

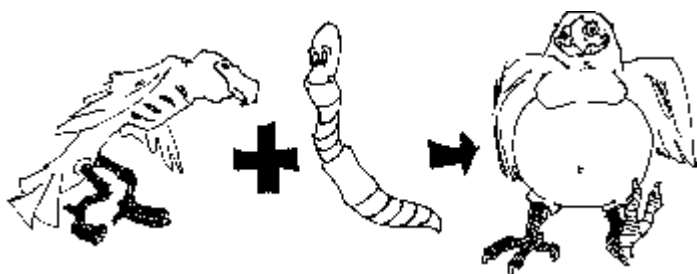
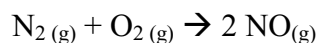
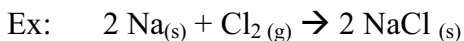
## Types of Chemical Reactions

Sections 6.7- 6.10 and in the textbook.

There are four main types of chemical reactions.

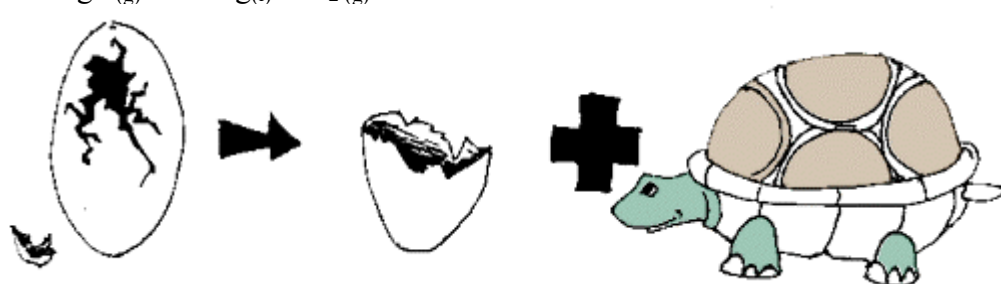
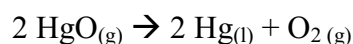
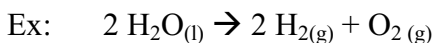
1) **Synthesis or Combination** reactions are those where two smaller substances combine to give a larger compound.

The general formula is:  $A + B \rightarrow AB$



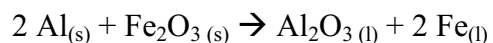
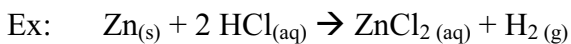
2) **Decomposition** reactions are the opposite of synthesis, and occur when a larger compound breaks down into two smaller compounds.

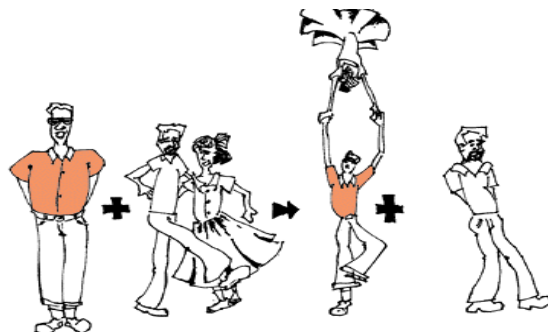
The general formula is:  $AB \rightarrow A + B$



3) **Single Displacement** reactions involve one element or atom taking the place of another in a compound.

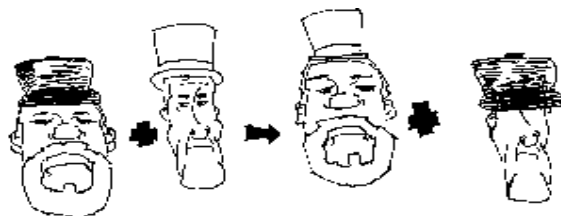
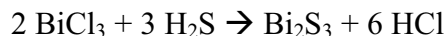
The general formula is:  $A + BC \rightarrow AC + B$





4) **Double Displacement** reactions involve both compounds exchanging (trading) atoms.

The general formula is:  $AB + CD \rightarrow AD + CB$



**Problems: State the type of reaction occurring in each of the following:**

1.  $2 Na_{(s)} + 2 H_2O_{(l)} \rightarrow 2 NaOH_{(aq)} + H_2(g)$
2.  $2 CO_{(g)} + O_{2(g)} \rightarrow 2 CO_{2(g)}$
3.  $FeS_{(s)} + 2 HCl_{(aq)} \rightarrow FeCl_{2(aq)} + H_2S_{(g)}$
4.  $2 NaNO_{3(s)} \rightarrow 2 NaNO_{2(s)} + O_{2(g)}$
5.  $CH_{4(g)} + 2 O_{2(g)} \rightarrow CO_{2(g)} + 2 H_2O_{(g)}$
6.  $Fe_{(s)} + 2 CuNO_{3(aq)} \rightarrow 2 Cu_{(s)} + Fe(NO_3)_{2(aq)}$
7.  $2 KI_{(aq)} + Cl_{2(g)} \rightarrow 2 KCl_{(aq)} + I_{2(aq)}$
8.  $2 Al_{(s)} + 3 S_{(s)} \rightarrow Al_2S_{3(s)}$
9.  $2 KClO_{3(s)} \rightarrow 2 KCl_{(s)} + 3 O_{2(g)}$
10.  $2 C_4H_{10(g)} + 13 O_{2(g)} \rightarrow 8 CO_{2(g)} + 10 H_2O_{(l)}$

**Assignment:**

1. Section 6.7, pg. 235, understanding concepts # 1, 2, 3, 4, 5, and 6.
2. Section 6.10, pg. 241, Understanding concepts # 1, 2, and 3.