Physical Science Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Unit 2 Period \_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_

**Physical Science – Unit 2 Review**

1. Describe the difference between mass and volume.



2. What are typical units used to measure:

 a. distance \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
b. mass \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 c. volume (list 2) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
d. density (list 2) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. In the picture of a graduated cylinder shown at right, sketch in a liquid with a volume of 37.0 mL.

4. If the box at left contains atoms of iron in steel wool, represent the

 particle structure of the steel wool after strong heating in a fire in the box at right.



 5. In the Mass Change Lab, students took an ice cube in a container, massed it, then let the ice cube melt and massed it again. The mass did not change.

 a. What concept does this illustrate? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 b. Draw particle pictures for before and after for this procedure.

|  |  |
| --- | --- |
| ***Before*** | ***After*** |

6. The 1st hour physical science class produced the following graph when they were measuring the mass and volume of a set of objects in the lab.



 a. Write the equation for the line in y = mx + b format.

 b. What is the density of this substance? *(include units)* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 c. What is the volume of a chunk of this substance that has a mass of 42g? Show your work.

7. What is the formula for density? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. Mercury has a density of 13.6 g/mL. What is the volume occupied by 112.0 grams of mercury?

9. In Figure 4 below, a graph shows the relationship between mass and volume for two substances,
A and B. Use the graph to answer questions about these two substances.



1. Water has a density of 1.00 g/mL. Sketch the line
 representing water on the graph in Figure 4.

 b. Determine whether substances A and B will sink or float
 when placed in a bucket of water. (Circle)

 **A**: sink or float

 **B**: sink or float

10. Draw a particle representation for each of the following

|  |  |
| --- | --- |
| A **mixture** of lead (Pb) and oxygen (O) | A **compound** of lead (Pb) and oxygen (O) |
|  |  |



11. Use the pictures above and the definitions discussed in class and from the notes to help you…don’t just think about what they are made of, but how can we separate them as well.

a. Define/describe the difference between *element* and *compound.*

b. Define/describe the difference between *pure substance* and *mixture.*

12. Pure Substance vs. Mixture

|  |  |  |  |
| --- | --- | --- | --- |
| **Substance** | **Pure Substance or Mixture** | **If pure … Element or Compound** | **Particle Picture** |
| carbon (C) |  |  |  |
| salt water  |  |  |  |
| carbon dioxide (CO2) |  |  |  |
| water (H2O) |  |  |  |
| air |  |  |  |
| iron (Fe) |  |  |  |

13. What is the difference between a dilute and a concentrated solution? Use particle pictures to help
 you describe the differences.

 14. What are two methods used to separate mixtures? Give at least 1 example of each method.



15. How many grams of CaCl2 are needed to make a saturated solution at 20°C?

16. Which substance is the most soluble at 10°C?

17. At 50°C, can 100 mL of water hold more NaCl or Pb(NO3)2?

18. Would you be able to dissolve ( all / some ) of 40g of KNO3 into 100mL of water at 20oC?

19. At what temperature would you need 100g of water to dissolve 100g of NaNO3?

20. List the substances (if any) that decrease in solubility as the temperature increases.