

# Photosynthesis Booklet

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## **Standards of Learning**

Science: 4.4, LS.6

English: 4.7, 5.7

## **Objective**

The student will be able to:

- Illustrate the process of photosynthesis
- Summarize the steps in the process of photosynthesis

## **Materials**

- 11 x 17 paper
- Markers

## **Background Knowledge**

Photosynthesis is essential for plant growth and development as well as providing oxygen to the earth. It is the process in which green plants use carbon dioxide and water to create energy. The process of photosynthesis takes place in chloroplast within the cells where chlorophyll is concentrated.

Plants absorb water through roots. The fluid travels through the xylem into the leaves of the plant. Carbon dioxide, which is a compound in the air that mammals exhale, is absorbed through tiny openings in the plant leaves called stomata. Sunlight energy is also absorbed through the leaves. The water and carbon dioxide are converted to oxygen and glucose within a green pigment called chlorophyll located in the chloroplast of plant leaf cells. With the assistance of sunlight; compounds of carbon dioxide and water are decomposed and transformed to glucose with oxygen.

Glucose is used to provide energy to the entire plant as a basic building block of carbohydrates. Glucose may form into sugars such as sucrose to be used to energize the plant. Starches take the form of tiny granules and stored in leaves, roots, and fruits also have a base of glucose. The cell wall also requires glucose in the form of cellulose.

The byproduct of photosynthesis is oxygen which is eliminated from the cell through a process called transpiration. It is similar to the plant exhaling. Plants have a vital role to provide oxygen for animals which in turn provide plants with an ample supply of carbon dioxide.

## **Procedure**

1. Take a 11x 17 piece of paper. Fold the paper in half vertically (hot dog fold). Crease.
2. Open to original size and fold in half horizontally (hamburger fold). Crease.
3. With the hamburger fold, fold each side up from the opening to the middle. Crease.  
Page should be folded to show impressions for 8 identical pages.
4. Cut or tear center crease line from middle fold to first crease.
5. Open and accordion to make a continuous book.
6. Write 6 statements which summarize the process of photosynthesis on the book.
7. Illustrate each statement with a picture.
8. Pair up students with the task of reading and explaining booklets.



## **Extension**

This booklet design can be used for any three to six step processes, writing a story, song or even creating math word problems for solving.

Have students search photosynthesis on the internet. Google images results for photosynthesis provide good visual tools. You Tube or Teacher Tube also have photosynthesis short videos and songs.

## **References**

<http://www.encyclopedia.com/topic/photosynthesis.aspx>

[http://www.youtube.com/watch?v=R\\_17euLU\\_EM&feature=related](http://www.youtube.com/watch?v=R_17euLU_EM&feature=related)

<http://www.youtube.com/watch?v=CXbhdBzx1Ag&feature=related>

[http://www.youtube.com/watch?v=\\_IV-E68rh18](http://www.youtube.com/watch?v=_IV-E68rh18)

<http://www.educationalrap.com/62/photosynthesis.html>

