

Name _____

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

Open-Ended Response Answer Key

1. A real-life scenario involving a chemical reaction is the baking of bread. In this reaction, flour (containing starch and proteins) and yeast (containing enzymes) are the reactants. The transformation process includes the fermentation of starch by yeast enzymes to produce carbon dioxide gas and ethanol. The products are the risen bread (with a changed texture) and the release of carbon dioxide bubbles, which make the bread fluffy.
2. One example of a change in properties from reactants to products is the rusting of iron. Iron (Fe) reacts with oxygen (O₂) and water (H₂O) to form iron oxide (Fe₂O₃), commonly known as rust. The properties change from shiny and metallic to dull and brittle.
3. To discover a new chemical reaction, a chemist would start by identifying potential reactants and observing any changes. They would use analytical techniques like mass spectrometry to measure the mass of reactants and products to ensure the conservation of mass.
4. The conservation of mass principle is crucial in environmental conservation and sustainability because it reminds us that the total amount of matter on Earth remains constant. It encourages responsible resource management and waste reduction, which are essential for preserving our planet's health.

