

Photosynthesis Paper Sculpture

Explore the process of photosynthesis through the construction of a 3D paper sculpture.

STANDARDS

Science:

3.PS1, 3.PS3, 3.LS4
4.LS2, 5.LS1

Visual Arts:

3-5 VA.Cr2.B
3-5 VA.Cr2.C
3, 5 VA.Cn1.A

MATERIALS

- Paper
- Scissors
- Glue
- Pencil
- Markers or colored pencils

INSTRUCTIONS

1. *Leaf:* Fold a sheet of green paper in half. Draw a large outline of a leaf and stem. Cut along the line. You now have two leaves.
2. Fold both leaves in half and glue them together along fold. You now have a flat, full-size leaf with a front flap that folds back and forth. Fold the flap down to the left – this is the top of your leaf. Draw veins on the top.
3. *Sunlight:* Select a new color of paper and cut out five narrow, four-inch strips. Fold each strip back and form like an accordion. Glue one end of each strip to the right side of the leaf.
4. *Water:* Select another color of paper and cut out three narrow, six-inch strips. Holding one end to a pencil or maker, tightly coil the paper around. Remove from the pencil. Repeat for all strips. Glue the less curly end of each strip to the stem.
5. *Carbon dioxide:* Select another color of paper and draw a circle. Cut out the circle and mark a dot in the center. Cut a straight line radius from the outside of the circle to the center. Starting at the cut edge, make triangle folds back and forth like a fan. Turn the leaf over and draw stomata circles on the left side (opposite the sun). Glue one end of your CO₂ circle to a stomata circle.
6. *Oxygen:* Select another color of paper and repeat the CO₂ step.

GRADE LEVEL

3-5



HORTICULTURE



VISUAL ART

1.



2.



3.



4.



7. *Chloroplasts:* Using green scrap paper, cut two narrow strips, no longer than your leaf. Use a marker to draw chloroplast circles along the strips. Turn the leaf to the top and open the fold to show the “inside” of the leaf on the left. Glue the strips so they wave up and down along the outer left of the inside of the leaf.
8. Use markers to add designs to your paper sculpture!

DISCUSSION

Background information: Photosynthesis is a cornerstone for life on earth. It is the process through which plants make food from sunlight, carbon dioxide, and water. In this process, plants take water in through their roots and it travels to leaves through the stem. Tiny openings on the underside of the leaf called stomata are meanwhile taking in carbon dioxide from the air. Sunlight is absorbed through the top of the leaf. Chloroplasts inside the leaf cells use energy from the sun to convert the carbon dioxide and water into sugars and oxygen. The plant releases the oxygen out through the stomata and uses the sugar as fuel.

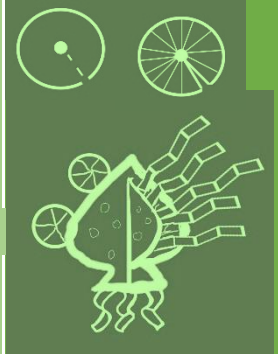
Guiding questions:

- What role does photosynthesis play in a food chain?
- Why are the stomata located on the bottom side of the leaf?
- When do plants photosynthesize?
- When do plants respire?

Learning At Home (For Virtual Students):

Students will learn about the process and necessity of photosynthesis in plants. Then, they will fold a piece of paper into six squares to make a comic strip. They will be asked to represent the process of photosynthesis in the form of a comic, combining drawings and text to explain what is happening.

5 & 6.



7 & 8.



Project Example:

In the Classroom:

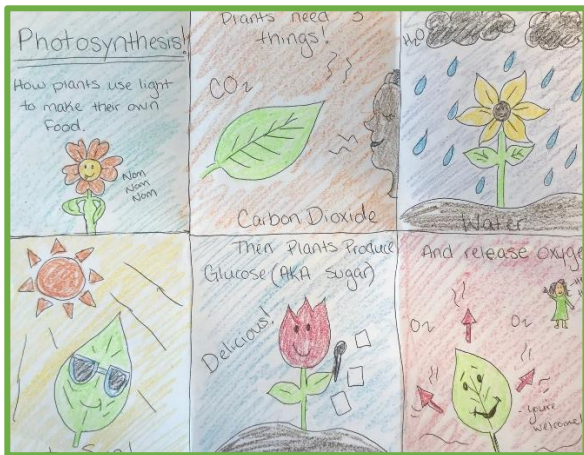


Inspired by:

Dixon Gardens



At Home:



Virtual Learning Activity Sheet

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