***Name:*** _____ ***Period:*** _____

# *Physical versus Chemical Properties*

**I. Reviewing matter:**

**Matter**: anything that has _____ and takes up _____

**Mass** – the amount of _____ in something

**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

**$H_2O$** = _____ or _____

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

**$H_2O$** = _____ 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 _____.

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 |

**Chemical versus Physical Properties**

| Property Description | Chemical | Physical |
|---|---|---|
| Can react with vinegar | | |
| Density | | |
| Can react with the oxygen in the air | | |
| Luster (shininess) | | |
| The ability to freeze | | |
| Can react with an acid | | |
| Combustible | | |
| The ability to melt | | |
| The ability to digest food | | |
| The ability to sublime (solid →gas) | | |
| Malleability | | |
| Ductility | | |
| The ability to react with water | | |
| The ability to neutralize stomach acid | | |
| Color | | |
| Magnetism | | |
| Odor | | |
| The ability to rust | | |
| The ability to evaporate | | |