

Name _____

Elementary Chemistry: The Interactions of Elements and Compounds

Open-Ended Response Answer Key

1. Chemical bonds are forces that hold atoms together in compounds. Ionic bonds involve the transfer of electrons, resulting in the attraction between oppositely charged ions. Covalent bonds occur when atoms share electrons, leading to the formation of molecules. Metallic bonds involve the delocalized movement of electrons in metals, contributing to their unique properties.
2. Combustion reactions play a vital role in various applications, such as powering cars, generating electricity, and heating homes. However, they release carbon dioxide into the atmosphere, contributing to climate change and air pollution.
3. Photosynthesis is a crucial process that removes carbon dioxide from the atmosphere, produces oxygen, and provides energy-rich glucose for plants and the ecosystem. It sustains life on Earth and maintains the balance of gases in our atmosphere.
4. Understanding chemical interactions between elements and compounds is the foundation of scientific research and technological advancements. It leads to innovations in medicine, materials science, energy production, and environmental protection, contributing to the betterment of society.

