Plant Basics

By Sharon Fabian

[1] Suppose we didn't eat out our breakfast, lunch, and dinner every day, or at least a burger and fries now and then. Could we survive? People and animals all depend on food to provide the energy we need to live. Even the smallest animal couldn't survive without food. However, there are living things that never need to eat.

[2] Plants never need to eat, because they make their own food. Plants take in chemicals from the air and water, and nutrients from the soil, and perform a chemical reaction to turn them into food and oxygen. So daisies and sunflowers and roses are not just pretty to look at, they are also hard working little food factories.

[3] Here is how it works. A plant takes water from the soil with its roots. The water travels up the plant through little pipes called xylem [zie-luhm]. The plant also takes carbon dioxide from the air through tiny openings in the leaves called stomata. Each leaf contains a green chemical, chlorophyll [klor-uh-fil], that takes energy from sunlight and combines it with the water, carbon dioxide, and nutrients from the soil. A chemical reaction in the leaf changes all of this into stored food energy and oxygen. This whole process is called photosynthesis [foh-tuh-sin-thuh-sis]. The word photosynthesis means "putting together with light."

[4] The stored food energy feeds the plant and also provides food for the people and animals that eat the plants. This is why we get energy from the fruits and vegetables that we eat. Breads, cereals, and pasta get their energy from plants too, since they are made from grains, which grow on wheat and other plants. Meats like pot roast and fried chicken get their energy from plants too. After all, the cow ate grass and the chicken ate grain. Basically, we depend on plants for our energy.

[5] In another way, plants and people depend on each other. Plants provide oxygen for people to breathe, and people provide carbon dioxide for plants to take in.

[6] One interesting way to observe photosynthesis is with a terrarium. A terrarium is a miniature plant world, a collection of small plants enclosed in a glass container. To start you'll need a fish tank or a glass jar. Put a layer of gravel on the bottom, enough to provide good drainage for the plants. Next add a layer of soil. Potting soil works well, because it has already been sterilized and doesn't have bacteria that might mess up the terrarium. Next, plant some small plants in the soil. Add some decorative stones if you feel like it. Next, water the plants and add a tiny bit of plant food. It doesn't take much water or plant food. Too much will just cause

problems. Then cover the top of the terrarium and place it in indirect sunlight. The water will recycle inside the terrarium, so you will rarely need to water it. If it does get too dry, add a tad more water. If the glass gets foggy, it's too wet, so take the cover off for a little while. The plants should live well in your terrarium for a long time, and you can watch photosynthesis at work.

[7] Students have created all kids of experiments to see just how much water, air, nutrients, and sunlight a plant needs. Look at some of these science fair project ideas.

Do plants grow better under sunlight or a light bulb?
How do worms in the soil affect plant growth?
Which works better -- tap water, rainwater, or bottled water?
Which brand of plant food works best?
Will a plant grow upside down?

[8] Plants are amazing. They can survive without ever eating a bite.

Name _____ Science Pd _____

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1. Plants do not need to eat. (A) True (B) False	2. The word that means "putting together with light" is (A) Xylem (B) Photosynthesis (C) Terrarium (D) Chlorophyll
3. Photosynthesis is (A) Something that happens rarely (B) A fish tank full of plants (C) An experiment about plant growth (D) A chemical reaction	4. What are xylem? (A) The part of a leaf that makes chlorophyll (B) Tubes in the plant stem that carry water (C) Chemicals used by plants (D) Plants with no roots
5. Which of the following get their food energy from plants? (A) Vegetables and fruits (B) Grains (C) Meat (D) All of the above	6. This article is mainly about (A) Science fair projects (B) Vegetables and fruits (C) Plant roots (D) Basic plant facts
7. List three more ideas for a science fair project about plants. _____ _____	

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