Career Technical Education
SoCal ROC

3D Character Design

Realistic Creature Eyes

These are the steps you will follow to create a realistic 3d eye model

1. Your will model 4 shapes in 3D Max: a sphere for the cornea, a slightly small sphere for the sclera, a torus for the iris and a small flat cylinder placed behind the iris to make the interior of the eye look dark.

2. To create the "hole" (pupil) in the front of the sclera sphere, you will can use the JPEG image on our class website. It is available under the "Additional Skills" heading. This JPEG image is merely a black dot with a fuzzy edge. You will use it as an "Opacity Map".

3. Then you will make the design to place on the iris. The steps to this depend on your skill at using Adobe Illustrator and Adobe PhotoShop.

If you have no skill at either of these programs you may go online and search "Eye Iris" and download an image to use.

4. Then you will assemble all the elements into one eye model in 3d Max

Realsitic Creature Eyes

3D Character Design

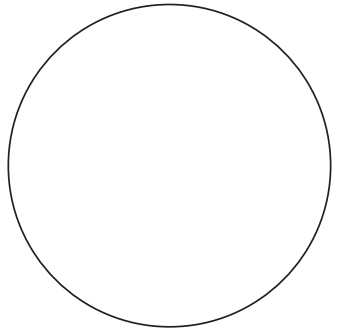
Knowing how to model and texture an anatomically correct eye is an important skill.

The four shapes needed to model a convincing eye are:

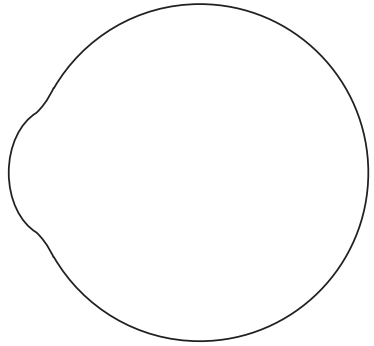
A small flat cylinder

A flattened torus to make the iris.

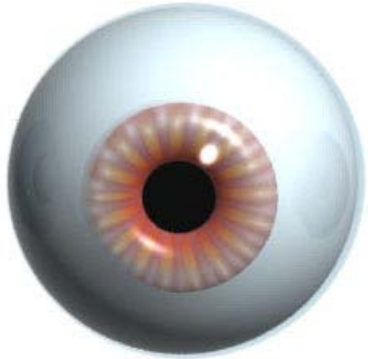
A sphere to place the opacity map onto.



A sphere with a "corneal bulge" made by soft selection.



With materials are applied and UVW Maps set, you can assemble the parts together by attaching



Realsitic Creature Eyes

3D Character Design

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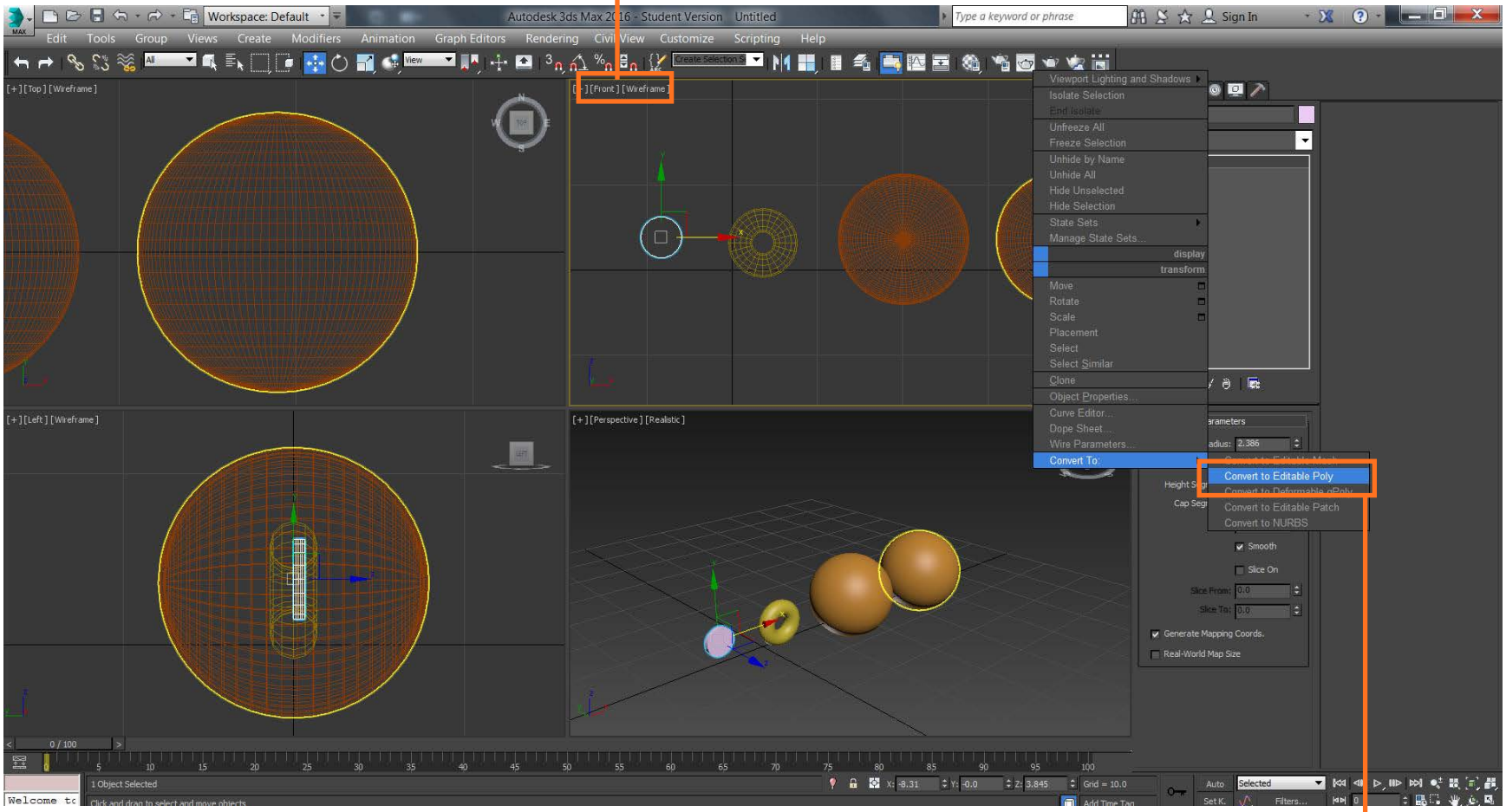


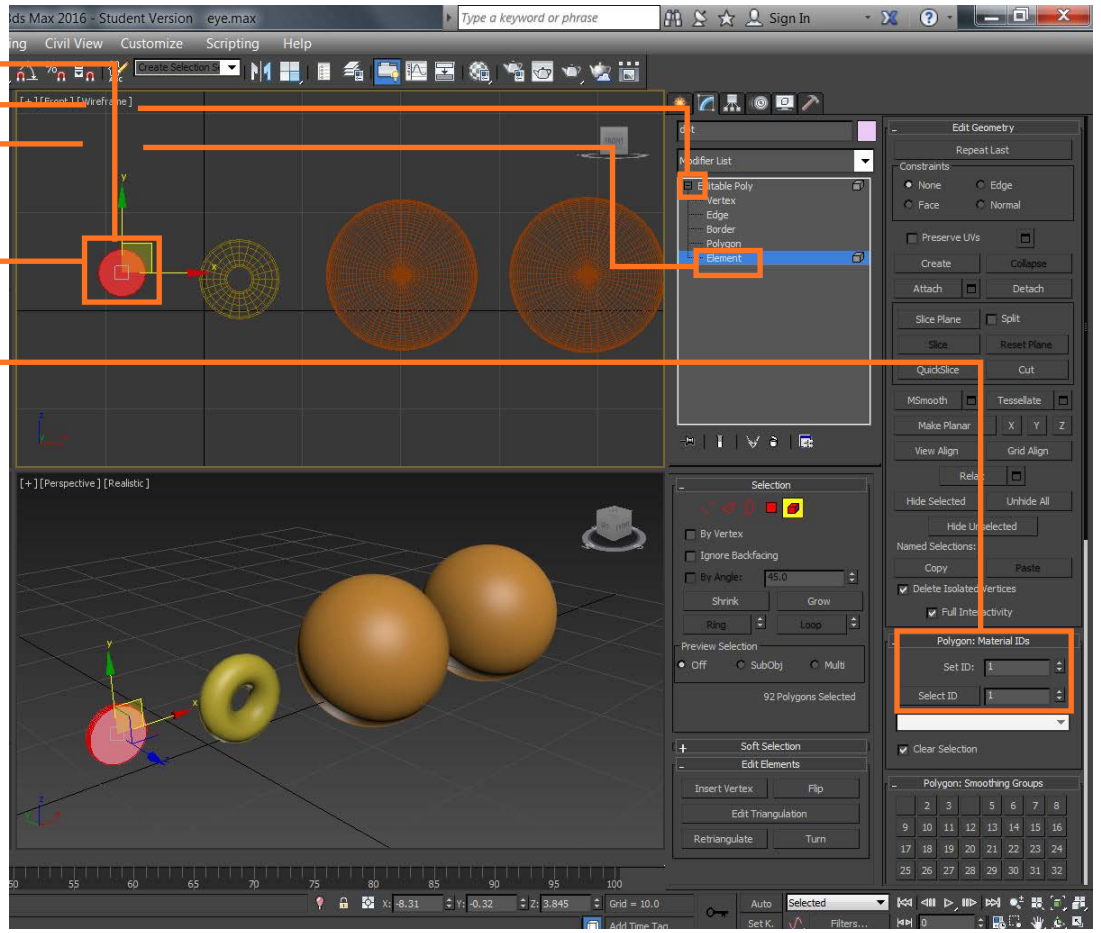
2. Line the four up as shown then right click on each and convert it to an "Editible Poly.

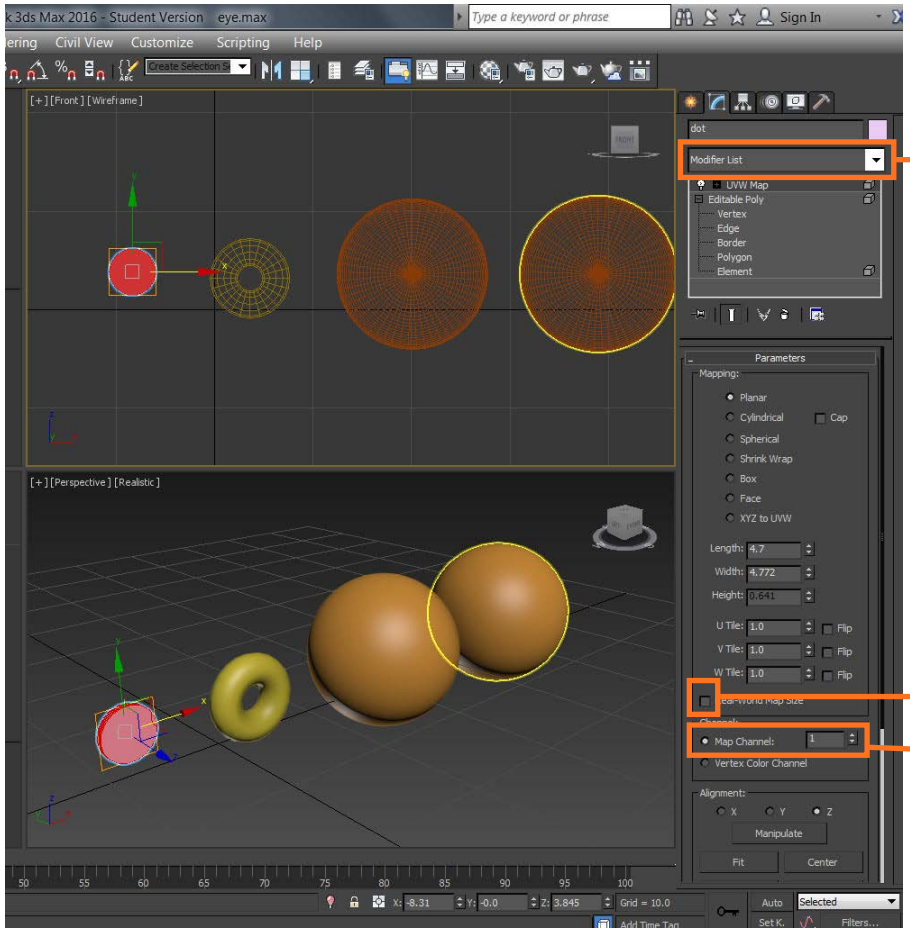
REALSITIC CREATURE EYES

Now that they have converted to editible polys, you will assign each one a unique "Material ID" and apply a UVWMap to each one.

3. Start with the cylinder on the left:
- a. Open it up
- b. Select the "element" button
- c. Click on the cylinder (it should turn red)

4. Set the Material ID to "1"





5. Keeping the cylinder selected (red) find the UVW Map on the "Modifier List".

6. Turn off the "Real World Msp-Size

7. Set the Material ID to "1" to match the editable poly setting

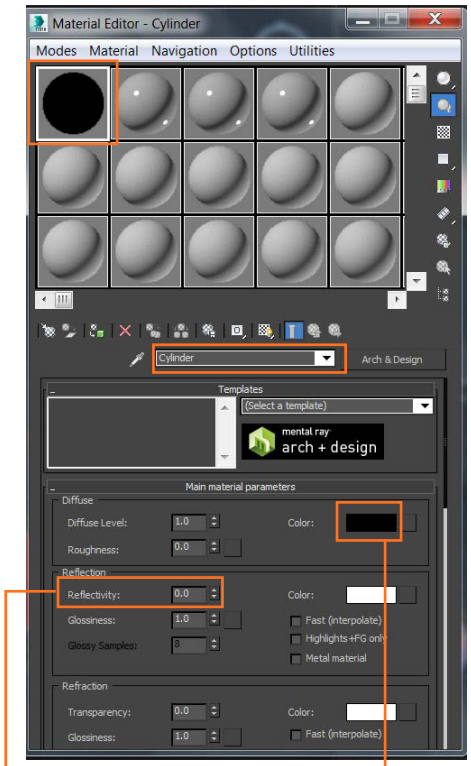
Do the same steps for the remaining torus and two spheres but change the Material ID's - make the Torus "2", the small sphere "3" and the large sphere "4".

Realsitic Creature Eyes

3D Character Design

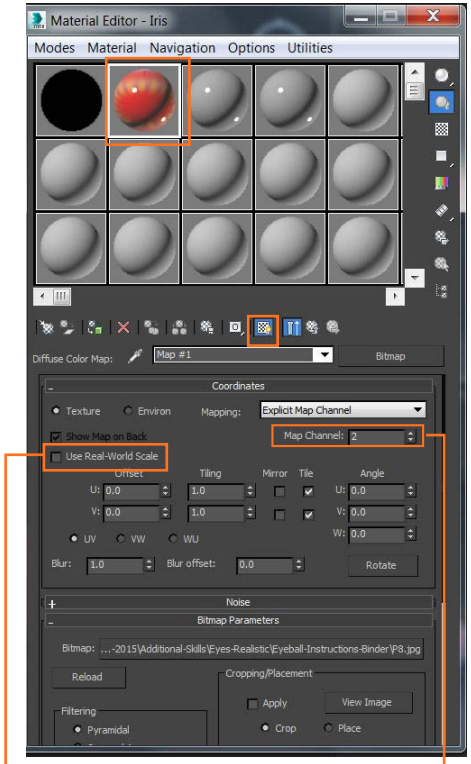
All four objects will have a "Material" placed - The Cylinder will be a simple black, the Iris wll have a photo of an iris, the small sphere will have an "Opacity" map and the large sphere will have a "Reflection" map.

8.



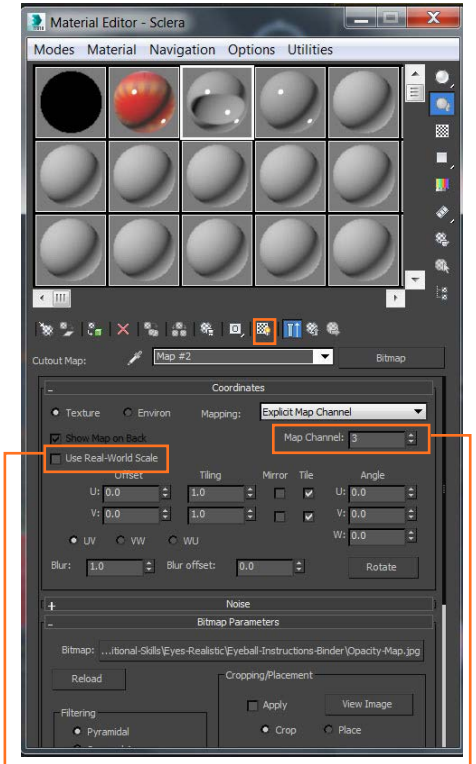
Change Diffuse to Black
Turn down Reflectivity

9.



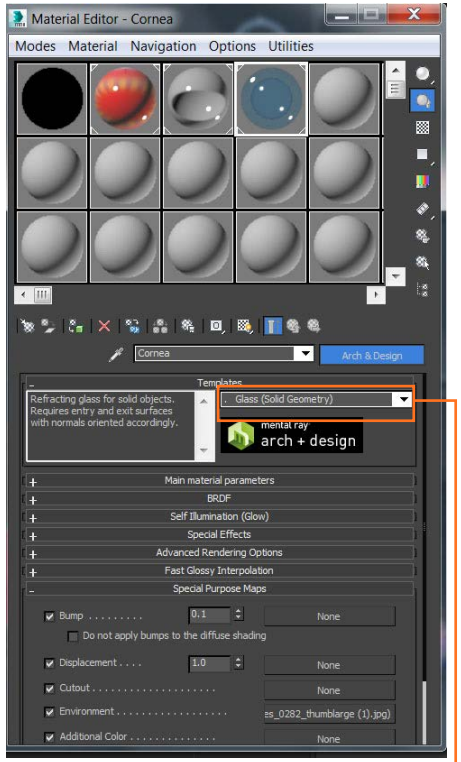
Place the Iris image in the "Diffuse" slot.
Turn off Use Real World.
Change Map Channel ID to "2".

10.



Place "Opacity" map in the "Cut-Out" slot.
Turn off Real World
Change Map Channel ID to "3".

11.

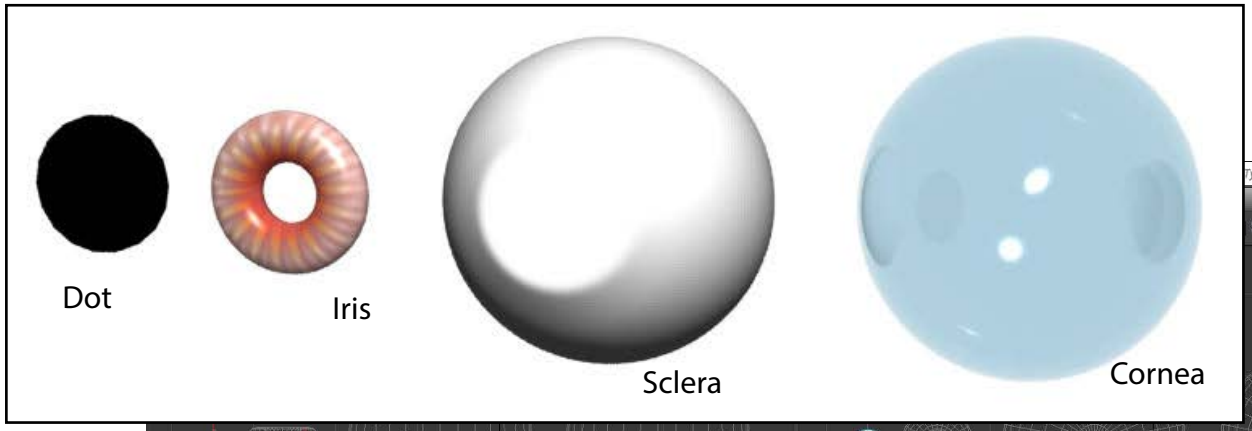


Select "Glass (solid geometry)

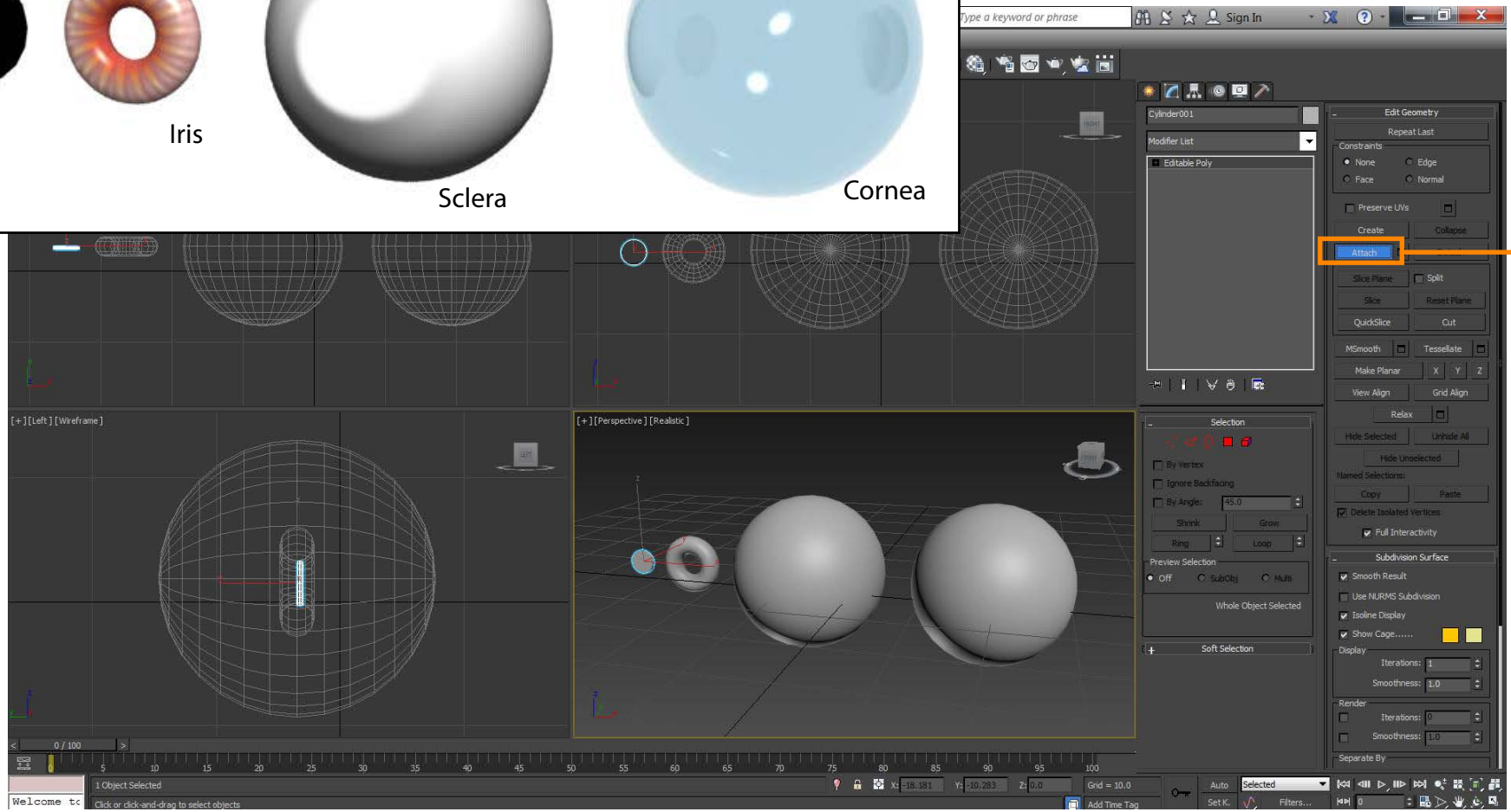
Realsitic Creature Eyes

3D Character Design

You now have four seperate editable poly objects: a black disc, a torus, and two sphere objects. For the animation of the eyes to work properly we need to make all four shapes into one shape by "attaching" them all together at the "Edit Poly" level.



12. Select the black dot.
13. Find "Attach" on the modifer panel.
14. Click the iris, the sclera and the cornea.

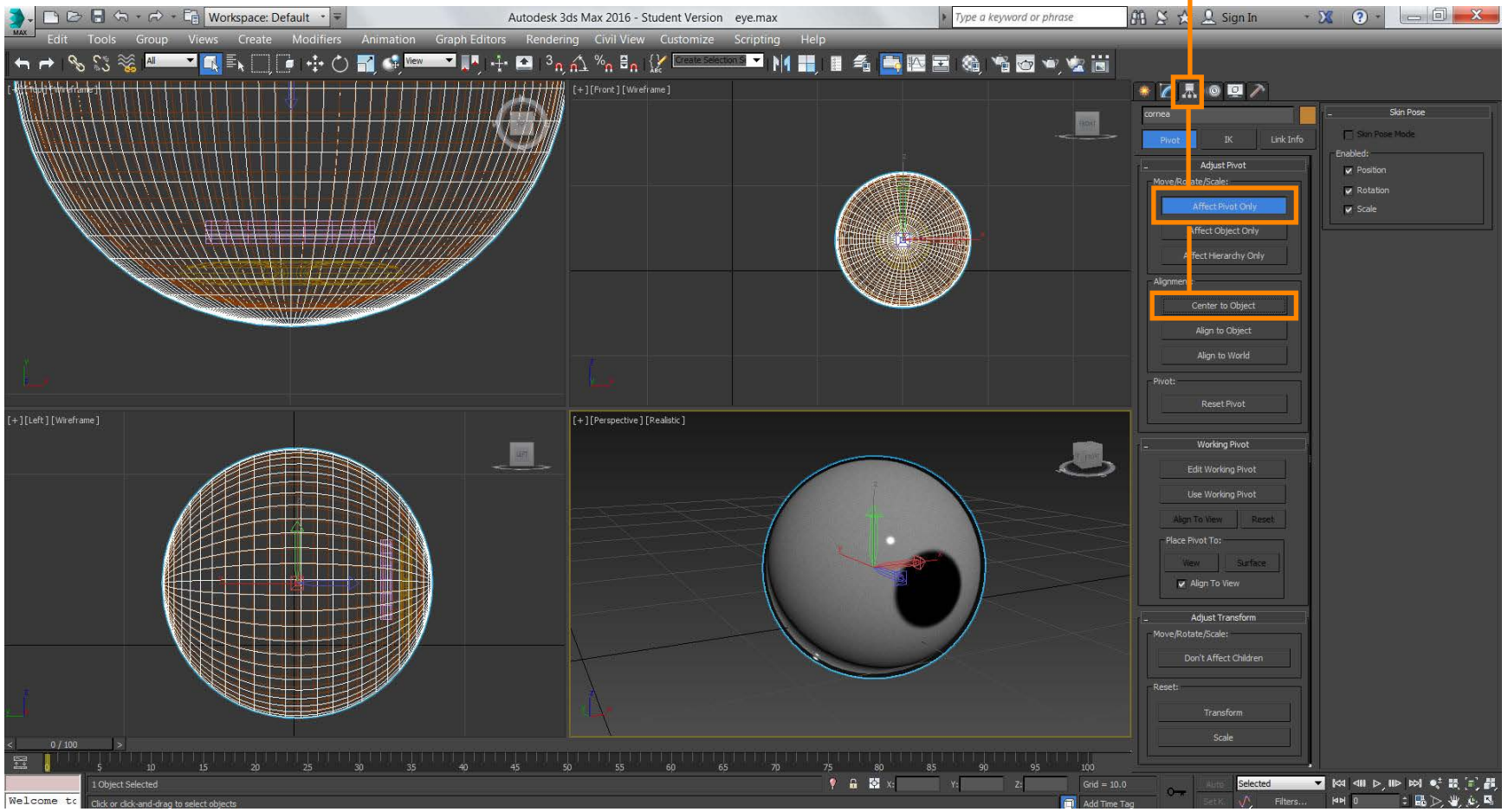


REALSITIC CREATURE EYES

3D CHARACTER DESIGN

Having attached the eye parts all together you need to reset the pivot point so it's in the center of eye. Now the eyes they will rotate from their centers and not pop out of the face!

Select the eye and click the following. The pivot point will move to the center of the eye.

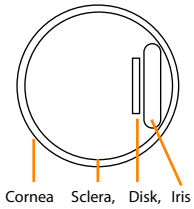


Realsitic Creature Eyes

3D Character Design

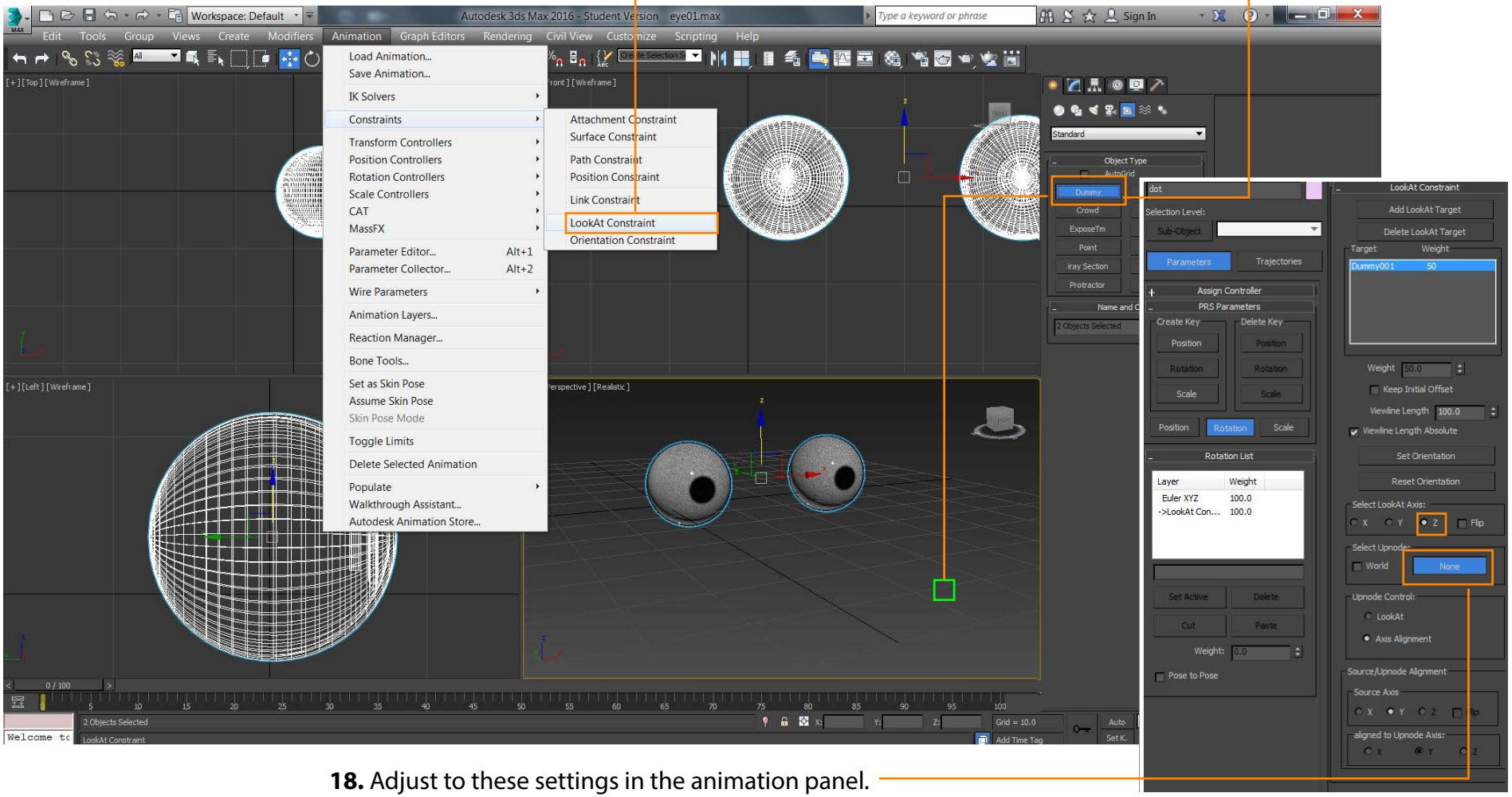
To finish all you need to do is use a "Look At" constraint to link the eyes to "dummy" object.

15. Once the eye parts are attached you can arrange them at the "element" sub object level. Then clone a copy of the eyeball.



16. Make a "Dummy" object in front of the eyeballs

17. Link the eyeball to the dummy bject using a "LookAt" constraint.



18. Adjust to these settings in the animation panel.

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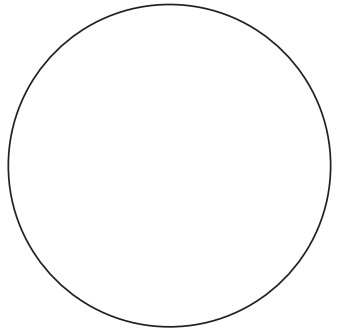

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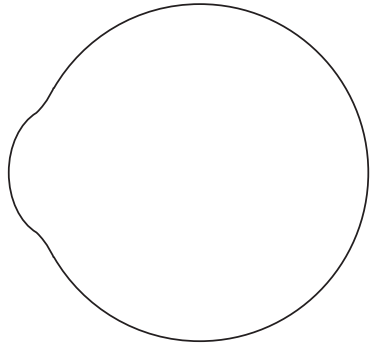

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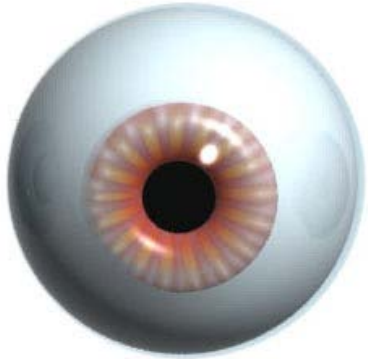

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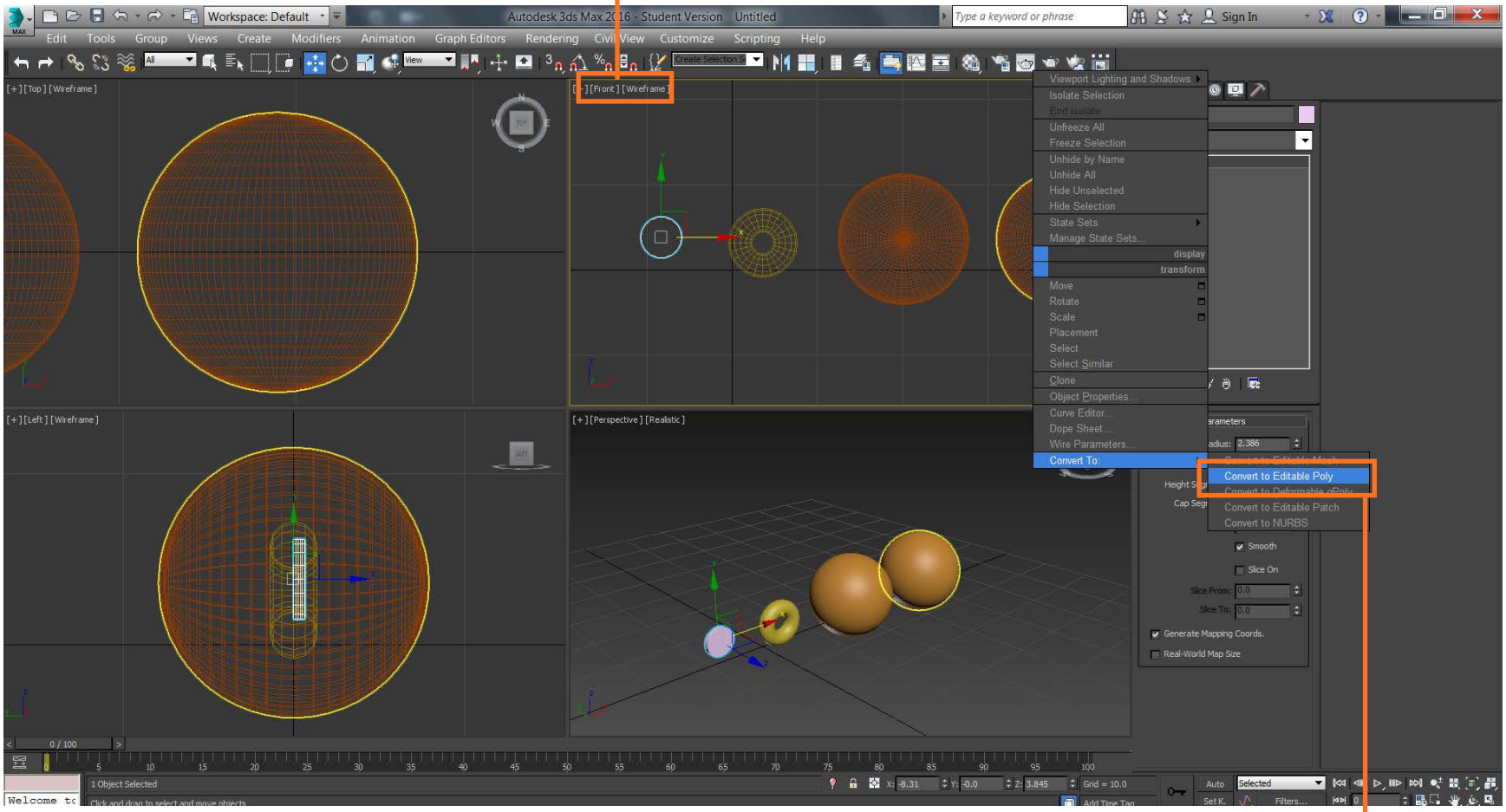

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REALSITIC CREATURE EYES

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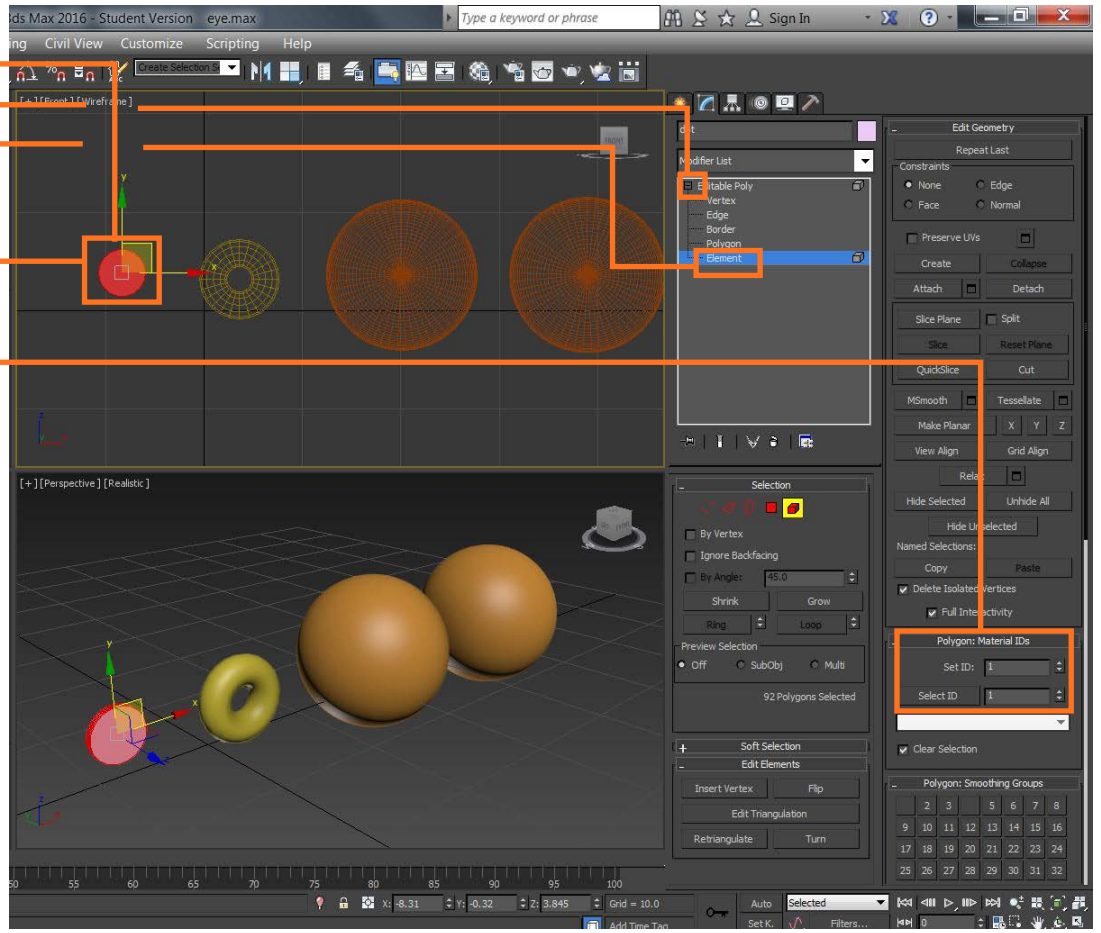

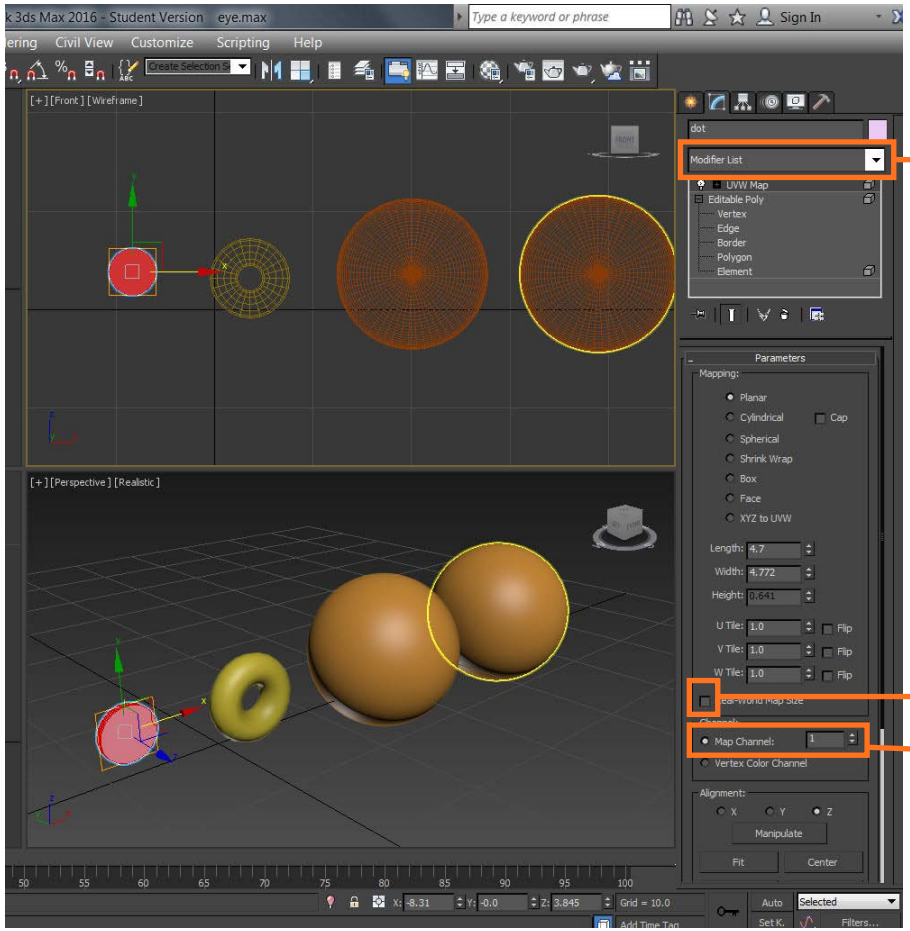

5. Keeping the cylinder selected (red) find the UVW Map on the "Modifier List".

6. Turn off the "Real World Msp-Size

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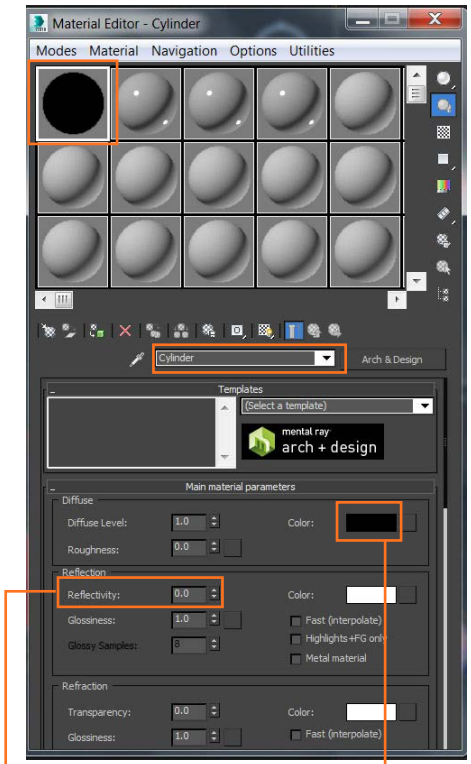

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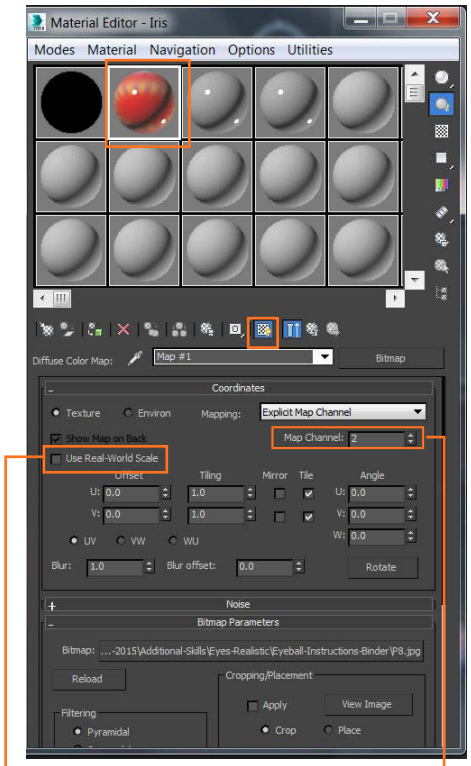
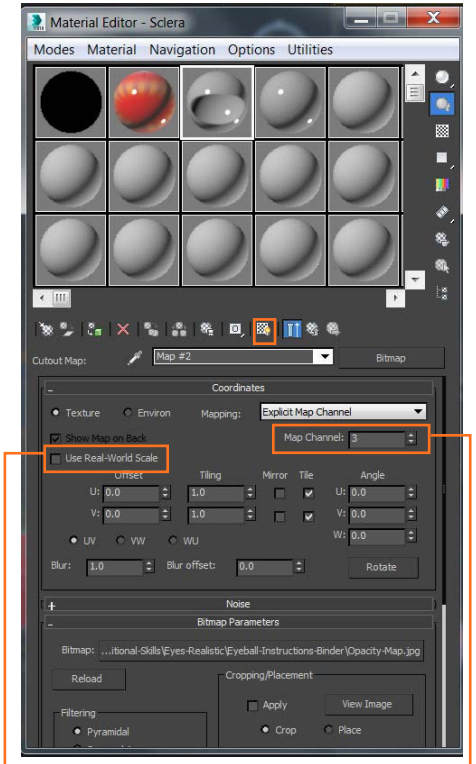


Turn off Use Real World.
Change Map Channel ID to "2".

10.



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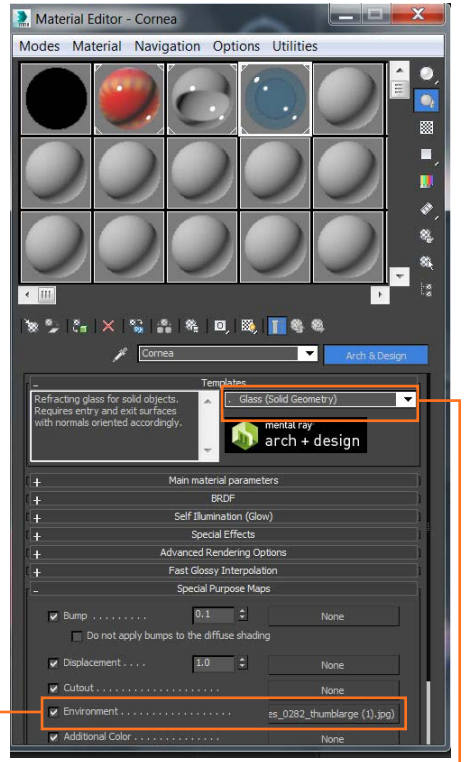

Select "Glass (solid geometry)
Place "Sky" JPEG into "Evironment".
Change Map Channel ID to "4".

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3D Character Design

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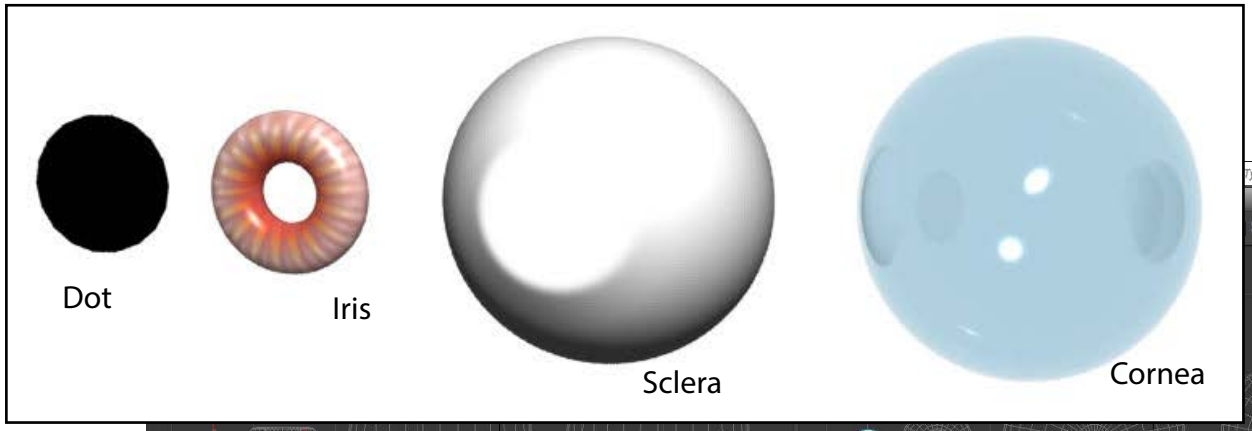

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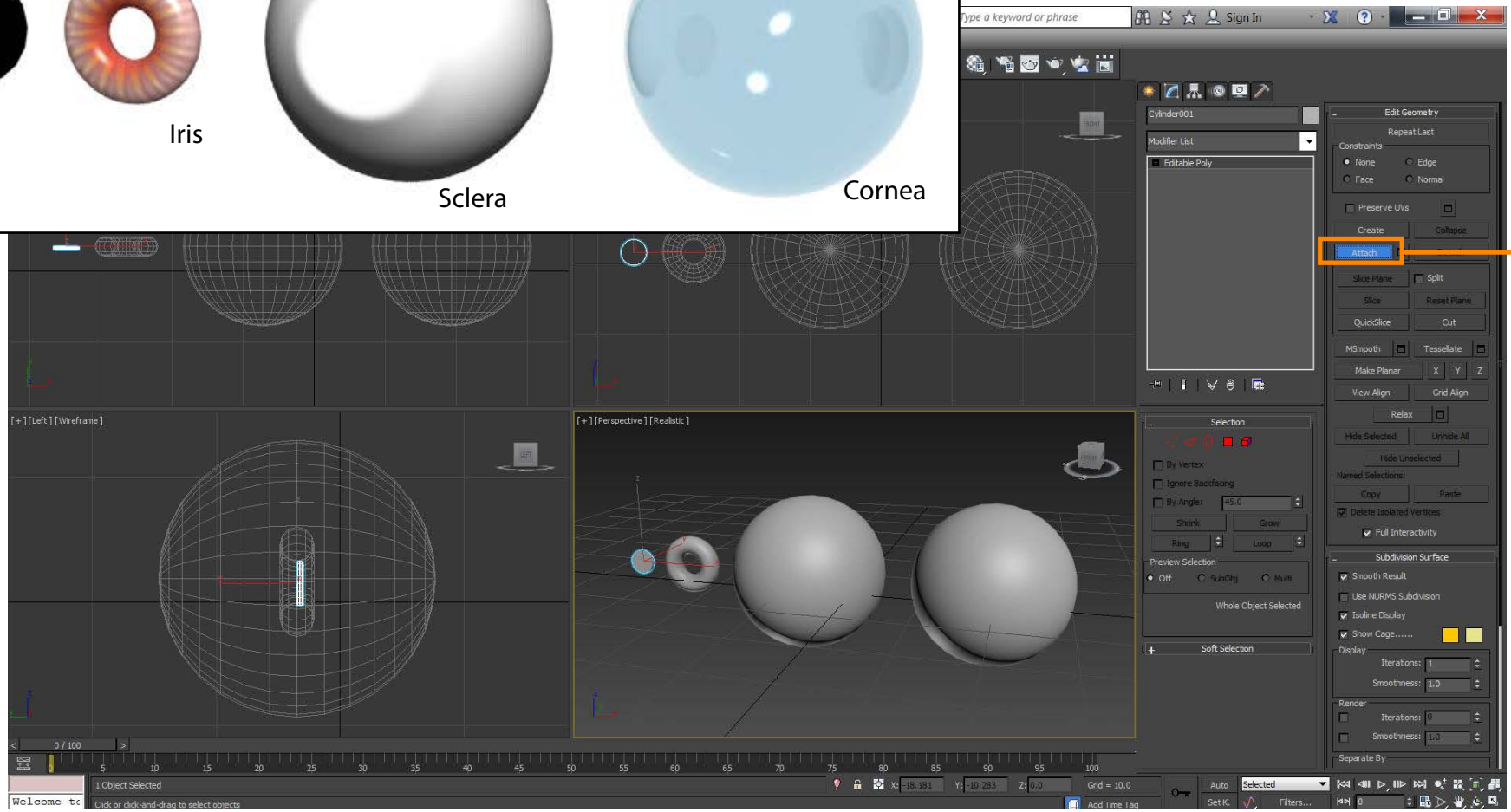

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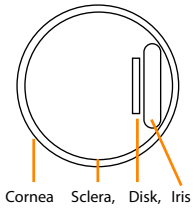

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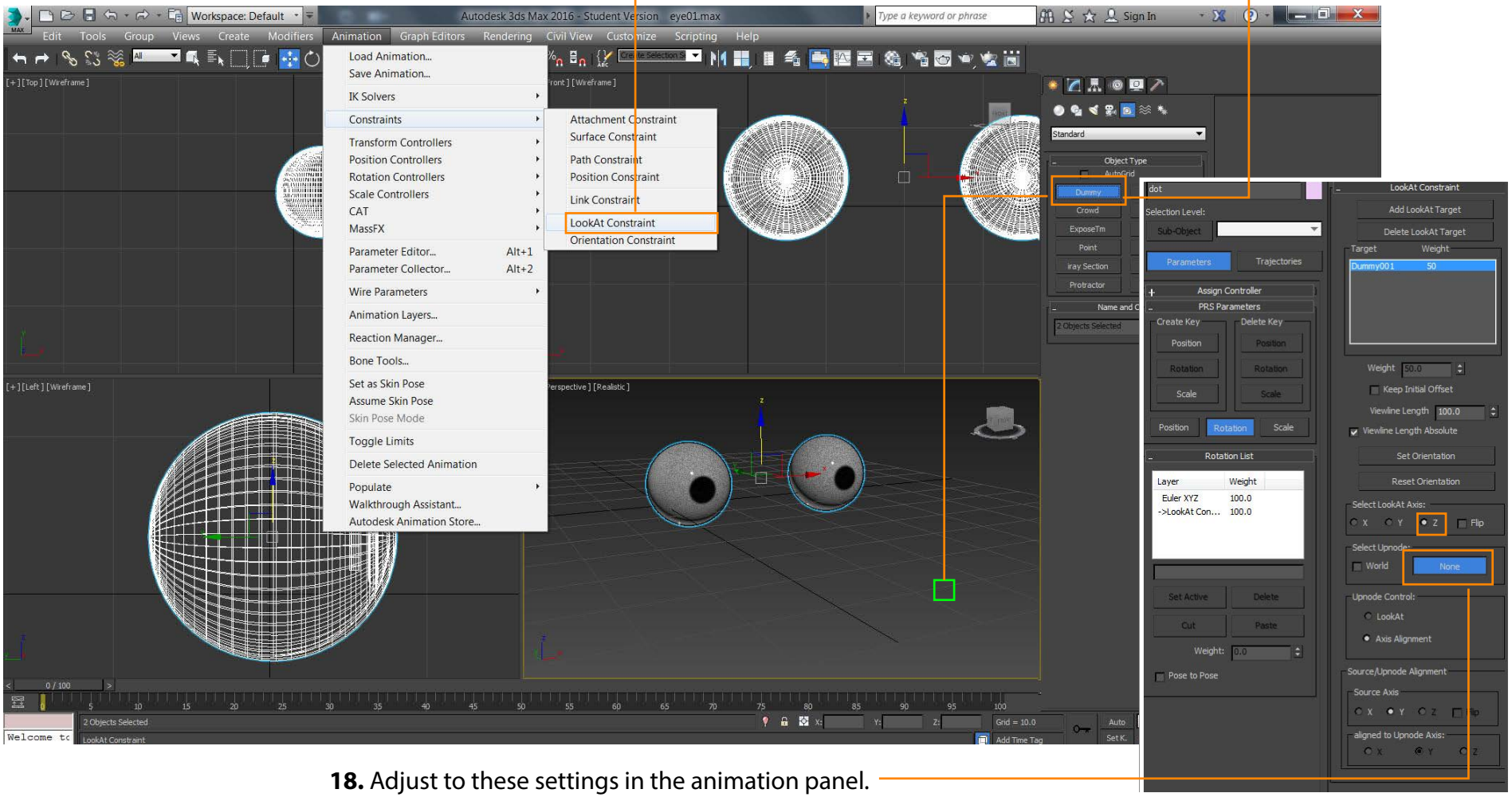

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