

Chemical Reaction Types

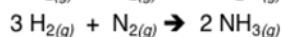
Chemical reactions can be categorized into a variety of types. Five common types are **synthesis**, **decomposition**, **combustion**, **single replacement** and **double replacement**. Be familiar with each type so that you can classify a reaction if given a chemical equation.

Synthesis Reactions

What are They?

The formation of more complex compounds (i.e., many atoms) from simpler compounds or elements.

Examples:



Generic Equation:



Cartoon:

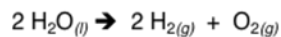


Decomposition Reactions

What are They?

The breaking down of more complex compounds (larger, more atoms) into simpler compounds and/or elements.

Examples:



Generic Equation:



Cartoon:



Did You Notice?

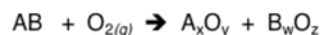
Synthesis and Decomposition reactions are *opposites*. Switch reactants and products around and you have changed the type from Synthesis to Decomposition (or vice versa).

Combustion Reactions

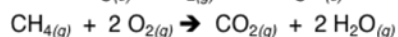
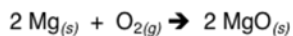
What are They?

The reaction of a substance with oxygen gas, O_2 . We sometimes refer to this as *burning*. **Hydrocarbons** are the most common substance to undergo combustion.

Generic Equation:



Examples:

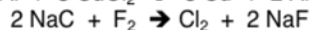


Single Replacement

What are They?

The reaction of an element with an ionic compound. The single element replaces one of the ions in the compound.

Examples:



Generic Equation:



Cartoon:



Double Replacement

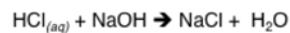
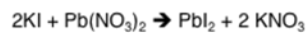
What are They?

The reaction of two ionic compounds to form two different ionic compounds. The positive ion in one compound replaces the positive ion in the other compound.

Generic Equation:



Examples:



Cartoon:

