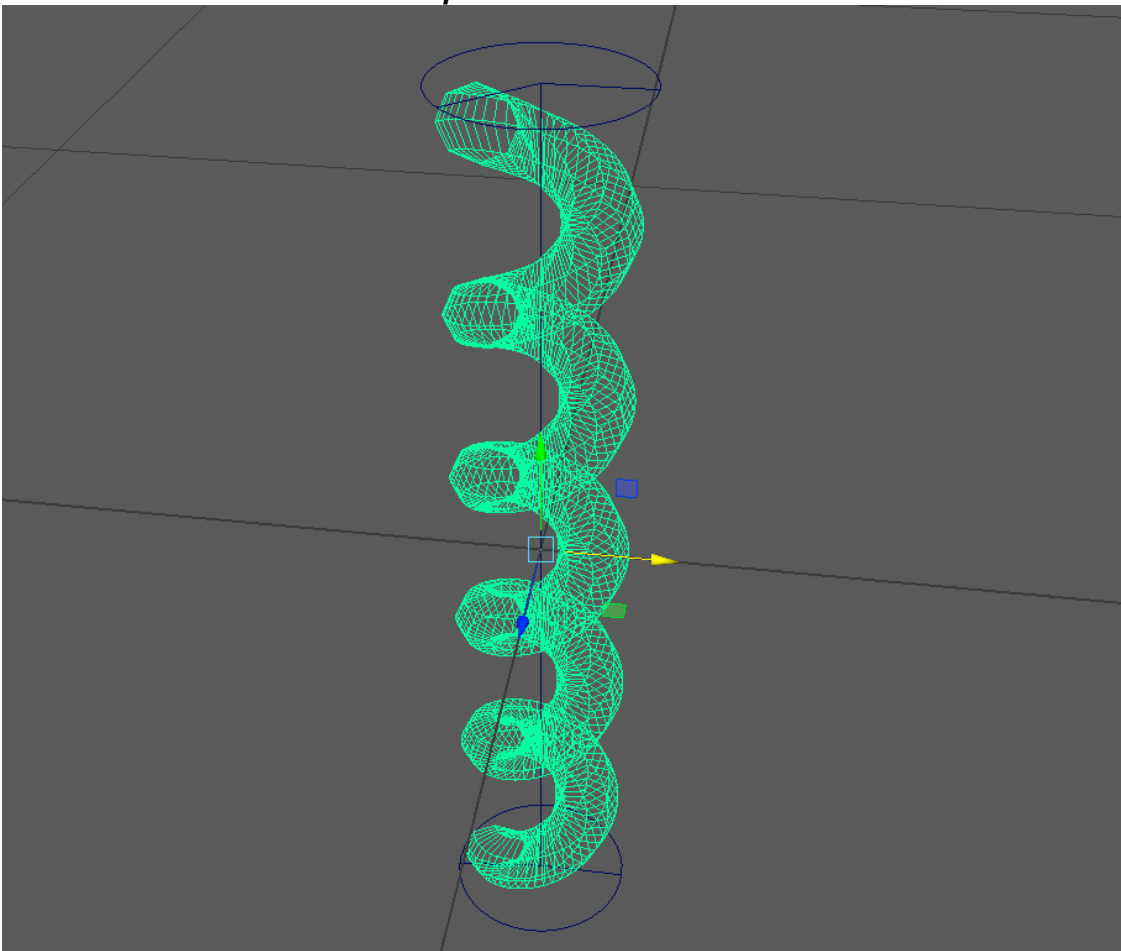
Twist deformer

Try a twist on a cube:



Poly cube with twist deformer

Its also effective on a helix but quite subtle



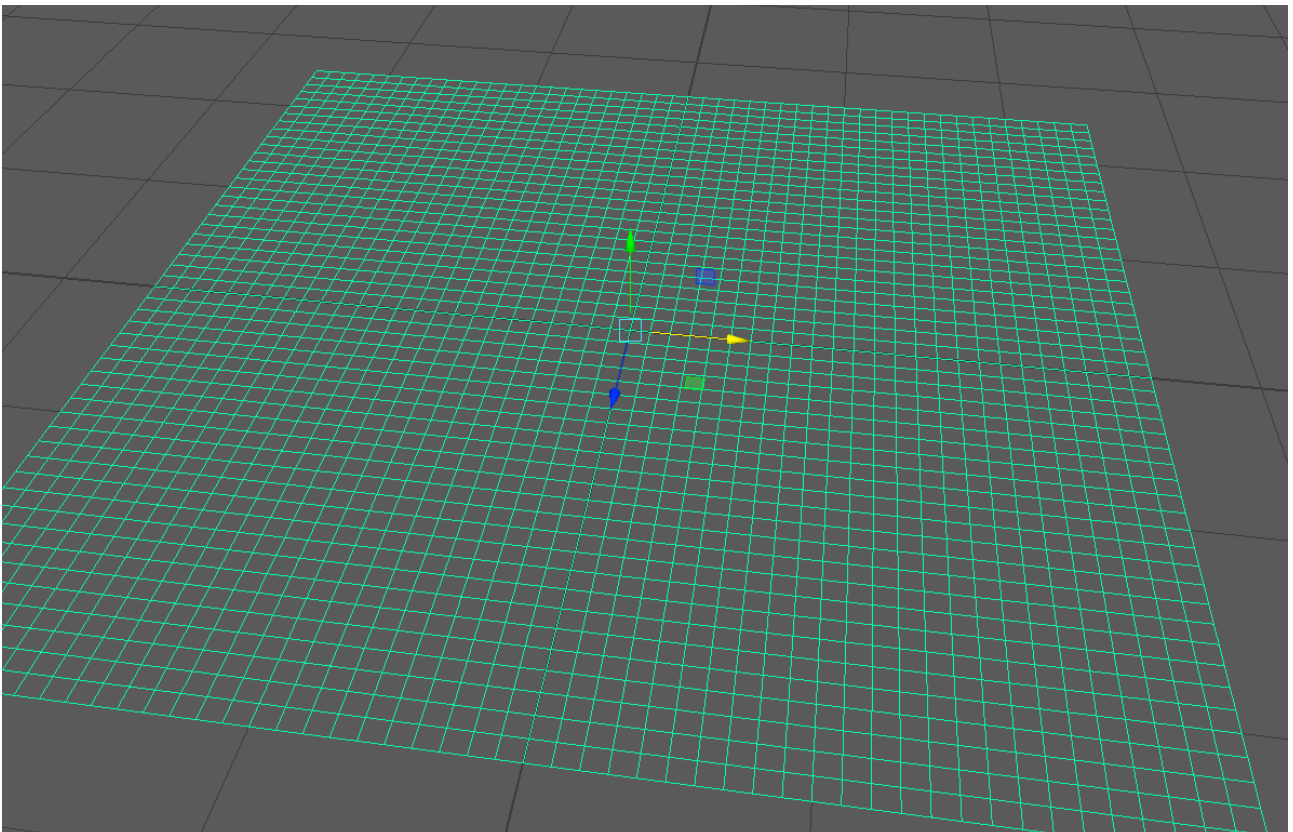
Twist deformer on helix

Wave Deformer

This is a favourite of mine!

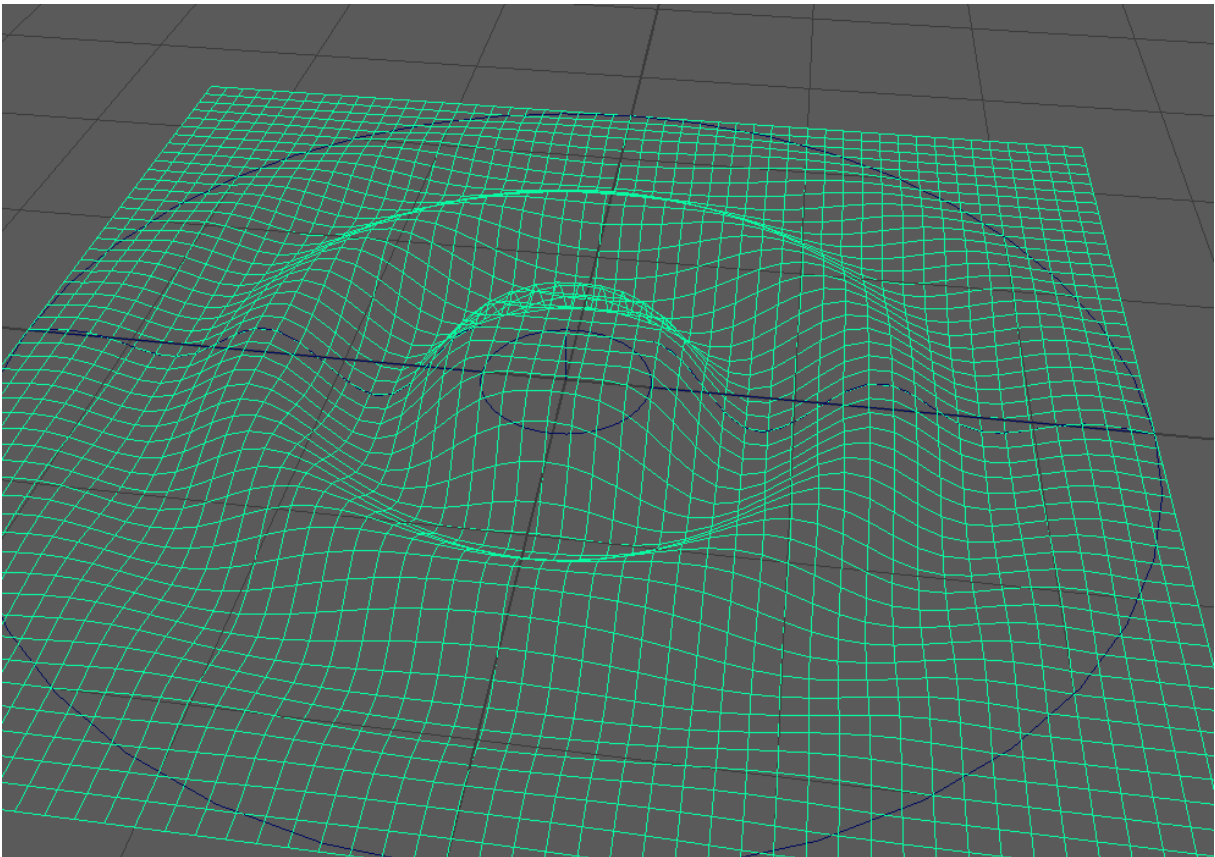
Make a plane

Make it 50 x 50 with 50 divisions in each direction (on the y axis)



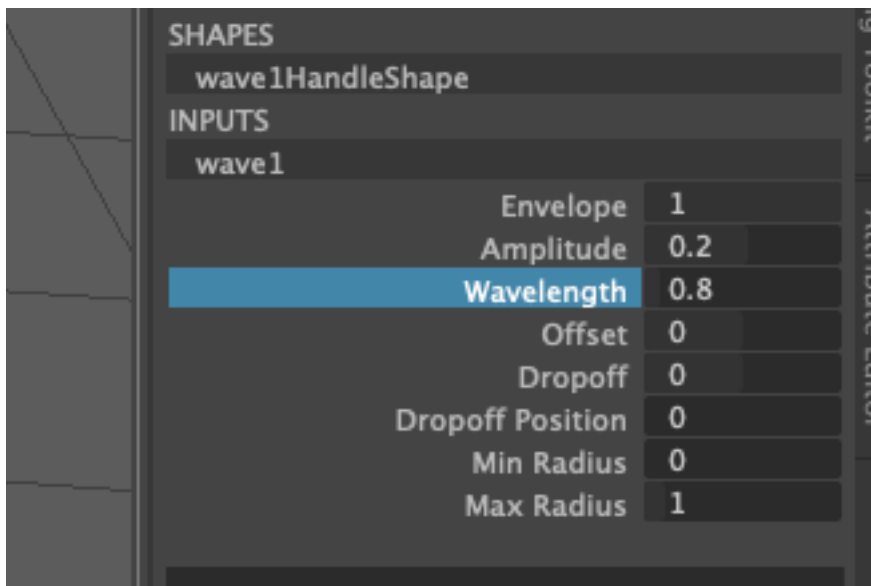
Poly plane 50 x 50

Apply a wave deformer

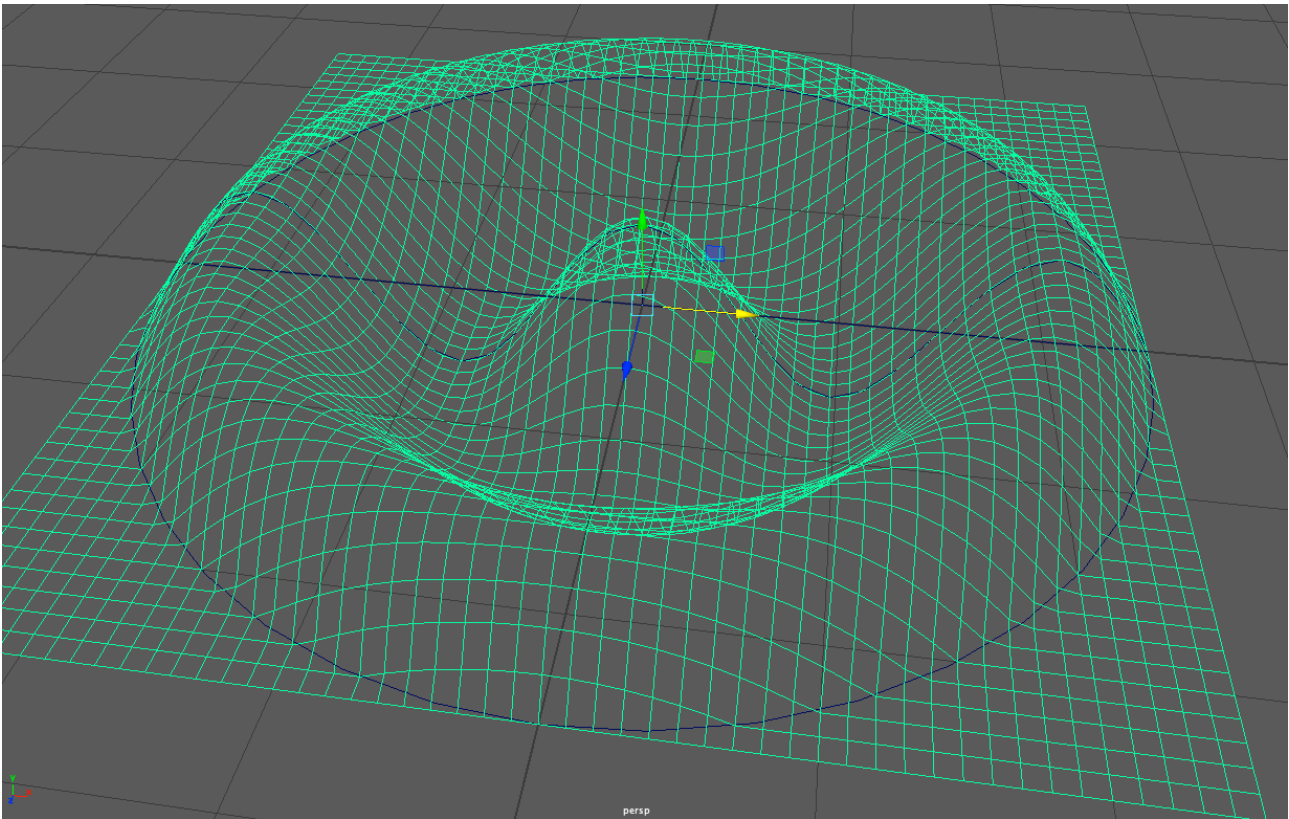


Poly plane with wave deformer

Play around with the amplitude and wavelength (like the sine)



wavelength



Ripple deformations (large)

if you want ripple like deformations on a pool of water try setting the

Amplitude quite low like -0.1

Wavelength to 0.5

Now push the radii values and see the ripples move. Great Fun!