



Let's Eat!

When students finish working through this section:

1. They will be able to classify organisms as heterotrophs (consumers) or autotrophs (producers).
2. They will be able to define photosynthesis.
3. They will have examined the process of photosynthesis and be able to list the "ingredients" necessary for it to occur.

REAL TREES and other green plants are active food factories. They use photosynthesis to create the food they need to grow and reproduce. Photosynthesis is a very complex process and without it heterotrophs and autotrophs would not be able to carry on the natural processes necessary for life.

Possible Discussion Points/Activities:

- In the section, an analogy is used to help students grasp the idea of photosynthesis. Ask students (or groups of students) to describe photosynthesis using a different analogy, explain it, and offer support for why it works.
- Ask students to graphically represent the photosynthetic process. This could be done as a diagram or through use of a graphic organizer (such as a flow chart).
- Because almost every living thing on Earth has a tie to the photosynthetic process, this section is a great jumping off point for a discussion of cause and effect. Students can be asked to build a cause/effect chart showing their predictions concerning several events. For example, students might be asked to predict the effects of a drought on the heterotrophs/autotrophs of the area. Another, less global, prediction might involve the effects of differing amounts of light on an autotrophic organism. Once predictions are made, if time and resources allow, students could be asked to design experiments to test their predictions.

Words to Know in this Section:

- air: the mixture of nitrogen, oxygen, argon, carbon dioxide, hydrogen, neon, helium, and other gases that surrounds the earth
- atom: the smallest part of an element
- autotroph: an organism that uses energy to produce the food they need
- chlorophyll: the green pigment of a plant; needed for photosynthesis
- compound a substance made up of two or more elements that are always put together in the same way
- element: a substance that cannot be separated into simpler substances
- heterotroph: an organism that gets energy from the foods they eat
- molecule: atoms joined together
- photosynthesis: the production of carbohydrates from carbon dioxide and water using sunlight as the source of energy with the aid of chlorophyll
- pigment: a substance that makes color in the tissues of organisms



Fast Facts in this Section:

- Conifer needles need just the right amount of sunlight for the tree to produce food. The triangle shape of the tree is an adaptation that allows more needles to "see" the sun. As a tree grows older and taller, less sunlight reaches the needles on the lower part of the tree. When this happens, the lower areas shed their needles - and eventually - their branches.

Link Up! in this Section:

- ASU: Why Study Photosynthesis - <http://photoscience.la.asu.edu/photosyn/study.html>

Read More Titles in this Section:

- *Photosynthesis*
by Alvin Silverstein
- *The Usborne Illustrated Dictionary of Biology*
by Corinne Stockley
- *The Usborne Illustrated Dictionary of Chemistry*
by Jane Wertheim, Chris Oxlade, and Corinne Stockley
- *Photosynthesis (World of Wonder)*
by Frank J. Staub