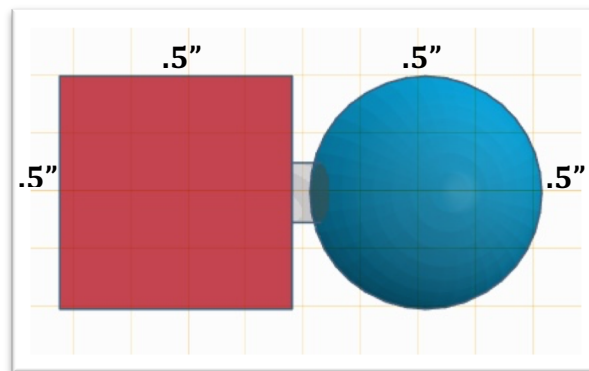


The Challenge

Peg, Cube and Sphere - (40 pts.)



Purpose: Students will develop their CAD skills by successfully attaching a Cube to a Sphere with a Peg. The peg sits in a hole that was formed in both shapes. This skill is the basis for the car that the students will soon create.

Specifications: *(In inches.)*

1. Create a **Cube:** H: .5" x W: .5 x L: .5"
2. Create a **Sphere:** H: .5" x W: .5 x L: .5"
3. Create a **Hole:** H: .2" x W: .2" x L: .9" that the peg slide into and connect the Sphere and the Cube. I create the Hole first, copy it and paste it in a separate file...then I reduce its size (See "Create A Peg" below.) Look at the photo above -> there should be a small gap between the cube and sphere when the peg is inserted.
4. Create a **Peg:** H: .175" x W: .175" x L: .85" that can slide in one side of each of these geometric shapes, but not out the opposite side. The two shapes should be able to touch when the peg is inside of them.

Helpful Hints:

- Convert the Grid from "Millimeters" to "Inches" (Change can be made by clicking on the "Edit Grid" button). Then set the "Snap Grid" to 1/64".
- Remember, you can only make edits to your shapes after changing the View or Angle by reapplying the "Work Plane."
- The hole is a cylinder.
- The hole will only appear when it has been "Grouped" with the other shapes.
- When you are ready to **Export** this object to be printed, the object should be visible in "Top View" and the grid behind it should be Light Blue in color – this is done by clicking the background grid (not the object) with the "Work Plane."