

Chemical Reactions 3

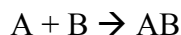
Types of Reactions

INFORMATION

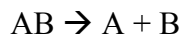
There are 5 general types of chemical reactions. Those types are synthesis (or direct combination), decomposition, single replacement, double replacement (or metathesis), and combustion.

Each of the five reaction types has a unique template that helps to set it apart from the other four. The general form of each reaction is provided below.

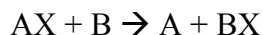
Synthesis



Decomposition



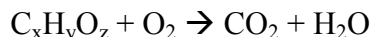
Single Replacement



Double Replacement



Combustion



Some reactions produce heat – these reactions are called **exothermic**. Other reactions consume heat – these reactions are called **endothermic**.

Critical Thinking Questions

For each of the questions below, incorporate into your responses some of the terminology relating to compounds and reactions with which you are already familiar.

1. What is happening to the compound in a single replacement reaction?
2. Explain the relationship between synthesis and decomposition reactions.
3. In combustion reactions, is it possible for x, y, or z to be a zero? Explain why for each.
4. Based on the name, what do you think is another product that results from combustion reactions that does not show up in the reaction template?
5. Explain what is happening to the compounds in metathesis reactions.
6. In nitric acid and sodium hydroxide were combined in a double replacement reaction, what do you think the products might be? Explain how you arrived at your answer.