Name: _____ Date: _____

Notes: Physical and Chemical Changes

What are the 2 types of pure substances? _____

What is the smallest particle of an **element**? _____

What is the smallest particle of a **covalent compound**? _____

What is the smallest particle of an **ionic compound**? _____

The **diatomic molecules:** _____

What is the ratio of elements in each of the compounds below:

Fe_2O_3 = ____Fe : ____O SiO_2 = ____Si : ____O $CaBr_2$ = ____Ca : ____Br

HCl = ____H : ____Cl LiCl = ____Li : ____Cl PCl_3 = ____P : ____Cl

CH_3OH = ____C : ____H : ____O KOH = ____K : ____O : ____H

$CaCO_3$ = ____Ca : ____C : ____O $NaNO_3$ = ____Na : ____N : ____O

What is a physical change? _____

_____

Changing Size and Shape vocabulary: _____

_____

What determines a substance's temperature? _____

_____

What happens when a substance is heated? _____

What happens when a substance is cooled? _____

Phase change vocabulary:

A solid becomes a liquid: _____ A liquid becomes a solid: _____

A liquid becomes a gas: _____ A gas becomes a liquid: _____

A solid becomes a gas: _____ A gas becomes a solid: _____

What is a **mixture**? _____

_____

What are used to separate mixtures? _____

What is a **chemical change**? _____

_____

What are the signs of a chemical change?

1. _____ 2. _____

3. _____ 4. _____

Sure way to tell a chemical change occurred: _____

What are some things you should recognize as chemical changes? _____

_____

Erosion vs. Corrosion

Define ***erosion***: _____

Is *erosion* a physical or a chemical change? _____

Define ***corrosion***: _____

Is *corrosion* a physical or a chemical change? _____

Important Fact: **(s) = _____** **(l) = _____**

(g) = _____ **(aq) = _____**

Decide if the following are physical or chemical changes (write physical or chemical in the blank.)

Ethane burning: $\mathbf{C_2H_{6(g)} + O_{2(g)} \longrightarrow CO_{2(g)} + H_2O_{(l)}}$ _____

Platinum melting: $\mathbf{Pt_{(s)} \longrightarrow Pt_{(l)}}$ _____

Combustion of carbon: $\mathbf{C_{(s)} + O_{2(g)} \longrightarrow CO_{2\,(g)}}$ _____

Cellular respiration: $\mathbf{C_6H_{12}O_{6(s)} + O_{2(g)} \longrightarrow CO_{2(g)} + H_2O_{(l)}}$ _____

Potassium bromide being dissolved: $\mathbf{KBr_{(s)} \xrightarrow{H_2O} KBr_{(aq)}}$ _____

Decomposition of copper (II) carbonate: $\mathbf{CuCO_{3(s)} \longrightarrow CuO_{(l)} + CO_{2(g)}}$ _____

Synthesis of ammonia: $\mathbf{N_{2(g)} + H_{2(g)} \longrightarrow NH_{3(s)}}$ _____

Evaporation of water: $\mathbf{H_2O_{(l)} \longrightarrow H_2O_{(g)}}$ _____

Combustion of butane: $\mathbf{C_4H_{10(s)} + O_{2(g)} \longrightarrow CO_{2(g)} + H_2O_{(l)}}$ _____

Sublimation of carbon dioxide: $\mathbf{CO_{2(s)} \longrightarrow CO_{2(g)}}$ _____

Lithium chloride dissolves in water: $\mathbf{LiCl_{(s)} \xrightarrow{H_2O} LiCl_{(aq)}}$ _____

Acetone vaporizes: $\mathbf{CH_3COCH_{3(l)} \longrightarrow CH_3COCH_{3\,(g)}}$ _____

Corrosion of hydrogen peroxide by light: $\mathbf{H_2O_{2(l)} \longrightarrow O_{2(g)} + H_2O_{(l)}}$ _____

Salt crystals form out of solution: $\mathbf{NaCl_{(aq)} \xrightarrow{H_2O} NaCl_{(s)}}$ _____