

Plants Are Producers

Cross-Curricular Focus: History/Life Science



People are consumers. We have to spend large parts of our days finding, buying, cooking and eating our food. Did you ever think it might be nice to be able to make your own food like plants do? Plants are producers and perform a process called **photosynthesis** using light from the sun, water and carbon dioxide. Carbon dioxide is the gas we exhale when we breathe. The end result of this chemical reaction is sugar for the plant to "eat." The plant releases water and oxygen, a gas all animals need to breathe, into the air.

So how do plants do it, and why can't we? Plants have special structures called **chloroplasts** that animals don't have. Chloroplasts are round, flat organelles that are arranged in stacks called **grana**. These stacks are filled with chlorophyll. **Chlorophyll** is what gives leafy green plants their green color. Their main job is to absorb light from the sun. Chloroplasts can absorb every color except green. Light activates the chlorophyll. It creates an energy that splits molecules of water, separating them out into hydrogen and oxygen. Chemical reactions take place. Hydrogen from the water combines with carbon from the carbon dioxide we breathe out. Oxygen is released into the air.

People and plants make perfect partners. Plants rely on the carbon dioxide that we breathe out, and we rely on the oxygen that they "breathe" out. This is one good reason for protecting plant life on Earth. Algae fields near the poles produce a constant supply of oxygen for us. So do the many plants of Earth's rainforests. We need plants in order to survive.

Conservation projects around the globe are aimed at protecting our natural resources, including numerous species of plants. Our quality of life and the very quality of the air we breathe depends upon our green plant partners.

Name: _____

Answer the following questions based on the reading passage. Don't forget to go back to the passage whenever necessary to find or confirm your answers.

1) Why are plants called producers?

2) Where do plants get their green color?

3) Explain the relationship between people and plants. Why are we good partners?

4) What would happen if there were not enough plants on Earth?

5) What is a chloroplast?

The Tundra Biome

Cross-Curricular Focus: Life Science



The tundra is a very cold environment. It is so cold that snow covers the ground for most of the year. The winter season there is longer than it is in other places. No trees grow in the tundra biome. It does not sound like a very friendly place to live.

Some animals have adapted to live in extremely harsh environments. They live in places where you would not expect to find anything alive. Organisms that live under such difficult conditions are unusual. They may have changed something about their behavior. They may have some sort of physical characteristic that helps them survive.

Animals that live in the tundra need to keep as much heat as possible inside their bodies. The arctic fox is a tundra animal. Like many tundra animals, it has a thick fur coat to keep it warm. It has tiny ears that do not allow much heat to escape. The arctic fox is also a very short animal. This helps protect it from the cold wind.

Summers in the tundra biome are very short. During the summer season, small brownish plants grow very close to the ground. Many tundra animals have fur coats that change color to match the season. When the snow begins to melt, their white fur coats they had during the winter change. They become brown fur coats that look like the summer plants. In the winter, the coats turn white again. In this way, they blend into their surroundings. They hide from animals that may want to eat them.

Name: _____

Answer the following questions based on the reading passage. Don't forget to go back to the passage whenever necessary to find or confirm your answers.

1) What makes the tundra a harsh environment?

2) How do many tundra animals keep warm?

3) How does having small ears help the arctic fox?

4) What is interesting about the fur of some tundra animals?

5) Which season is longer in the tundra, winter or summer?
