Reading 8.1 – Plant Structures

Getting Ready

You have been learning about different structures animals have that function to help them to survive. Do you think that plants also have structures that help them to survive? For example, animals may have mouths for eating, lungs or gills for breathing, or special structures for moving. You also found out that plants have special structures that help spread seeds so the new plants can grow. In Lesson 5, you learned that plants are producers. This means they make their own food. Think about plants as producers. Complete the chart below to identify the structures they need to produce food? (You will add to this chart after you finish the reading.)

Plant Structure	Function of that structure

Highlight the answer to this question: Why do plants need leaves?



Alocacia



Duckweed

How Do Plants Survive?

In Lesson 4, you learned that plants use light energy and water to make their own food. But how does the light energy and water get into the plants? Light energy comes into plants through their leaves. Plant leaves come in many different sizes and shapes. Depending on the plant's environment, you might find plants with large leaves, small leaves, many leaves, or only a few leaves. Just like animals, plants in different environments have different structures.

The plant in the picture is called Alocacia, but most people call it elephant ear. Can you see why? This plant survives in tropical jungles where there is little light. Its leaves can grow to be more than three feet long. These plants have some of the largest leaves of any plant. Because of all the trees, there is not much sunlight in the jungle. This plant's large leaves help it to capture as much light as possible.

Not all plants have large leaves. Duckweed is a plant that grows in water. It floats near the surface of ponds and lakes. Most duckweed leaves are 1/8 of an inch across. Because they grow near the surface of the water, it is easy for them to capture sunlight with their leaves. Duckweed is one of the smallest plants visible without a microscope.

Highlight the answer in the text: What is the function of a plant's roots? Plants also need water to make their food. Water enters the plant's system through the roots. Roots can look very different, but their function is the same—bringing water into the plant. Plants can grow without soil. People grow basil plants using just water and light. The water and light work together to make the food the plants need to survive.

You have also learned that plants reproduce by forming seeds. If conditions are just right, the seed sprouts and becomes a young plant. Do you think that seeds look the same in all plants? Look at the pictures of different kinds of seeds in the images.

How are the seeds of the maple tree, the dandelion, and the apple tree different?

Maple Seeds



Dandelion Seeds







Highlight the answers in the text.

What Do Helicopters, Parachutes, and Tasty Packages Have to Do with Seeds?

Seeds help plants reproduce, spread out, and grow in new places. Because plants are held in the soil by their roots, they cannot move. To reproduce and grow a new plant, the seeds themselves need to be able to move around. If all the seeds from a plant dropped to the ground around the plant, there would not be room for all of them to get the light and water they need in order to grow. So plants need to be able to spread their seeds over a wider area.

Some people call maple seeds helicopters. The seeds sit at the bottom of a seedpod shaped like a propeller. The propeller allows the seeds to spin as they fall. The spinning slows down the seeds as

they fall from the tree and allows the wind to carry them farther away.

Have you ever picked a dandelion and blown its fluffy little hairs in the wind? If so, you were helping to spread the seeds of the dandelion. Dandelions produce lots of tiny seeds at the bottom of the fluffy little hairs. This allows the seeds to float in the wind just like a parachute! If you have ever opened a milkweed pod or seen its seeds blow in the wind, you know they move like dandelion seeds. Cattails spread their seeds the same way.

You have probably noticed seeds inside fruits and vegetables that you have eaten. You might not eat apple or orange seeds, but other animals do. The fruit is a tasty package that protects the seeds. Birds, mice, moles, and other animals that eat fruit are often not able to digest the seeds they eat. Unlike plants that stay in one place, animals move around. As they move around, they leave their droppings, and the seeds in their droppings are taken to new locations. In fact, some seeds would never be spread to new places without animals. This is another important way that organisms in an ecosystem interact.

Look back at the pictures and think about what you have just read about seeds. How does the structure of the different seeds allow them to move and to grow into a new plant?

Highlight the answers in the text.

What Other Ways Can New Plants Grow? Look at these two pictures.

Spider Plant



Root Cutting in a Jar



Some plants are able to reproduce new plants from one of their own plant parts that is not a seed. A whole new plant can be grown

from parts such as leaves, roots, and stems. The spider plant, on the left, is a popular household plant because it is easy to grow, and has baby "spiders" dangling as if they were letting themselves down on a web. These "spiders" are really a new plant sprouted from a flower that most people never even see. The "spider" can be left dangling on the plant or placed in a new pot of soil where it will sprout roots and become a whole new plant. The coleus plant on the right takes a little more work to grow into a new plant. A section of the stem or leaf must be cut and placed in water until roots start to form. Notice in the picture the number of roots of different lengths.

Return to the chart at the beginning of this reading and add anything new that you learned about plant structures and how they function for plant survival.

