

Classifying Chemical Reactions

1. Synthesis Reactions (Combination Reactions)

A compound is made from simpler substances (usually elements)



Ex1:



Ex2:



**To be completed and
balanced in class!**

2. Decomposition Reactions (Analysis Reactions)

A compound is broken down into simpler substances (usually elements)



Ex1:



Ex2:



**To be completed and
balanced in class!**

3. Single-Replacement Reactions (Single-Displacement Reactions)

One element (alone) switches places with another element (in a compound)

3. a. Cationic (positive ions switch)



Ex1 (cationic):



**To be completed and
balanced in class!**

3. b. Anionic (negative ions switch)



Ex2 (anionic):



To be completed and
balanced in class!

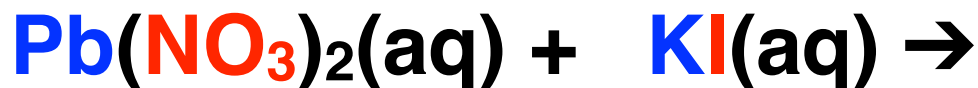
4. Double-Replacement Reactions (Double-Displacement Reactions)

Positive (or negative) ions in two compounds switch partners



4. a. Precipitation (one product is solid)

Ex1 (precipitation):



**To be completed and
balanced in class!**

4. b. Neutralization (one product is water)

Ex2 (neutralization):



**To be completed and
balanced in class!**

5. Combustion Reactions

A substance reacts with oxygen to produce energy and light (burning/explosion)

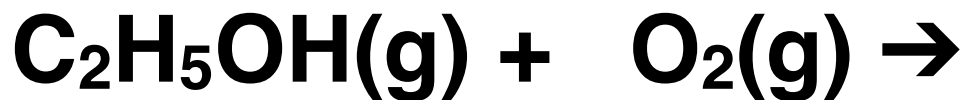
reactants + O₂ → products [+ energy + light]



Ex1:



Ex2:



**To be completed and
balanced in class!**

Classifying Chemical Reactions

1. Synthesis
2. Decomposition
3. Single-Replacement
 - a. Cationic
 - b. Anionic
4. Double-Replacement
 - a. Precipitation
 - b. Neutralization
5. Combustion

***Note: Many chemical reactions do not fit any of these types!**