*Notes* *Name:*

**Double Replacement Reactions** has a positive ion and a negative ion switching places

- Equation:

- A Double Replacement Reaction will usually produce:
  - ▪
  - ▪
  - ▪

| Ions That Form *Soluble* Compounds | Exceptions |
|---|---|
| Group 1 ions ($Li^+$, $Na^+$, etc.) | |
| ammonium ($NH_4^+$) | |
| nitrate ($NO_3^-$) | |
| acetate ($C_2H_3O_2^-$ or $CH_3COO^-$) | |
| hydrogen carbonate ($HCO_3^-$) | |
| chlorate ($ClO_3^-$) | |
| halides ($Cl^-$, $Br^-$, $I^-$) | when combined with $Ag^+$, $Pb^{2+}$, or $Hg_2^{2+}$ |
| sulfates ($SO_4^{2-}$) | when combined with $Ag^+$, $Ca^{2+}$, $Sr^{2+}$, $Ba^{2+}$, or $Pb^{2+}$ |

| Ions That Form *Insoluble* Compounds* | Exceptions |
|---|---|
| carbonate ($CO_3^{2-}$) | when combined with Group 1 ions or ammonium ($NH_4^+$) |
| chromate ($CrO_4^{2-}$) | when combined with Group 1 ions, $Ca^{2+}$, $Mg^{2+}$, or ammonium ($NH_4^+$) |
| phosphate ($PO_4^{3-}$) | when combined with Group 1 ions or ammonium ($NH_4^+$) |
| sulfide ($S^{2-}$) | when combined with Group 1 ions or ammonium ($NH_4^+$) |
| hydroxide ($OH^-$) | when combined with Group 1 ions, $Ca^{2+}$, $Ba^{2+}$, $Sr^{2+}$, or ammonium ($NH_4^+$) |

*compounds having very low solubility in $H_2O$

**Predicting the Products**

- Given the _____, write the name of the products by switching the _____ names
  - Do not use acid names; use _____. (ex: Don't use Nitrous Acid; use Hydrogen Nitrite)
- Check the Table of Solubility Rules
  - If something is _____ → It will form a _____ (s) during the reaction.

    ∴ The reaction _____.
  - If a _____ / _____ has formed

    ∴ The reaction _____.
  - If something is _____ → it will form an _____ product
    - If you finish with 2 _____ reactants:

      ∴ The reaction _____.

**The Exceptions!**

- 5 things that may seem soluble, but will actually produce a liquid or a gas → _____

  **If any of these are a product, there will be a reaction:**

  - Hydrogen Carbonate → breaks into water and _____.
  - Hydrogen Sulfite → breaks into _____ and _____.
  - Ammonium Nitrate → breaks into _____ and _____.
  - Hydrogen Sulfide - $H_2S$
  - Hydrogen Hydroxide – _____