

# BACKYARD ECOSYSTEM

## PHOTOSYNTHESIS

Grades 7-9

A  
SCIENCE @ HOME  
ACTIVITY



CHARLES COUNTY PUBLIC SCHOOLS  
5305 Piney Church Road  
Waldorf, MD 20602  
301.934.7464  
[www.ccboe.com/ScienceCenter](http://www.ccboe.com/ScienceCenter)



# Photosynthesis: Life's most important chemical process

Photosynthesis is the process by which green plants and certain other organisms (like bacteria or sea slugs) transform light energy into chemical energy.

In photosynthesis, solar energy is captured as chemical energy in a process that converts water and **carbon dioxide** to glucose. Oxygen is released as a byproduct.

The process of photosynthesis is shown by the following formula

$6\text{H}_2\text{O}$  (water) +  $6\text{CO}_2$  (Carbon dioxide: present in the air) + light energy = (yields)  $\text{C}_6\text{H}_{12}\text{O}_6$  (glucose: a simple sugar) +  $6\text{O}_2$  (oxygen).

**Photosynthesis takes place in the chloroplasts in the leaf.**

The needed water ( $6\text{H}_2\text{O}$ ) is taken in by the plant's root system.

Green plants use their leaves to capture carbon dioxide ( $6\text{CO}_2$ ) from the air.

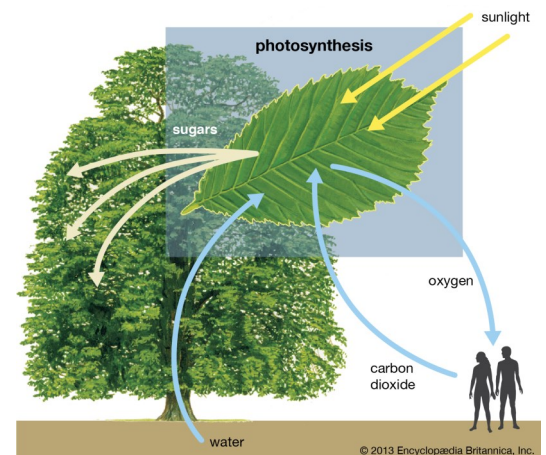
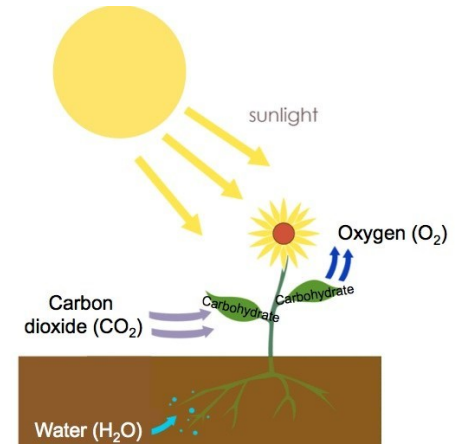
Light energy is absorbed by chlorophyll, a green substance found in the chloroplasts of leaves in plant cells and algae.

## Photosynthesis Produces:

Glucose ( $\text{C}_6\text{H}_{12}\text{O}_6$ ) which is a simple sugar, gives the plant the energy it needs to grow and is passed on to us when we eat plants, fruits or animals that eat plants.

A by product of photosynthesis is the release of oxygen into the air for us to breathe.

Photosynthesis is a great example of a highly efficient biological process that benefits both the plants and the animals. The plant uses the by-product of our cellular respiration ( $\text{CO}_2$ ) and releases oxygen, which we need to survive.



## Watch the following Videos:

The Process of Photosynthesis (2 min Video)

<https://clever.discoveryeducation.com/learn/videos/065dceda-1459-4cc7-a34a-e4ebaba873a1/>

Introduction to Photosynthesis (3:46 Min Video)

<https://clever.discoveryeducation.com/learn/videos/176277b8-f771-415b-bc7d-23ac53c2e736/>

Photosynthesis Animation

<https://clever.discoveryeducation.com/learn/videos/3c6ca2df-b828-4a5c-a26b-ff16030e34b0/>

## Photosynthesis Activity

- Create a graphic representation of the formula that depicts photosynthesis.
- Make sure to include all elements of the process and the results
- This can be a illustration or a pictorial time-line.

Use this resource that you created to explain the process of photosynthesis to a family member.

After you explain it ask them the following questions.

What are the 3 inputs needed for photosynthesis to occur?

What are the 2 most important results of photosynthesis.?

Why are plants and photosynthesis important to you?

