

Algae are Elemental!



By Susan Hershberger

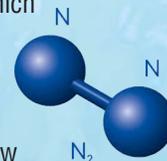
Take a deep breath: When we inhale, our lungs take in oxygen, a gas that makes up part of the air we breathe. We need to breathe oxygen to stay alive. Where does it come from? You may already know that trees and other land plants help make the oxygen in our environment. But do not forget about algae, which produce over half of the oxygen that you inhale each time you breathe!

Take another deep breath and exhale. When we exhale, we add carbon dioxide (another kind of gas) to the air. When the sun is shining, algae and plants use this carbon dioxide along with water to make their own food through a process called photosynthesis. They also release oxygen into the air as part of this process.

Most types of algae grow in freshwater (lakes, ponds, rivers, streams) or saltwater (oceans, seas, lagoons). Algae provide food, habitat, and oxygen to the organisms that live in water. Algae are the base of many **food webs** and are necessary for a healthy aquatic **ecosystem**. Algae use elements such as carbon, nitrogen, and phosphorus as nutrients for growth. Most healthy bodies of water tend to have enough of these elements to help just the right amount of algae grow.

However, algae can also grow out of control if the water around them contains too many nutrients resulting in **harmful algal blooms (HAB)**. This can happen when fertilizers and animal waste from farms mix with water. The algal growth sometimes covers the whole surface of the water body, and can give off toxins that harm other **aquatic organisms**. During the day, algae can also block sunlight from reaching other algae and animals below the water's surface. When algae eventually die, they decay in water and use up a lot of oxygen from it. This can make the amount of oxygen in the water dangerously low, which can harm other organisms.

People sometimes forget that algae do so many good things for us. There are thousands and thousands of different kinds of algae, and only a few types are harmful. Algae are not just “green goo” ... actually, they are “green *good*”! They produce oxygen, capture carbon dioxide (a **greenhouse gas**), and help keep aquatic ecosystems healthy. Is it not amazing what algae do for us and earth?



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Do Science Safely Safety First!



- Ask an adult for permission to do the activity and for help when necessary.
- Read all directions and safety recommendations before starting the activity.
- Wear appropriate personal protective equipment (safety glasses, at a minimum), including during preparation and clean up.
- Tie back long hair and secure loose clothing, such as long sleeves and drawstrings.
- Do not eat or drink food when conducting the activity.
- Clean up and dispose of materials properly when you are finished with the activity.
- Thoroughly wash hands after conducting the activity.