

Notes for Chemical Reactions

- **Chemical Reaction** – chemical change when one or more substances react together to produce a new substance.
 - **Reactants** – the substances that react during a chemical reaction.
 - **Product** – the substances produced during a chemical reaction.
 - **Arrow** indicates direction of reaction.
 - **Example:**
$$\begin{array}{ccc} \text{H}_2\text{O} + \text{CO}_2 & \rightarrow & \text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2 \\ \text{reactants} & & \text{products} \end{array}$$
- **Catalysts** – Substances that speed up chemical reactions and not changed, themselves, during the reaction. (They don't become part of the products)
 - **Enzymes** are proteins that act as catalysts during biochemical reactions.
 - **Example** – Catalase enzyme breaks down hydrogen peroxide (H_2O_2) into water (H_2O) and oxygen (O_2) molecules.

- **Endergonic Reactions** – require energy to take place
- **Endothermic Reactions** – require heat to take place
- **Exergonic Reactions** – release energy
- **Exothermic Reactions** – release heat
- **Indicators that a chemical reaction has taken place:**
 - **Change in temperature**
 - **Change in color**
 - **Change in odor**
 - **Formation of a gas**
 - **Formation of a precipitate**