

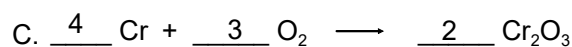
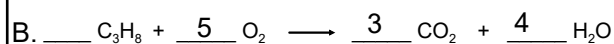
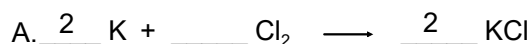
8.2 Classifying Reactions



Single Replacement



1. Review!! Balance these.



Chemical Reaction Types

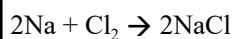
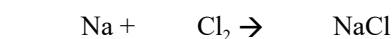
We study six types of chemical reaction:

1. Synthesis: $A + B \rightarrow AB$
2. Decomposition: $AB \rightarrow A + B$ (+ More?)
3. Combustion: $\text{C}_x\text{H}_y + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$
4. Single Replacement: $A + \text{BX} \rightarrow \text{AX} + \text{B}$
5. Double Replacement: $\text{AX} + \text{BY} \rightarrow \text{AY} + \text{BX}$
6. Acid/Base: $\text{HA} + \text{BOH} \rightarrow \text{BA} + \text{H}_2\text{O}$
Useful to write water as HOH: 1 hydrogen : 1 hydroxide.

Synthesis

Two reactants combine, making one product.

2. Ex: Sodium and chlorine react, forming sodium chloride.



Decomposition

Opposite of synthesis. One reactant breaks into two or more products.

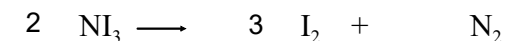
3. Ex: Ammonium nitrate decomposes into dinitrogen monoxide and water.



Gratuitous Decomposition Video

Nitrogen triiodide decomposes into iodine vapor and nitrogen gas.

3.B. Balance the reaction.

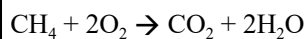
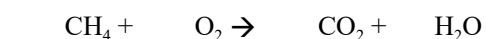


Chem Unit 8.2 Notes - Classifying Reactions.notebook

Combustion

A hydrocarbon reacts with oxygen forming **water** and **carbon dioxide**.

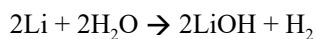
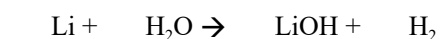
4. Ex: Methane burns in air, making carbon dioxide and water vapor.



Single Replacement (The Bully Reaction)

One elemental reactant replaces another one.

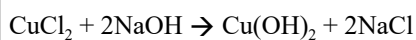
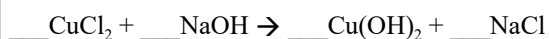
5. Ex: Lithium and water react, forming lithium hydroxide and hydrogen gas.



Double Replacement (Square Dancing Reaction)

Reactants switch partners.

6. Ex: Copper (II) chloride and sodium hydroxide react to form copper (II) hydroxide and sodium chloride.

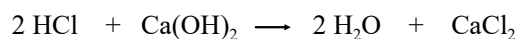


Acid/Base

A type of double replacement reaction: acid (H^+) and base (OH^-) form water (HOH) and a salt (ionic compound).

Use Acid and Base Lists (Resources P. 8).

7. Ex: Hydrochloric acid and calcium hydroxide make water and calcium chloride.



Homework

8.2 Problems
Due: Next Class.

Attachments

NI3 one.MOV

NI3 two.MOV