Geology   **Name** _____

Lab: Specific Gravity   **Date** _____

Objective: To understand and apply the concept of *Specific Gravity*

**Specific Gravity represents the weight of a mineral in comparison to an equal volume of pure water. For example, a mineral with a specific gravity of 4 is four times as heavy as an equal volume of pure water. Specific Gravity is sometimes referred to as the density of a mineral.

Materials: 8 Minerals, graduated cylinder, scale, water

Procedure: 1. Determine the mass of the mineral

2. Use the water displacement method to determine the volume of the mineral.
  (One milliliter = one cubic centimeter of volume)

3. Use the formula **D= M/V** to determine the specific gravity of the mineral

4. Repeat this for two samples of EACH mineral. Complete the chart.

Mineral Name	Mass (g)		Volume (cm^3)		Specific Gravity (g/ cm^3)	
	Sample 1	Sample 2	Sample 1	Sample 2	Sample 1	Sample 2
1. Quartz						
2. Galena						
3. Halite						
4. Calcite						
5. Pink Microline Feldspar						
6. Chalcopyrite						
7. Magnetite						
8. Hematite						

Questions:

1. List the minerals, by name, from lowest to highest specific gravity.

2. Why is the specific gravity of galena so much greater than the specific gravity of quartz?

3. If the sample of calcite was cut into two equal pieces, what would the density of each half be when compared to the density of the whole piece of calcite?

4. Compare your mineral densities with the listed density on page 666-667. List at least 3 factors would affect the difference in mineral density.

Mystery Cube Density Lab
(Day 1)

Objective: To discover the identity of each cube based on its density.

Materials: Density cube set (9 cubes)

Hypothesis: If the mass and volume of a cube is found, then the density of the cube will determine the material of the cube.

Procedures:
1. Find the mass of each cube using a balance and record results in the data table.
2. Find the volume of each cube (Length x Width x Height) and record results in the data table.
3. Calculate the density by dividing the mass by the volume and record results in the data table.
4. Identify the mystery cubes based on their densities from the chart below.

Known values for cube densities (g/cm^3)

Acrylic = 1.1 – 1.2   Pine = 0.45
Aluminum = 2.7   Polypropylene = 0.90 – 0.92
Brass = 8.5   PVC = 1.4
Copper = 8.9   Steel = 7.9
Oak = 0.6 – 0.9

Results:

Cube #	Mass (g)	Volume (cm^3)	Density (g/cm^3)	Identity
1				
2				
3				
4				
5				
6				
7				
8				
9				

Conclusion:
1. What determines whether a cube will float or sink in water?
2. Which cubes would sink in water?
3. Which cubes would float in water?
4. Describe how you determined the volume of the cubes.
5. Describe how you found the density for each cube.