**Reflection : 3D Backyard Shed**

I wanted to recreate the scene of a shed in a naturally lit yard. A cube is the obvious choice for a shed as is a plane for the yard. These are both simple shapes so I was able to create them from a static array of vertices. I also chose a low tree to represent the foliage in the yard. I thought the best way to show a smaller, younger tree was a sphere for the foliage on top of a cylindrical trunk. I had to pull in libraries to incorporate the sphere and cylinder into my code as it would be impractical to map out that many triangles by hand using vertices. I also thought a spherical tree could show off the scene’s late afternoon lighting a bit more.

To give the models real life I gave them all their own texture and interesting lighting. The ground and foliage both have dark green textures with grass and leaves populating them respectively. And the shed and tree both have wood-like textures, with the shed being a manmade plank while the trunk is closer to natural bark. To light this scene, I use 2 lights that follow the Phong model. The first light I choose is a tall white light to simulate light filtering from the sky through trees later in the day. The second light used an orangish hue coming from a low angle to the place to simulate the setting sun. You can see the color difference really well on the white wood of the shed.

The virtual scene can be Navigated by using the QWEASD keys to move up, down, left, right, forwards and backwards. These keys are pretty standard for this type of 3-D movement on computers and should be familiar to most users. The Key P can also be pressed to switch between Orthographic and Perspective views which can offer a different perspective to be explored. The mouse is also used for viewing. Moving the mouse around the scene changes the pitch and yaw of the camera in the direction that the mouse is moving. The scroll wheel can also be used to speed up the movement of the camera, allowing for finer movement.

The functions created for development create buffers for the different objects needed to create the scene, cube, plane, cylinder and sphere. These methods allow creation of these objects using different textures and vectors allowing someone else to use them to create different types of the same object using different shaders and sizes.