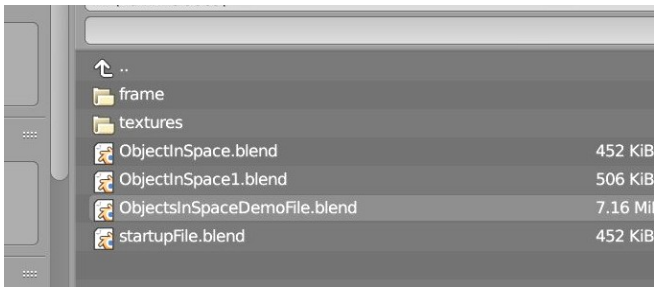
Appending objects and materials from other Blend files

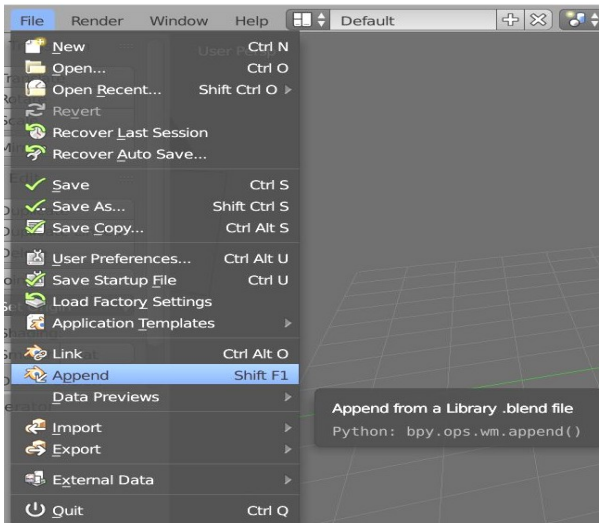
To save time in our workshop, we will import a variety of premade demonstration objects. These objects have different properties that will be of use for further study. We will use these assets to see how shading properties can be set to interact or not depending on the desired effect.

There are many excellent free tutorials available online for creating and setting up the properties for these objects.

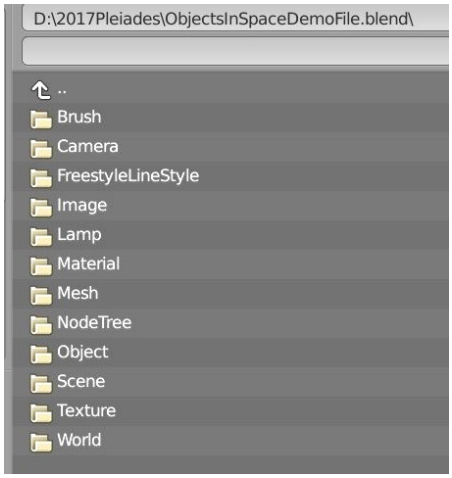
> Search Tip:
> When searching Google or other engines to figure out how to do something in Blender, make sure to include both “Blender” and “Cycles” in the search terms. This will weed out most of the much older and outdated tutorial and forum answers.

Blender can *import* a number of different 3D model file types, some natively and some by enabling import/export addons in User Preferences. To import from another blend file, we use the Append feature.





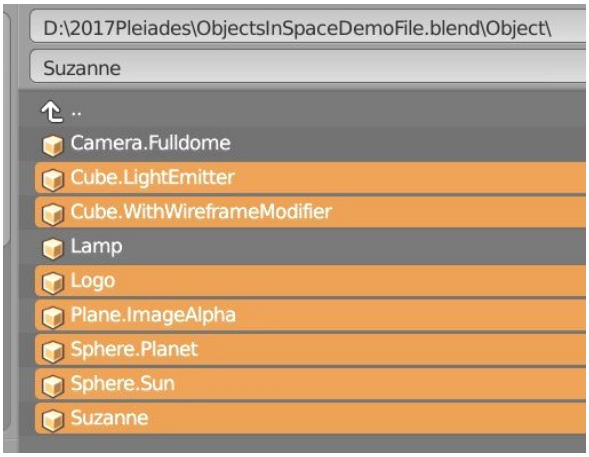
File > Append > ObjectInSpaceDemoFile.blend



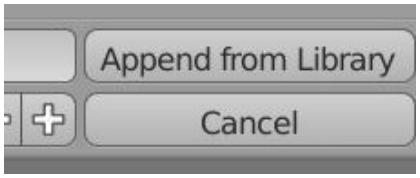
Inside the Blend file looks like a bunch of folders.

Enter the Object folder.

Shift-click to select everything but the camera and the lamp.

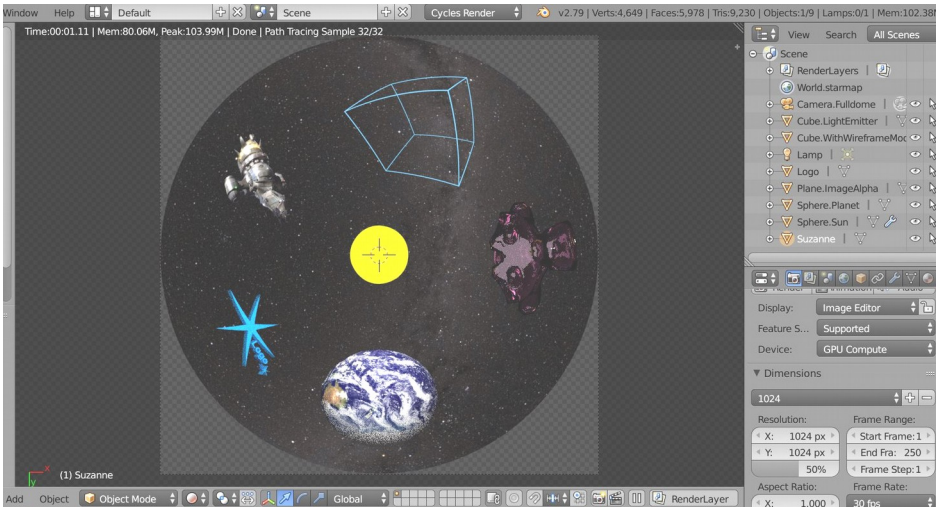


After selecting, click “Append from Library” in the upper right hand corner.



Save the Blend file.

After adding the items from the demonstration file to our working file, the render preview camera view should look like this:

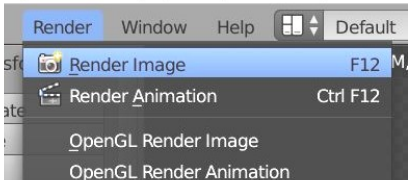


Numpad 0 for camera view

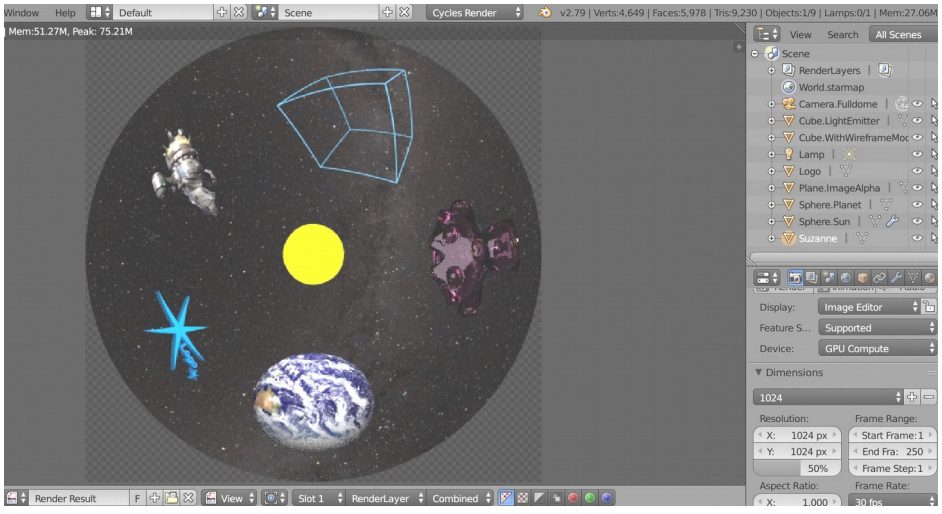
Shift-Z for render preview. Note that the fisheye effect cannot be scene in wireframe or solid view.

Compare the preview to a test render.

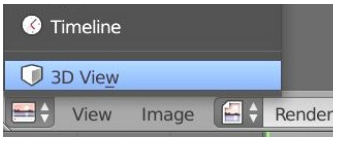
F12 or Render > Render Image



They should look similar at this point.



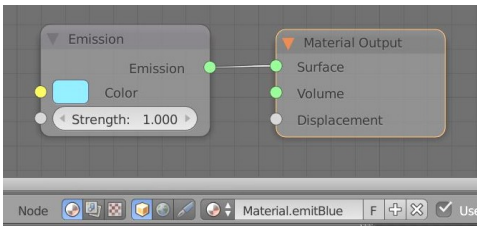
To exit Render Result, press Esc key or change the editor to 3D View.



The rest of this section describes the individual objects and their characteristics in detail. Some or all may be skipped during the workshop, but is included for later study.

Wireframe Cube (“Cube.WithWireframeModifier”)

This is a solid 3D cube with a material emitting blue light and with a modifier presenting it as a wireframe.



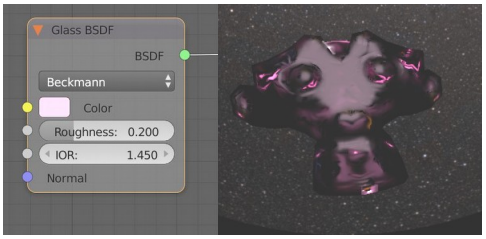
The modifier has not been applied to make the change permanent, so we could still change the thickness if we want.

Modifier settings are in the Properties Editor. Click the wrench icon to access them.

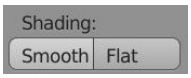
The eye symbol in the wireframe modifier panel toggles the visibility of the effect. Because the material is emitting, making the effect invisible shines a lot more blue light on the other objects.

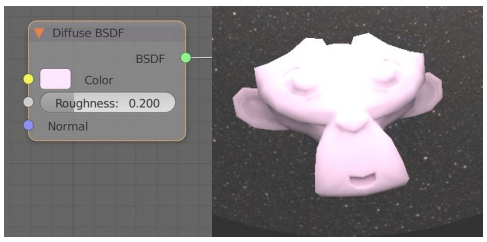
Glass Monkey Head (“Suzanne”)

Suzanne is a Blender mascot available for adding just like the cubes, spheres and other built-in shapes.



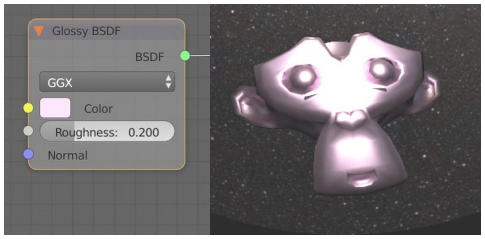
The model was added, simple smooth shading was applied, and the model was given a glass material. Compare Glass, Diffuse and Glossy.





Materials in Blender are what define how we see 3D objects. Characteristics including light, color, texture and transparency and how they interact with other objects are all defined through materials.

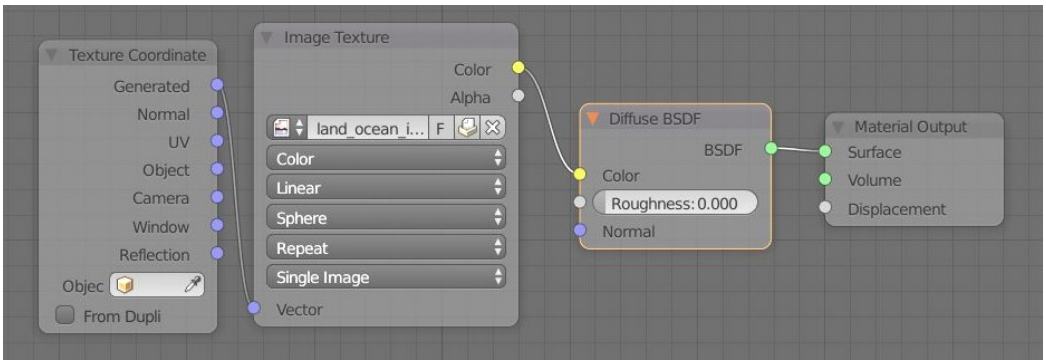
Shaders define the material. Shaders are the internal instructions telling the software how to achieve the effects.



Materials consist of 3 shaders. One for Surface, one for Volume and one for Displacement. Given how frequently surface shaders are used, it is not uncommon to see the terms “material,” “shader” and “surface shader” used interchangeably.

Earth Ball (“Sphere.Planet”)

The planet is a UVsphere with an image texture applied to a Diffuse Shader.

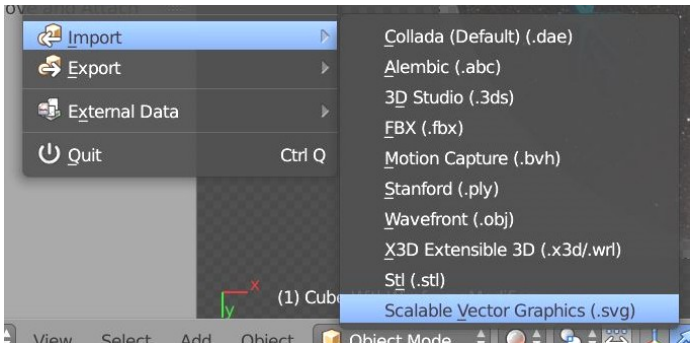


The projection method is set to “Sphere” and the texture is applied using Blender’s internally generated coordinates for mapping.

Logo

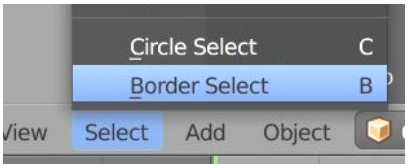
The Logo model is an imported 2D SVG file.

File > Import > Scalable Vector Graphics



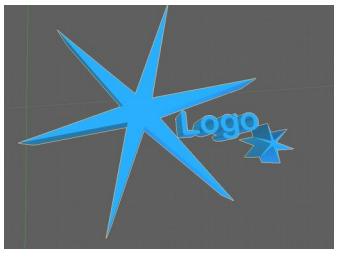
The imported file creates several Curve objects. The curve objects were selected using Border Select.

The B key starts the select, and the mouse is used to drag the box border around all of the curves. Border Select can also be started via the menu.

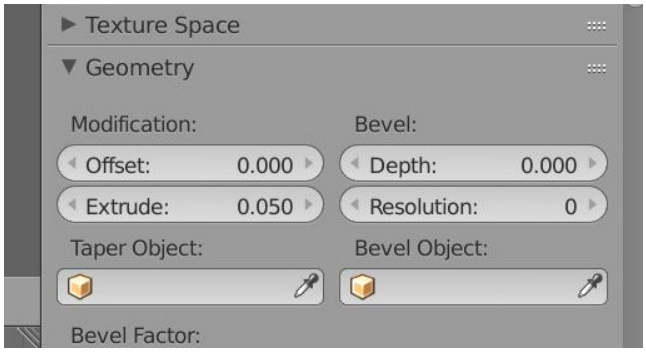


Select > Border Select

The selected curve objects are then joined as one object using Ctrl-J or Object > Join



Once joined into one curve object, the object was renamed “Logo”

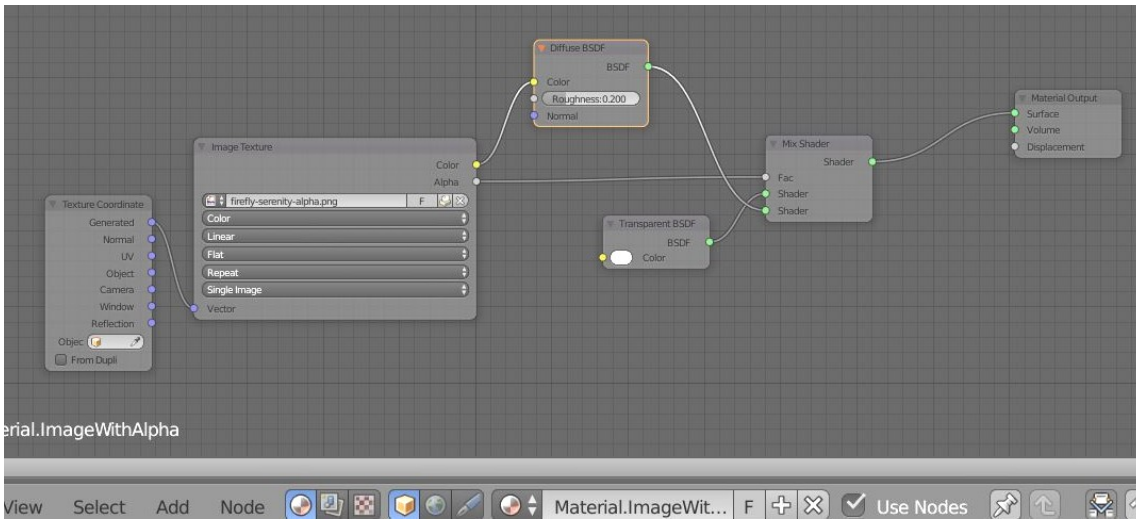


Finally, the curve was extruded as a Modification setting in the Geometry panel of Curve properties.

Try at home with your own planetarium logo. Most vector drawing programs can save or export to the SVG format.

Firefly Image (“Plane.ImageAlpha”)

Images and image sequences with alpha channels can be useful in fulldome scenes.



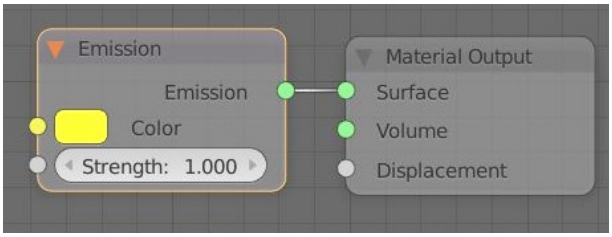
The material of this plane uses a Mix Shader. The Image Texture color output feeds into a Diffuse Shader which in turn feeds into the Mix Shader. A transparent shader also feeds into the Mix Shader, and the two are managed by the image texture alpha output feeding into the factor socket of the Mix Shader node. Note that the image texture in this case requires a Texture Coordinate input to use Blender’s internally generated coordinate.

> **Add-on Tip:**
> Add-ons are scripts enabled through User Preferences that extend the capabilities of Blender. “Import Images as Planes” automatically scales the image plane to the dimensions of the image. It also sets up the material nodes, although it uses a different coordinate method.

Sun Ball (“Sphere.Sun”)

An Icosphere was added with an Emission shader and a Subdivision Surface Modifier.

It will be made to glow in the next part of this workshop using RenderLayers and Compositing nodes.



“ Cube.LightEmitter”

This cube object is only used to provide lighting to the other objects in the scene.

It started out as a default cube, emission material set to strength of 5 and used Cycles Settings Ray Visibility in object properties to make it invisible to camera.