

BACKYARD ECOSYSTEM

PHOTOSYNTHESIS

Grades 3-6

A
SCIENCE @ HOME
ACTIVITY



CHARLES COUNTY PUBLIC SCHOOLS
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Parent Resources for Photosynthesis

Goals of this lesson:

- Student will learn why plants need sunlight.
- Student will learn about what plants do with sunlight and how sunlight helps them grow.
- Students will learn the formula of photosynthesis.

Photosynthesis:

https://www.brighthubeducation.com/science-homework-help/104248-plant-photosynthesis-and-cellular-respiration/?cid=parsely_rec

<https://www.youtube.com/watch?v=D1Ymc311XS8>

<https://www.youtube.com/watch?v=yHVhM-pLRXk>

Story Time Selection:

Living Sunlight– How Plants Bring Earth to Life

Authors Molly Bang and Penny Chisholm

Photosynthesis

Photosynthesis is the big name for the process by which plants convert energy from sunlight into energy for food.

Photosynthesis: photo, meaning "light," and

Synthesis: "putting together."

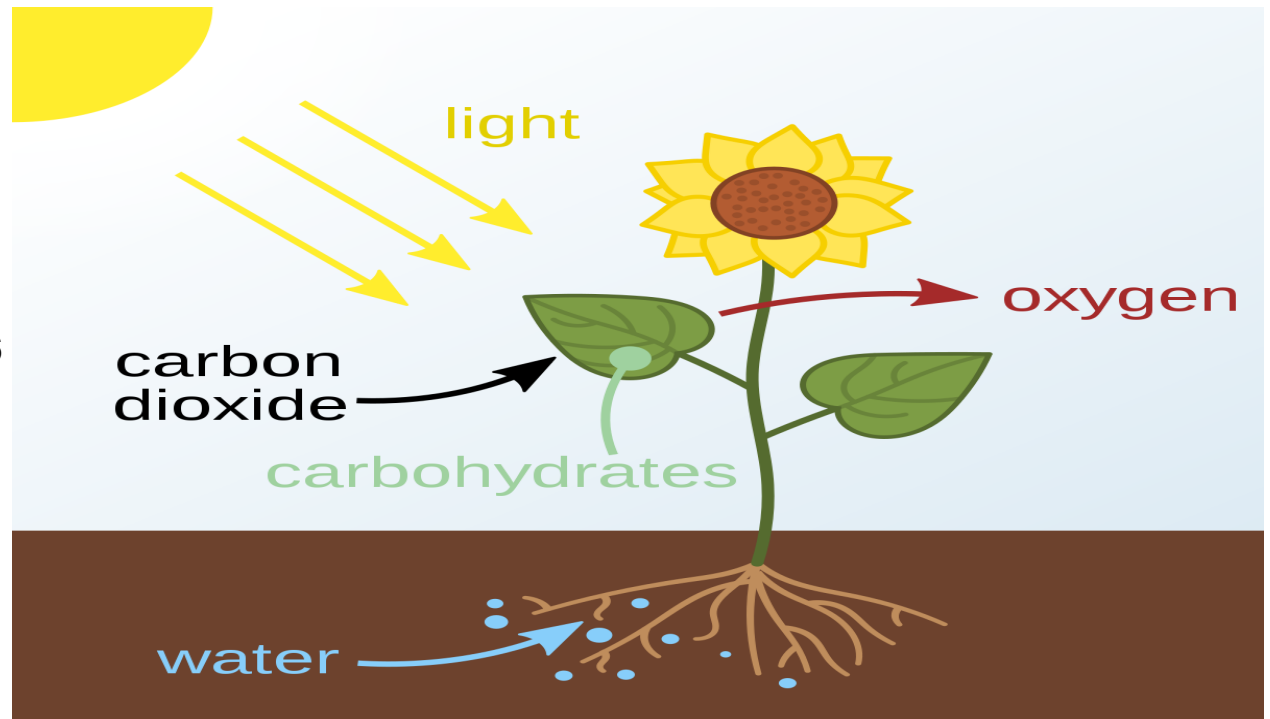
This process also requires water and carbon dioxide. Plants are able to absorb rain water through their roots and receive carbon dioxide from the air through their leaves.

The carbon dioxide is in the air as a result of the air that animals, including humans, breathe out.

Plants are able to store these chemicals in their leaves.

Photosynthesis Formula:

$6\text{CO}_2 + 6\text{H}_2\text{O} + (\text{energy}) \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$
Carbon dioxide + water + energy from light produces glucose and oxygen.



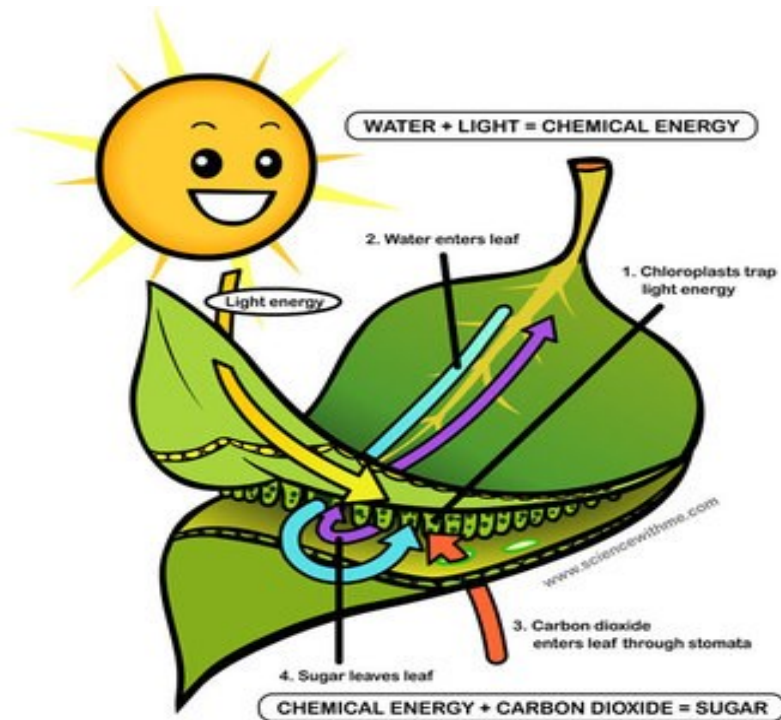
Photosynthesis

Plant leaf cells are unique in that they also contain special components called chloroplasts.

Chloroplasts are filled with a green substance called chlorophyll. It is this substance which gives plant leaves their green appearance and enables them to absorb sunlight.

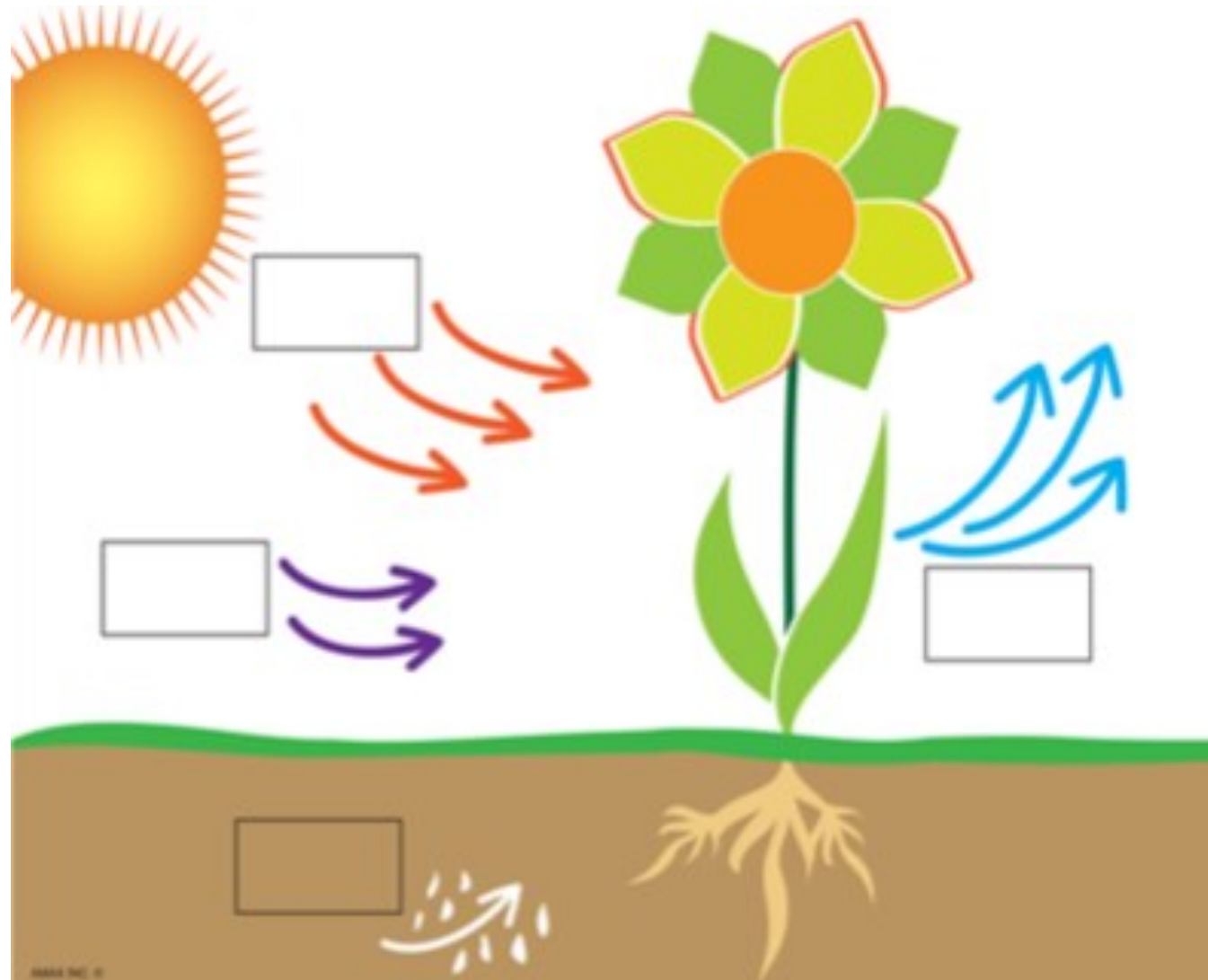
When plant cells have water, carbon dioxide and sunlight, the process of photosynthesis occurs.

When this happens the water, carbon dioxide and sunlight, join together to form a sugar called glucose, plus water, and oxygen. In this form the plants can use the glucose, and water for food and release the oxygen back into the air for consumption by animals, including humans.



Photosynthesis

Label the Steps of
Photosynthesis



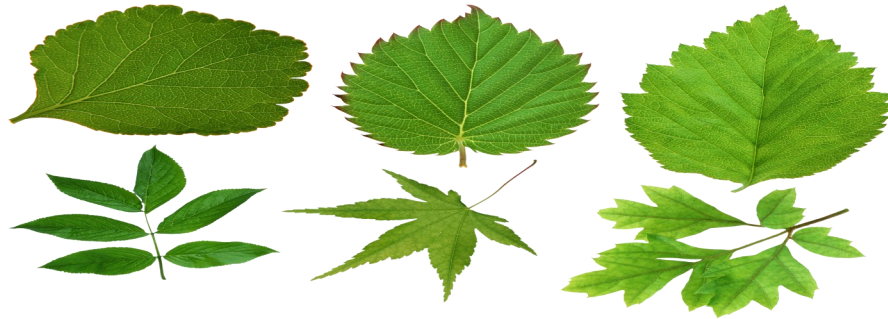
Photosynthesis

Chlorophyll Drawings

Chlorophyll, the green pigment found in a plant's leaves, is a key ingredient in the process of photosynthesis. It also makes great paint!

What you need:

8-10 leaves
a white sheet of paper
a metal spoon



To make the paintings:

Fold a sheet of white paper in half.

Place several leaves between the folded paper.

Press firmly on the leaves between the pages and rub with a metal spoon. Avoid plastic spoons as they break when pressed as firmly as necessary.

You can actually "paint" pictures by balling up the leaves and using them as paintbrushes.

As you work, compare the different leaves you are using.

Which release the most chlorophyll?

Which release very little?

Why do you think the leaves of some plants work better while others do not?

What qualities or attributes of the leaf make it better or worse for this project?