

Science 10 – Types of Chemical Reactions

Chemical reactions can be classified as one of six main types: synthesis, decomposition, single replacement, double replacement, neutralization (acid-base), and combustion. You can identify each type of reaction by examining the reactants. This makes it possible to classify a reaction and then predict the identity of the products.



YOUR ASSIGNMENT: With your team and given reaction-type, create a short soap opera that gives a visual of what is happening in the equation. You will be presenting this soap opera to the class – and EVERYONE in the group must play a part in it.

You are recommended to fill in the information below for your own reaction type. When you observe other groups' performances, you should additionally fill in the information for those types of reactions.

SYNTHESIS: Two or more reactants combine to produce a single product

ex. $A + B \rightarrow AB$

Give a real life example of this reaction (from text):

What is the romantic analogy of this reaction? Explain clearly how it relates to the type of equation.

How could you recognize this reaction if you only had the reactants to look at?

DECOMPOSITION: Breaking down of a compound into two smaller compounds/elements

ex. $AB \rightarrow A + B$

Give a real life example of this reaction (from text):

What is the romantic analogy of this reaction? Explain clearly how it relates to the type of equation.

How could you recognize this reaction if you only had the reactants to look at?

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SINGLE-REPLACEMENT: A reactive element and a compound react to produce another element and a compound

ex. $A + BC \rightarrow B + AC$ (if A is a metal) OR

$A + BC \rightarrow C + BA$ (if A is a non-metal)

Give a real life example of this reaction (from text):

What is the romantic analogy of this reaction? Explain clearly how it relates to the type of equation.

How could you recognize this reaction is you only had the reactants to look at?

DOUBLE-REPLACEMENT: Two ionic solutions reacting to produce two other (new) ionic compounds

ex. $AB + CD \rightarrow AD + CB$

Give a real life example of this reaction (from text):

What is the romantic analogy of this reaction? Explain clearly how it relates to the type of equation.

How could you recognize this reaction is you only had the reactants to look at?

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ACID-BASE NEUTRALIZATION: An acid and a base react to produce a water and a salt
ex. $\text{HX} + \text{MOH} \rightarrow \text{MX} + \text{H}_2\text{O}$

Give a real life example of this reaction (from text):

What is the romantic analogy of this reaction? Explain clearly how it relates to the type of equation.

How could you recognize this reaction is you only had the reactants to look at?

COMBUSTION: A rapid reaction of an organic compound and oxygen to form carbon dioxide and water
ex. $\text{C}_x\text{H}_y + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$

Give a real life example of this reaction (from text):

What is the romantic analogy of this reaction? Explain clearly how it relates to the type of equation.

How could you recognize this reaction is you only had the reactants to look at?

