

Instruction



Plant Structures

Plants come in all shapes and sizes—from a tiny dandelion in the grass to a huge oak tree in the forest—but they have many parts in common. You should be familiar with the most important plant parts.

All plants have **roots**. Roots hold the plant in place. More importantly, roots absorb water and nutrients from the soil to help the plant grow and survive. The roots of a tree are large and reach very deep into the soil. The roots of a dandelion are much smaller and do not reach as deep.

Plants also have **stems**, which help support the plant. Stems may look different in different plants. The stalks that hold up the flower of a tulip are stems. Tree trunks are also stems, holding up strong branches.

Plants have **leaves** that face the sun. The leaves take in air, and use energy from sunlight to make food for the plant. Some plants also have flowers, which produce fruit and contain seeds.

Look at the diagram of a plant below. In the box next to each part, write the part's name on the line. Write the part's function below the line.

keep in mind

Like all living things, plants require air, water, and nutrients.

Flower

helps a plant reproduce by making seeds, which grow into new plants



A

Photosynthesis

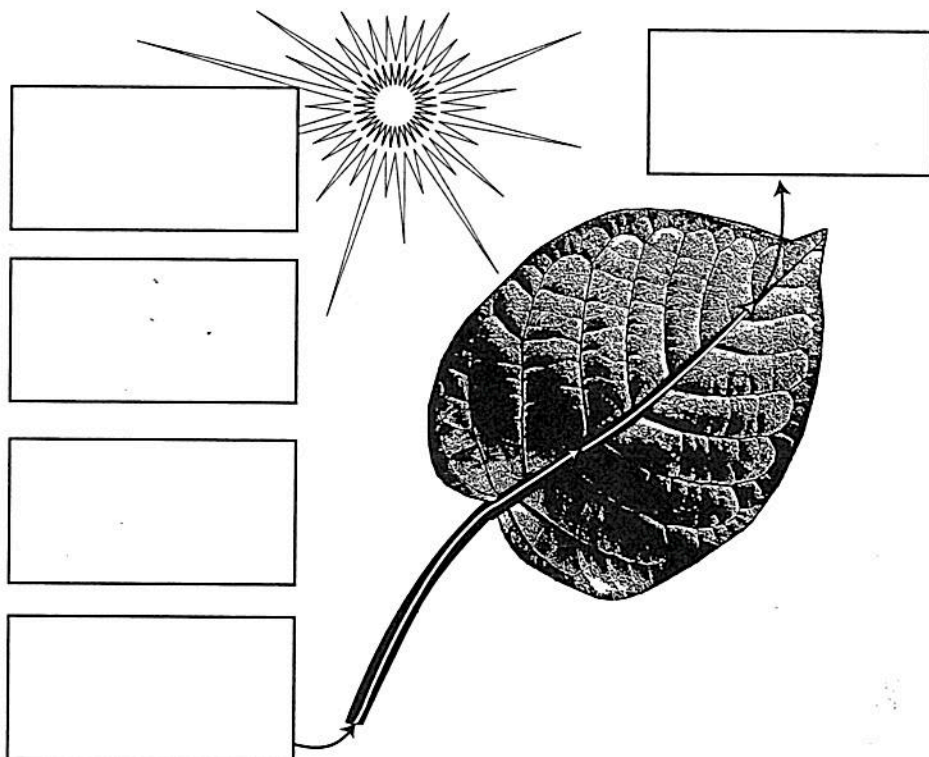
What do animals do when they are hungry? They search their environment and find food. But what do plants do when they are hungry? Plants cannot go anywhere because they cannot move. Fortunately, plants do not have to search for food because they can make their own food! Plants get all the energy they need from the sun. Their leaves take in energy in the form of sunlight.

Leaves also take in air for the plant to use, and roots allow plants to absorb water and nutrients. Plants use all these different materials to make sugar. This process is called **photosynthesis**. Once a plant makes sugar, it stores it inside its body and uses it whenever it needs food.

Photosynthesis seems like a long and confusing word—but if you break it down, it's easier to understand.

- photo = light
- synthesis = make

The diagram below shows a leaf carrying out photosynthesis. Fill in the boxes on the left with what the plant needs for photosynthesis. Fill in the box on the right with what is created as a result.



keep in mind

Plants can also change the sugar they make into another food, called starch. That is why some vegetables, like broccoli or peas, do not taste sweet!

A

Eliminate Wrong Answers

By now, you know about keywords and predicting the right answer, so you already have the skills for the next step: eliminating incorrect answers. If your prediction does not match any of the answer choices, you should begin crossing out any answer that you know is wrong. This step is called Eliminating. Sometimes Eliminating is so successful that you will have only one answer left—this answer must be correct.

Eliminating

- Cross out incorrect and unrelated answers.

Eliminate answers if:

- they are not related to the topic of the question.
- they go against what you know about science.
- they do not make sense.

keep in mind

Cross out the answers that you've eliminated—it helps you stay focused.

Try It Out!

Read the following question, underline keywords, and make a prediction, but don't circle the right answer yet.

1 Which part of a plant uses sunlight to make food?

- A flower
- B leaves
- C stem
- D roots

Which answer can be eliminated because it does not get any sunlight?

Which two answers do not make food for the plant?

Cross out the answers that you've eliminated. Now circle the correct answer!

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Shared Practice



Use the methods and strategies you know to answer the following questions on your own or with a partner.


1 Which does a plant **not** need to get from its surroundings?

- A water
- B light
- C sugar
- D air

hint  Eliminate all the things a plant **does** need.

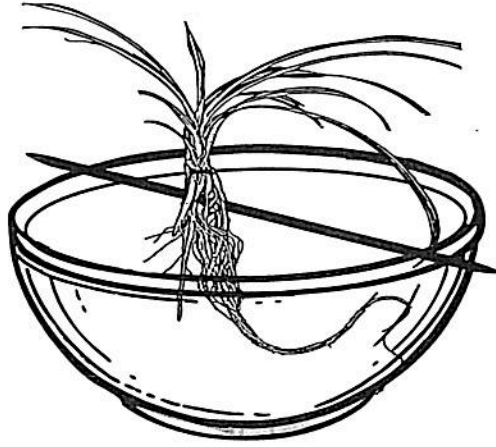
2 The stem of a plant is needed to

- A provide support
- B absorb light
- C take in nutrients
- D produce fruit

hint  A tree trunk is also a stem.



- 3 The diagram below shows a plant in a bowl of water. At the beginning of the day, a student filled the bowl with water. By the end of the day, some of the water was gone. Which statement best explains why some water was gone at the end of the day?



- A The water was taken in by the roots.
- B The water was moved by gravity.
- C The water was absorbed by the bowl.
- D The water was eroded by the plant.



What's the connection between the plant and water?


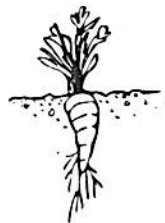

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KAP Wrap



Like many animals, humans eat plants for energy to grow and survive. Think about some of the fruits and vegetables that you eat. They are all parts of plants! But which parts are they? Some may not be so obvious. Did you know that potatoes and carrots grow underground, and are special parts of the roots that store food that the plant can use later?

Look at the foods in the table below. In the column labeled Structure and Function, write down what part of the plant each one is and what that part does to help the plant survive.

Plant	Structure and Function
Tomato 	<u>Fruit</u> <i>Holds the seeds that make new plants</i>
Carrot 	_____
Spinach 	_____



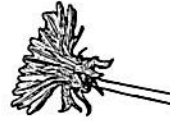
4 Which of these organisms needs sunlight to make food? [1]



Fish



Hawk



Dandelion



Snake

(Not Drawn to Scale)

hint What process requires sunlight to make food?

5 Organisms that use the Sun's energy to make food are called [1]

hint Do you remember the three Ps?



Use the methods and strategies you know to answer the following questions together as a class.

- 1 Plants need air, water, nutrients, and light in order to
 - A grow
 - B break down nutrients
 - C adapt to their environment
 - D reproduce

- 2 A student takes a plant from the garden by cutting it at the bottom of the stem. The plant is now unable to
 - A take in water
 - B take in energy from the Sun
 - C produce flowers
 - D reproduce



Guided Practice



The 4-Step Method for Multiple-Choice Questions



STEP 1: *Understand the question.*



STEP 2: *Make a prediction.*



STEP 3: *Eliminate.*



STEP 4: *Make a Smart Guess.*



Plants, Food, and Energy

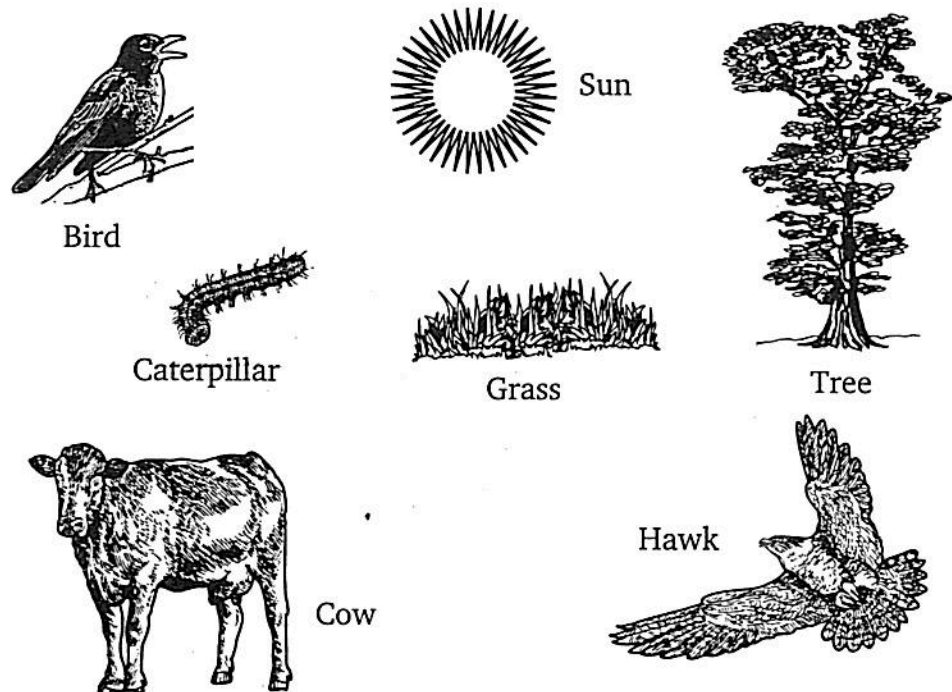
You just learned that plants turn the energy from the Sun into food. That is why plants are called **producers**—because they can produce their own food. When animals eat plants, they use this energy to grow and survive. This makes plants very important because animals depend on them.

Some animals, like mice, eat plants. Other animals, like cats, eat the mice. Organisms that eat other organisms are called **consumers**. If the mice didn't have plants to eat, they wouldn't survive, which means that the cats wouldn't have as many mice to eat and would have a harder time surviving. So it all comes down to plants in the end!

Remember the three Ps—

- **P**lants are
- **P**roducers using
- **P**hotosynthesis

The diagram below shows the sun and various organisms. Draw arrows showing where each living thing gets its food or energy, pointing *from* the source of energy to the organism receiving it.



keep in mind

Plants may look peaceful, but they are always working. Plants are busy making sugar while the Sun is shining!

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Lesson **A** Getting to Know Plants



Thinking KAP



Plants and animals are different in many ways. Yet, they also have many things in common. In the Venn diagram below, describe how plants and animals are similar and how they are different. Write characteristics that only plants have in the circle labeled Plants. Then write characteristics that only animals have in the circle labeled Animals. Write the characteristics that both plants and animals have in the area where the circles overlap.

To help you brainstorm, try to answer the following questions as you fill in the circles:

- What do plants and animals need to survive?
- How do plants and animals get energy to live and grow?
- What are the different parts of plants and animals?

