Matter

Can it be physically separated?

Yes

No

Is the composition uniform?

Yes

No

Can it be decomposed chemically?

Yes

No

Pure Substances

* **Element**

Matter composed of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Ex.

* **Compound**

Matter composed of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ elements in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Propterties \_\_\_\_\_\_\_\_\_\_\_\_\_\_from those of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Ex.

* **Law of Definite Composition**
  + A given compound always contains the same, fixed ratio of elements.
* **Law of Multiple Proportions**
  + Elements can combine in different ratios to form different compounds.

# Kinetic Molecular Theory

**KMT**

Particles of matter are always in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (speed) of these particles \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as temperature increases.

# The 4 States of Matter

**Solids**

 \_\_\_\_\_\_\_\_\_\_\_\_ KE - particles \_\_\_\_\_\_\_\_\_\_\_\_\_ but can’t move around

 \_\_\_\_\_\_\_\_\_\_\_\_ shape

 \_\_\_\_\_\_\_\_\_\_\_\_ volume

**Liquids**

 \_\_\_\_\_\_\_\_\_\_\_\_ KE - particles can \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ but are still close together

 \_\_\_\_\_\_\_\_\_\_\_\_ shape

 \_\_\_\_\_\_\_\_\_\_\_\_ volume

**Gases**

\_\_\_\_\_\_\_\_\_\_\_\_\_ KE - particles can separate and move throughout container

 \_\_\_\_\_\_\_\_\_\_\_\_ shape

 \_\_\_\_\_\_\_\_\_\_\_\_ volume

**Plasma**

\_\_\_\_\_\_\_\_\_\_\_\_\_ KE - particles collide with enough energy to break into charged particles (+/-)

gas-like, variable \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Examples:

# Physical vs. Chemical

Examples:

melting point -

flammable -

density -

magnetic -

tarnishes in air -

**Physical Property**

can be observed without changing the \_\_\_\_\_\_\_\_\_\_\_\_ of the substance

**Chemical Property**

describes the ability of a substance to undergo changes in identity

**Physical Change**

changes the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a substance without changing its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ remain the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Chemical Change**

Examples:

rusting iron -

dissolving in water -

burning a log -

melting ice -

grinding spices -

changes the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a substance

products have different \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Signs of a Chemical Change**

change in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

formation of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

formation of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

change in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_