

# Photosynthesis



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Put simply, photosynthesis is the process of converting light energy into chemical energy and storing it in the bonds of sugar. Photosynthesis comes from the Greek language and literally means “ Light Composition” or “ Putting Together Light. ” Photosynthesis generally takes place in plants, however it also takes place in algae and many species of bacteria. In photosynthesis, light energy is converted to chemical energy and the chemical energy is then stored in the form of glucose, or sugar.

Carbon dioxide, water, and sunlight are used to produce glucose, oxygen, and water which they can then produce food from, releasing oxygen as a waste product. There are two main steps in photosynthesis - The Light Dependent Reaction and the Light Independent Reaction, or the Calvin Cycle. In the Light Dependent Reaction, plants capture and store energy from sunlight, which is converted into chemical energy in the form of ATP and NADPH.

In the Calvin Cycle, ATP and NADPH are used to convert carbon dioxide and water into organic compounds that can be used for food for the plant or an animal that feeds off of the plant. Photosynthetic organisms are called photoautotrophs, which means nourishment in Greek, because they can create their own food and energy. They also use energy from light. However, not all organisms that use light as a source of energy carry out photosynthesis. Chloroplasts are necessary for photosynthesis to take place, and they specifically use chlorophyll, the green pigment involved in photosynthesis.

Because of this, photosynthesis most often takes place in the leaves of plants, since that is where the chloroplasts can be found. Since

photosynthesis requires carbon dioxide, water, and sunlight, all of these substances must be obtained or transported to the leaves. Photosynthesis is necessary for all aerobic life on Earth because it maintains normal levels of oxygen throughout the atmosphere and is also the source of energy for nearly all life on Earth, either directly or indirectly.