

Name _____

Molecules in Action: Understanding Reactants and Products in a Chemical Reaction

Short Answer Key

1. Reactants in a chemical reaction are the substances that undergo a transformation to produce new substances, known as products. For example, in the reaction of hydrogen and oxygen to form water, hydrogen and oxygen are the reactants.
2. During the transformation process in a chemical reaction, the bonds between atoms and molecules in the reactants break and new bonds form, resulting in the creation of products with different properties.
3. An example of a chemical reaction is the combustion of methane (CH₄) in oxygen (O₂) to produce carbon dioxide (CO₂) and water (H₂O). The balanced equation is: $\text{CH}_4 + 2\text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O}$.
4. The conservation of mass principle states that the total mass of the reactants in a chemical reaction is equal to the total mass of the products. This principle highlights that matter is neither created nor destroyed during a reaction.
5. Antoine Lavoisier is known as the "Father of Modern Chemistry" and contributed to the field by proposing the principle of the conservation of mass, conducting groundbreaking experiments, and helping develop the modern system of chemical nomenclature.

