**Choices**

Throughout the course of this project, there were a few changes made to the original design. First, the two moss spheres were changed to a simpler shape. This was to save on time and polygons. Also, this made texturing the “spheres” much simpler. The torus originally planned for the tape roll was also changed to a cylinder for the same reasons.

Texture tiling was problems, so I opted for a simple purple color for the wine bottle with a simple repeating texture for the bottle stem.

As for lighting, I was having a lot of trouble properly lighting objects given the location of a light source. To fix this, I automatically generated normals for each mesh. This allowed for the easy generation of normal and the addition of normal for generated meshes, such as the cylinder meshes.

**Navigation**

When choosing how to navigate the scene there were several requirements.

1. The keys “wasd” can be used to translate the camera through the scene.
2. Camera rotation is controlled with mouse movements.
3. Movement speed is controlled with the scroll wheel.
4. The “q” and “e” keys are used to translate the camera up and down
5. The “p” key switches the view from projection to orthogonal.

These solutions seemed to be the most intuitive with several keys (such as left and right mouse clicks) remaining for other future functionality. If I were to add additional controls, I would have liked to have a way to control the location of the light sources. The left and right mouse buttons could have rotated the lights around a central axis, for example.

**Functions**

To make the code more organized, there were several custom functions developed. One of the most useful is the function “genNormals”. This function takes an array or vector of vertices and generates normal values depending on the winding of the triangles of a mesh. This allows for easier generation of normal then by calculating them by hand. This is especially helpful for complex meshes.

Another custom function was the “genCircle” function. This function generates a circle mesh given the number of sectors desired, center coordinates, radius, and a center modifier to generate cones. This function helps enormously with the creation of any needed cylinder meshes or cone meshes.

If I were to redo this project, I would probably end up creating a more modular mesh creation function that would take vertices and create a mesh without having to specify vertices in each mesh function.