

Chemical Reactions – Chapter 11

Physical change –

Examples:

Chemical change –

Examples:

Things that are NOT chemical changes:

*

*

Signs of a chemical change:

1)

2)

3)

4)

5)

Be careful though! Sometimes these signs can be deceiving.

Examples: **Boiling** - _____
* You will see bubbles, but it is NOT a chemical reaction.

Diluting - _____
* It will alter the color, but it is NOT a chemical reaction.

Chemical reaction –

Chemical equation –

Reactants –

Products –

Coefficient –

Subscript –

Reaction Symbols:



Collision Theory –

- 1) Molecules must _____ in order to react.
- 2) When they collide, they have to have
 - a) _____.
 - b) _____.

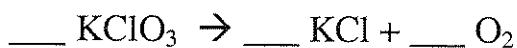
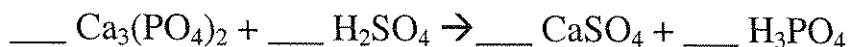
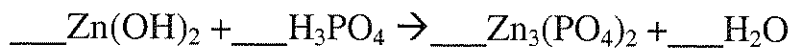
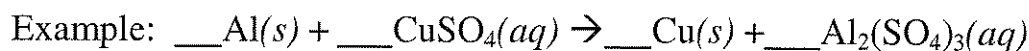
Law of Conservation of Mass –

- Every chemical equation _____.
- Therefore, equations must be balanced so that:

When Balancing Equations:

Only _____ can be changed!!

NEVER change the _____ !!



Types of Reactions:

- 1) **Synthesis** –
- 2) **Decomposition** –
- 3) **Single Replacement** –
- 4) **Double Replacement** –
- 6) **Combustion** –

Predicting the Products – Single Replacement

- For single replacement – Use the _____.
- The free element **must be** _____ than the element in the compound.

If the free element is _____ than the element in the compound, the reaction _____.



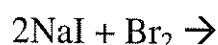
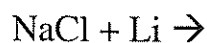
If the free element is _____ than the element in the compound, the reaction _____.



(DNR = _____)

****Don't EVER bring a _____ across the arrow UNLESS it's part of a _____.**

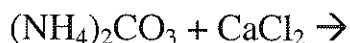
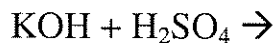
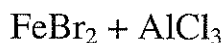
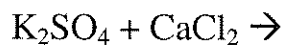
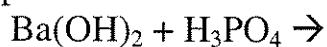
Examples using the ACTIVITY SERIES.



Predicting the Products – Double Replacement

- In order for a double replacement reaction to occur, one product **MUST BE**:
 -
 -
 -
- If all products are _____, it **WILL NOT** occur.
- Use the _____:
 - **Soluble** =
 - **Insoluble** =

Examples:

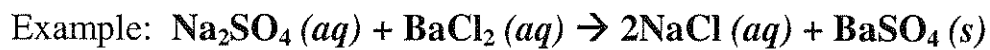


Net Ionic Equations

- _____ can be split into ions. (Don't forget charges!)
- _____ can be separated into ions.
- Substances that are _____ **cannot** be separated.
- _____ are removed from the ionic equation, leaving the

If Aqueous:

- Step 1 –
- Step 2 –
- Step 3 –



Ionic Equation:

Spectator Ions:

Net Ionic Equation:

Lab Tests

* **Burning Splint** - A burning splint can be used to test for:

- _____ (squeaky “pop” sound)
- _____ (blow out the splint and **it will reignite**)
 - Because fire needs O_2 to burn.
- _____ (flame will go out)
 - Because CO_2 smothers it.

* **Limewater and CO_2**

- Clear, colorless limewater will turn a _____ if carbon dioxide is added.