

What are the types of reactions?

Types of Reactions

There are millions of chemical reactions. The only way to be sure what your products will be is to carry them out in the lab!

Not very practical – or cost effective, however...

- There are five types of chemical reactions we can make some predictions for:

1. _____
2. Decomposition reactions
3. _____
4. Double Replacement reactions
5. _____

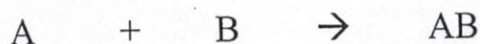
You need to be able to identify the type of reaction and predict the product(s)

What is a synthesis reaction?

1. Synthesis reactions

- **Synthesis reactions** occur when two or more substances (generally _____) combine to form a **single** compound. (Sometimes these are called combination reactions.)

Reactant + Reactant → 1 Product

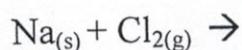


Example #1 _____

Example #2 _____

Practice: Predict the products. Write and balance the following **synthesis** reaction equations.

- Sodium metal reacts with chlorine gas



What is a decomposition reaction?

2. Decomposition Reactions

- **Decomposition reactions** occur when a single compound breaks up into _____ simpler substances

1 Reactant → **Product** + **Product**

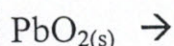


Example #1 _____

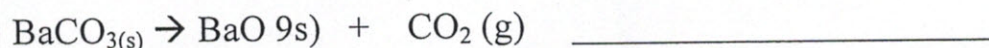
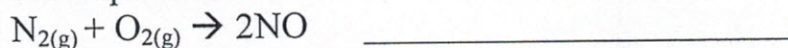
Example #2 _____

Practice: Predict the products. Write and balance the following **decomposition** reaction equations.

Solid Lead (IV) oxide decomposes



Practice: Identify the type of reaction for each of the following synthesis or decomposition

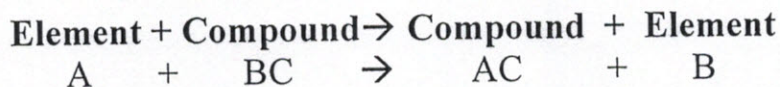


What is a single replacement reactions?

3. Single Replacement Reactions

Single Replacement Reactions occur when one element

_____ in a compound.



Example #1 _____

Example #2 _____

Practice: Predict the products. Write and balance the following **Single Replacement** reaction equations.

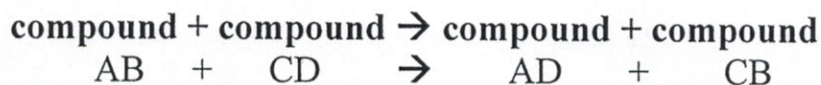


What is a double replacement reaction?

4. Double Replacement Reactions

Double replacement reactions the ions of two compounds _____ in an aqueous solution to form two new compounds.

One of the products formed is usually a _____, an insoluble _____ that bubbles out of solution, or a molecular compound, usually water.



Example #1 _____

Example #2 _____

Practice: Predict the products. Balance the equation



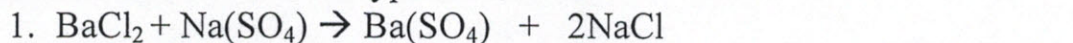
5. Combustion Reactions

Combustion reactions occur whenever something reacts with _____

- This is also called burning!!!
- Products are ALWAYS _____.
-
- In general: $\text{C}_x\text{H}_y + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$

Example #1 _____

Mixed Practice : State the type of reaction:



What is a combustion reaction?