**Module 6 Critical Thinking**

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**Spheres in WebGL**

Spheres are objects that are not supported in WebGL. The fundamental building block of all objects in WebGL is triangles, and thus, curved surfaces are not natively supported in WebGL. There is a process known as recursive subdivision in where the triangles are used to approximate the shape of a sphere. It starts as a simple geometric shape such as a tetrahedron that is then recursively subdivided into smaller triangles. As it is subdivided, the more triangles there are, the smoother the surface of the sphere becomes.

The most challenging part was actually getting the initial setup correct and the rendering of the tetrahedron. Once the initial setup and shape were established, the process became smoother. The most important methods of the program were the `render` function, the `triangle` function and the `divideTriangle` function, which is where the subdivision took place. These functions handled the core tasks of transforming the tetrahedron into an approximate sphere through recursive subdivision.

Once I got to the point where the sphere had some lighting, it really took on the 3D shape. The results were particularly special when I was able to get the sphere to spin and see the effect with the lighting. Towards the end of the project, I was able to get the sliders functional with interactivity with some elements such as the sliders for radius, theta, phi and subdivision. Lastly, I included two buttons to pause and resume the rotation. I found this project to be particularly rewarding once I was able to get the lighting and spinning effect.