Honors Chemistry Hour\_\_\_\_\_ Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
Density Practice
Date assigned:

Refer to textbook: pp. 26-28 and/or internet resources

1. Define the term “density” as it applies to chemistry:

2. What is the difference between mass and volume?

3. What are the SI (Standard International) base units for mass and volume?

 A. Mass:

 B. Volume:

4. What is the derived unit for density if you use SI base units for mass and volume?

5. In our class we do not use SI base units for mass and volume. According to the textbook, what derived unit for density is most commonly used?

6. If a balloon is filled with helium gas it will float in air. This is because helium has a lower density than air.

Write a general statement describing the relationship between a substance’s density and its tendency to float or sink in the presence of a second substance:

7. In terms of your answer to Q6 above, explain why wood floats on water:

8. The formula for density is: D = m/V

If a 250mL chunk of metal has a mass of 1475g, what is the density of the metal? Show all calculations.

9. If the density of water is 0.996g/mL at room temperature, will a vegetable oil having a density of 0.910g/mL float or sink? Justify your answer.

10. If an object having a density of 2.3 g/mL has a volume of 24mL, what is its mass?

(Hint: First, rearrange the density formula. Second, plug in and solve.)

11. An object such as wood that is floating on water is being pulled downward by the force of gravity. Why doesn’t it sink into the water? (Note: it isn’t enough to say that less dense objects rise. We want to know this: why do they rise?)

12. In the weightlessness of the International Space Station a piece of cork will neither float nor sink in a container of water. Instead it will move in random directions. However, we know that the density of cork is much less than that of water (0.24g/mL compared to 0.996g/mL). Explain why the cork does not float? (note: this question relates to question 11).