Density Notes

1. Define mass?

2. Define volume?

3. Define density and show the formula for calculating density.

4. Why does changing the shape of an object have no effect on the density of that object?

5. Aluminum is used to make airplanes. Cast iron is used to make weightlifting equipment. Explain why the densities of these metals make them useful for these purposes?

6. What is the density of water? Use the density formula D=m/v to solve. Remember that water is 1 g=1 mL=1cm^3

7. Why does an air bubble rise to the surface of a glass of water?

8. Calculate the densities of the following objects. **Remember to place units after each number.**

Object A length = 6cm width = 3cm height = 1cm mass = 36g

volume = _____ density = _____

Object B length = 10cm width = 5cm height = 2cm mass = 300g

volume = _____ density = _____

Object C Use the water displacement method to determine the density of object C (clay).

-initial water level in graduated cylinder = 25 mL
-final water level after placing clay into graduated cylinder = 29mL
- mass of clay=8g

volume = _____ density = _____

Density Notes Continued

9. Circle each of the following materials that will float on water (density 1 g/mL).

air = .001 g/cm^3

corn oil = .93 g/cm^3

glycerine = 1.26 g/cm^3

corn syrup = 1.38 g/cm^3

wood = .85 g/cm^3

steel = 7.81 g/cm^3

rubber = 1.34 g/cm^3

ice = .92 g/cm^3

water = 1.00 g/cm^3

10. Assuming the materials don't mix together, show how the materials would "stack up" in a graduated cylinder. Write the name of the material next to the graduated cylinder in order from the most mass to the least. Would the greatest density materials be at the top or the bottom? Use all 9 materials.