***Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_\_\_***

***Physical versus Chemical Properties***

**I. Reviewing matter:**

**Matter**: anything that has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and takes up \_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. **Mass** – the amount of \_\_\_\_\_\_\_\_\_\_\_\_ in something
2. **Volume** – the amount of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ something occupies

|  |  |  |
| --- | --- | --- |
| Is it Matter?  | Yes  | No  |
| A car?  |
| A box?  |
| You?  |
| Heat?  |

**II. Property**: a characteristic of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that can be \_\_\_\_\_\_\_\_\_\_\_\_\_.

**III. Physical property**: a property that can be observed \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ changing the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the substance. Examples: luster, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (the ability to be hammered into \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ), \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (the ability to stretch into a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_), melting point, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ point, density, solubility and specific heat.

**IV. Special properties:**

**Melting point**: temperature at which a substance changes from a solid to a \_\_\_\_\_\_\_\_\_\_ at a given

**H2O** = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Boiling point**: temperature at which a substance changes from a \_\_\_\_\_\_\_\_\_\_ to a \_\_\_\_\_\_\_\_\_\_\_\_\_ at a given pressure.

**H2O** = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**V. Chemical property**: a property that can be only be observed by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the substance. Examples: flammability, ability to rust, reactivity with vinegar

# **VI. Density:** the amount of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ per unit of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. Density can be used to identify a substance.

Water’s density is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**VII. Calculations D = m/V = g/mL = g/cm3**

Examples: A cube has a mass if 2.8g and occupies a volume of 3.67mL. Would this object float or sink in water? This object would \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in water because its density is \_\_\_\_\_\_\_\_\_\_\_\_\_ than water whose density is \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**VIII. More Density Calculations**

A liquid has a mass of 25.6 g and a volume of 31.6 mL.

What is the identity of the liquid? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\*Use the information in the chart for reference.

|  |  |
| --- | --- |
| **Substance**  | **Density (g/mL)**  |
| Mercury  | 13.6  |
| Water  | 1.0  |
| Ethanol  | 0.81  |