

Lecture 11C: Predicting Products (AKA Soap Opera Chemistry)

Why are we learning this?

Chemistry Standard #3A: Students need to know how to

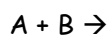
_____ & _____ chemical reactions.

Five types of reactions:

- Synthesis (Combination)
- Decomposition
- Single Replacement
- Double Replacement
- Combustion

1 - Synthesis or Combination

Two or more substances react to form _____



The soap opera begins . . .

Demo #1: Synthesis Reaction



2 - Decomposition

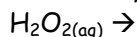
Occurs when a compound breaks down into _____

A decomposition reaction requires _____



Drama with Rob and Sally . . .

Demo #2: Decomposition Reaction



3 - Single Replacement Reaction

- A single element atom replaces a "like" atom in a compound
 - Can be cationic or anionic . . .
 - A metal will always replace:
 - An non-metal will always replace:
- Cationic Single Replacement: A is a metal, B is a cation (+)
 $A + BC \rightarrow$

Summary:

Anionic Single Replacement: D is a non-metal, C is an anion (-)
 $D + BC \rightarrow$

How can you know if one metal will displace another?

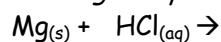
- Look on the _____ Page _____.
- A reactive metal will replace any metal listed _____ it.

Will this React? $Mg + ZnCl_2 \rightarrow$

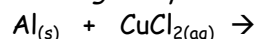
Will this React? $Mg + CaCl_2 \rightarrow$

Along comes Brian . . .

Demo #3: Single Replacement Reaction



Demo #4: Single Replacement Reaction

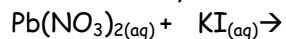


4 - Double Replacement Reaction

Compounds exchange _____
 $AB + CD \rightarrow$

Drama at the prom. . .

Demo #5: Double Replacement Reaction

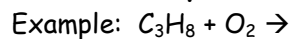


5 - Combustion

An element or compound reacts with _____ producing _____
as heat and light.

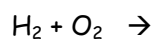


Combustion of a **hydrocarbon** yields _____ and _____



The Soap opera Ends ☹

Demo #6: Combustion



Summary: