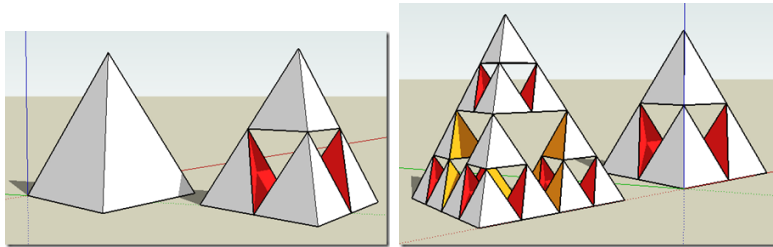Use the `three.js` to complete this assignment.

table

Draw a scene which shows a table with some objects on it. Use orbital controls to allow the viewer to look at your scene from various angles.

sierpinski

A Sierpinski gasket is a three-dimensional object made of tetrahedra. There is some discussion of this in Angel, section 2.10.

The picture shows the level 0 gasket, the level 1 gasket (twice), and the level 2 gasket.

A level 0 gasket is just a tetrahedron, with four vertices $v0,v1,v2,v3$ in space. A level n gasket with corners $v0,v1,v2,v3$ consists of four level $n-1$ gaskets. The corners of these smaller gaskets are

$$v0, v01, v02, v03$$
$$v01, v1, v12, v13$$
$$v02, v12, v2, v23$$
$$v03, v13, v23, v3$$

where $v12$ means the point halfway between $v1$ and $v2$ (you can use the `Vector3` method `lerpVectors` to compute these).

Create a 3D Sierpinski gasket. To do this, create a `Geometry` object, then compute and add vertices and faces using a recursive function.

Apply orbital controls for better viewing.

orrery

Create an animated model of a solar system. Include a central sun object and a few planets orbiting the sun. At least one planet should have an orbiting moon. Your model need not be physically accurate, or correspond to our actual solar system.

Planets orbit the sun in the "plane of the solar system". Include a semi-transparent plane to represent this.

For lighting: Include a point light source at the sun's position, so planets appear to be lit by the sun. Things will look better with some small amount of ambient light as well. Use `MeshBasicMaterial` for the Sun, so it appears to be emitting light.

Apply orbital controls for better viewing.