

## Chemical Reactions

### Chemical Reaction

Process of changing the structure of one or more ionic compounds or covalent molecules by breaking and reforming chemical bonds.

### Reactants and Products

**Reactants** are the starting chemicals in a reaction, the ones that are going to react in the reaction. **Products** are the resulting chemicals from the reaction.

### Chem Reaction Form



Reactants	Products
AB + CD	AD + CB

**Yields ( $\rightarrow$ )** is a general symbol that means "reacts to form" as part of a chemical reaction. Yields is a math equations equal sign

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## Chemical Reactions

### States of Matter in Reaction

Each reactant and product in a chemical reaction is given a symbol

Solid (*s*) – Metals, Ionic Compounds,  
covalent Covalent Molecules

Liquid (*l*) – Polar Covalent Molecules,  
High Temp Ionic Comp.

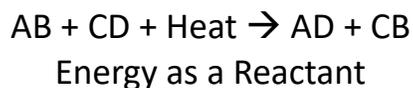
Gas (*g*) – Polar and Non-Polar  
Covalent Molecules

Aqueous (*aq*) – Mixed in Water

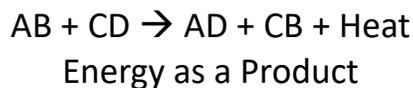
### Energy in Reaction

Each reaction either requires or produces heat during the reaction process

**Endothermic** – Needs Heat



**Exothermic** – Produces Heat



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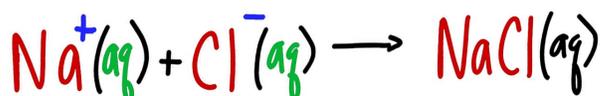
## Parts of a Chemical Reaction



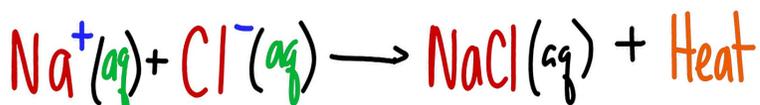
general form



base reaction



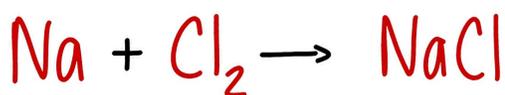
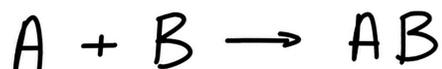
with states



with states  
and energy

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## Types of Chemical Reactions



Reactants      Products

"Combination Reaction"

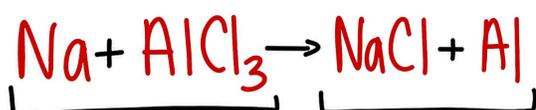


Reactants      Products

"Decomposition Reaction"

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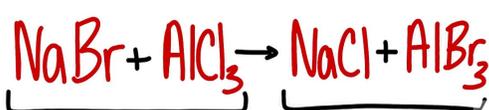
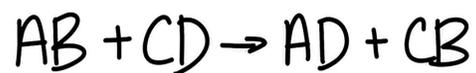
## Types of Chemical Reactions



Reactants Products

"Single Replacement Reaction"

A replaces B



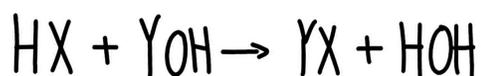
Reactants Products

"Double Replacement Reaction"

A and C swap places

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## Types of Chemical Reactions



Reactants Products

Acid Base Salt Water

"Acid Base Neutralization"



Reactants Products

Organic Molecule Oxygen Carbon Dioxide Water

"Combustion Reaction"

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