

Name _____

Algae: The Oxygen Factory of Aquatic Worlds

Open-Ended Response Answer Key

1. During photosynthesis, algae use sunlight, carbon dioxide, and water to produce glucose and oxygen. This process occurs in specialized structures called chloroplasts, which contain chlorophyll, a pigment that captures sunlight and initiates the chemical reactions of photosynthesis.
2. Algae and marine plants produce about 70% of Earth's oxygen through photosynthesis. The oxygen they generate dissolves into the surrounding water and is also released into the atmosphere, contributing to the oxygen we breathe.
3. Human activities like pollution from agricultural runoff and wastewater, as well as habitat destruction, can introduce excess nutrients into aquatic ecosystems, leading to algal overgrowth and harmful algal blooms. These blooms can deplete oxygen levels and harm aquatic life, affecting the ability of algae to produce oxygen.
4. Protecting algae and their oxygen-producing abilities is important for maintaining the health and balance of aquatic ecosystems and ensuring a stable oxygen supply for life on Earth. Algae are essential for the survival of aquatic organisms and contribute significantly to the oxygen content of Earth's atmosphere.

