

Sci-Map Site

Loblolly Woods Nature Park

Name of Activity

Do Leaves Breathe?

Materials

Small glass or plastic bowl
Luke warm water to fill the bowl

Procedure

Fill the bowl with luke warm water.

Head outside and find a large leaf. You'll want to remove a leaf from a tree or plant and not just pick one up off the ground as we want an 'active' leaf for the project.

Place the leaf in the bowl of water and put a small rock on top so the leaf is FULLY submerged. Put the bowl in a sunny spot.

WAIT!

Take a peek a few hours later. Do you see small bubbles around the leaf and the edges of the bowl?

(Source: kcedventures.com)

The Science Behind It

Photosynthesis

Plants are organisms that make their own food, a simple sugar, for survival. The process by which they make this sugar is called photosynthesis. Plant cells require sunlight, carbon dioxide and water to undergo photosynthesis.

Chloroplasts, found in the cells of the leaf, contain chlorophyll, a green pigment that absorbs light energy from the sun. Carbon dioxide is taken in through openings, or pores, in the leaf called stomata and water is absorbed through the roots. Simple sugar (glucose) and oxygen gas are produced. The plant uses the glucose for food and the oxygen gas is released into the air through the stomata. Photosynthesis provides the oxygen gas in the atmosphere that most living organisms need.

Respiration

The glucose created through photosynthesis is used to provide energy needed by the plants to perform life functions such as growing and repairing. To obtain the energy from the food it produces, plants must break down the sugar in the cells throughout the plant in a cellular process called respiration. Cells require glucose and oxygen gas to undergo respiration. Oxygen gas from the air (taken in through the stomata) combines with the glucose, which is then broken down producing carbon dioxide and water. During this process, energy is released. This energy will be used by the plant to perform life functions such as growth and repair. The carbon dioxide gas and water that are formed are then given off through the stomata in the leaves.

Note: All organisms undergo respiration to release energy from food.

(Source: south Carolina 6th grade science)

The bubbles on the surface of the submerged leaf are oxygen released through photosynthesis.

Post Image



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