

Producers: The Miracle of Photosynthesis

Photosynthesis in plants and a few bacteria is responsible for feeding nearly all life on Earth. It does this by taking energy from the sun and converting it into a storable form, usually a kind of sugar called glucose. Plants can use this sugar to fuel all of the processes it performs to survive, grow and reproduce. Animals that consume plants also make use of this stored energy. Even carnivores depend on the photosynthesis because they depend on all the links in the food chain that come before them.

Photosynthesis, comes from two words, photo meaning "light" and synthesis meaning "to make". Photosynthesis takes place in the green part of a plant's leaf. We can think of the leaf as a type of factory. Like any factory, the leaf needs raw materials that it can use to turn into something new. These are carbon dioxide and water. Carbon dioxide is a gas our bodies produce when we breath out (exhale). Plants can get this gas from the air when they open tiny little holes in their leaves that act like gates. The roots of the plant suck up the water that is present in the soil. This water travels up the stem and into the leaves.

Next, all factories need some sort of energy to be able to break the raw materials apart and put them back together in a new way. The leaf gets this energy from sunlight. When the green part of the leaf captures the sun's energy, it uses this energy to break water into its two different parts: hydrogen and oxygen. Then the leaf can attach this hydrogen to the carbon dioxide in just the right way to make the simple sugar, glucose. Oxygen is a waste product from this process that the leaf releases into the air. This is lucky for us since it's what we need to breath.

As you can see, we all depend on plants for the energy in the food we eat and the oxygen in the air we breath. Without photosynthesis, there would be very little life on earth. Thank you plants!