A notebook and pencils on a white desk

AI-generated content may be incorrect.

Our assignment calls for us to be able to look at an image & break it down into simple shapes to see how it can be made from shapes that can be rendered in OpenGL.

Some of the shapes expected to be rendered include a pyramid, spheres, flat plane, box, cone, cylinder, tapered cylinder, torus, & a prism. Some of the simpler shapes in the image above could be rendered by varying forms of cylinder like the pen, pencil, & the pone cap.

In order to translate 2d into 3d, we can simplify objects using basic geometric shapes & textures. The pinecone could be base doff a pyramid, small cylinders for the ends, though without realistic textures, it would appear out of place. The paper pad would work great as a flattened cube due to its volume, and maybe some cylinder for the wire spiral. The coffee cup can be a cylinder as well, with a half torus for the handle.

If looking at some of the other shapes, we can consider them a bit more complex. Like the glasses would need to be combined shapes, such as the cylinders & cubes. The lens might use an interconnected cube or cylinders. The image may be blocky overall though.

The keyboard looks like a giant flattened cube, with multiple small cubes making up the contents for each key. If it’s to be interactive, it might need more details to present itself fuller. The leave son the plant is a bit more challenging, as I don’t have a clear understanding on what shapes could be combined to render those. Might be simpler to make a jagged overlapping cylinder or just leave it out entirely.

Essentially using basic shapes & textures should allow us to recreate 95% of the scene. Objects with finer details such as the pinecone and leaves would take more precise details or easier to remove altogether, as they count not be made with enough details to determine the object. This should allow for more simplicity in making this in the 3D space.