

Physical Versus Chemical Properties

I. Reviewing matter:

Matter: anything that has mass and takes up space

- Mass – the amount of matter in something
- Volume – the amount of space 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

$H_2O =$ _____

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

$H_2O =$ _____

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 $D = m/V = \text{g/mL} = \text{g/cm}^3$

- Examples: A cube has a mass of 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