

Name: _____ Date: _____ Period 7 - _____ Grade _____
 2 points per day for having packet _____ / _____ / _____ / _____ / _____ / _____ / _____ / _____ / _____ / _____
Interactions between matter and energy - Photosynthesis **DUE DATE:** _____

7.  **Seasons in the Cell**

Work in pairs on the Exploration, **Seasons in the Cell**.

Conditions	Photosynthesis	Leaf Color
Warm Days/Warm Nights		
Warm Days/Cool Nights		
Cool Days/Cold Nights		
Cold Days/Cold Nights		

Summarize the process of photosynthesis.

In which part of the cell is chlorophyll found?

What causes chlorophyll to begin breaking down?

During which set of temperature conditions does the breakdown begin?

What causes the red pigment seen in autumn leaves?

8.  **Eukaryotic Cells: Plant Cells: Chloroplasts**

Chloroplasts contain _____ which is needed for _____ which converts _____ into chemical _____. There are some primitive organisms like _____ and _____ that have chlorophyll which is not contained in chloroplasts. _____ are thought to be the first type of life that appeared on earth.

9.  **Cytoplasm of Plant Cells: Vacuoles and Chloroplasts**

Chloroplasts contain a large internal sac called a _____ which is used to store _____ containing dissolved _____ and _____. When the vacuoles are full of _____, a typical plant will stand _____.

What make a plant wilt?

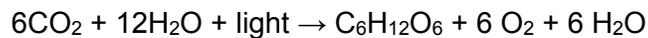
How do animals benefit from plants?

What is an organelle?

18. Circle the word in () that best completes each statement.

Green (**plants, paint**) and other (**photosynthetic, happy**) organisms form the base for most of the food webs on Earth. This is because photosynthetic organisms have the ability to store (**energy, fat**) from the sun in the form of (**sugar, candy**). Sugar can be utilized by most organisms for (**energy, cavities**), but only photosynthetic organisms can directly use energy from the sun. Because the energy transfer process is an inefficient one (i.e., energy is lost to the environment when one organism consumes another), it is important that there be a constant input of energy into any food chain or food web. That energy is supplied by (**the sun, electric company**), and converted for general use by the photosynthetic organisms of the world.

Photosynthesis requires carbon dioxide, water, and light energy to make glucose. Oxygen and water are by-products of the photosynthetic reaction. The chemical equation for photosynthesis is described below:



Photosynthetic organisms contain a pigment called chlorophyll that allows photosynthesis to occur. In eukaryotic organisms, like algae and plants, chlorophyll is contained in special cell structures called chloroplasts.

True or False: Photosynthesis requires carbon dioxide and produces oxygen and oxygen is a byproduct of the reaction.

True or False: Photosynthesis produces glucose, which is the end goal for the plant.

True or False: Plants perform photosynthesis, and animals perform cellular respiration.

True or False: Plants also perform cellular respiration, as after they have stored energy in the form of glucose.

True or False: Plants need to release energy in order to continue to grow and reproduce.

Final Project: Choose one of the following projects or propose something you would really like to do regarding photosynthesis in a written request. You must get written approval from Mrs. Ortiz.

- 1 Research the differences between photosynthesis in prokaryotes and photosynthesis in eukaryotes. Create a presentation of your findings.
- 2 Create a poster about the different photosynthetic pigments in plants.
- 3 Write a one page essay about the fluctuations of chlorophyll in deciduous trees and plants, and how these fluctuations are related to seasonal conditions.
- 4 Create a poster illustrating a leaf and a cross section of the leaf.
 - Label and explain the following structures and functions. (stomata, veins, chlorophyll, chloroplasts)
 - Label and explain the following materials and their purpose in photosynthesis. (water, sugar, light energy, oxygen, carbon dioxide)