**AP Physics 1/2:**

**Archimedes’ Principle Lab**

**Purpose:** To demonstrate the relationships between buoyant forces, weight and densities.

**Materials:**

* Metal sample
* Spring scale  
  Caliper
* Beaker
* Liquids

**Theoretical Background:** Discuss the equations you use here.

**Procedure:**

Part A:

1. Measure the mass of the metal sample
2. Calculate the weight of the sample (actual weight)
3. Measure the mass of the metal sample in water
4. Calculate the apparent weight of the sample in water
5. Calculate the buoyant force acting on the sample

Part B:

1. Measure the dimensions of the cylindrical sample
2. Calculate the volume of the cylinder
3. Calculate the mass of an equal volume of water
4. Calculate the weight of the displaced water

Part C: Find the percent difference between the buoyant forces found in Part A and the weight of the displaced water found in part B.

Part D: Repeat the above procedure using another metal sample and either antifreeze or ethanol.

**Error analysis:**

**Conclusion:**