Plants and Their Functions

For Grades Pre-K-2

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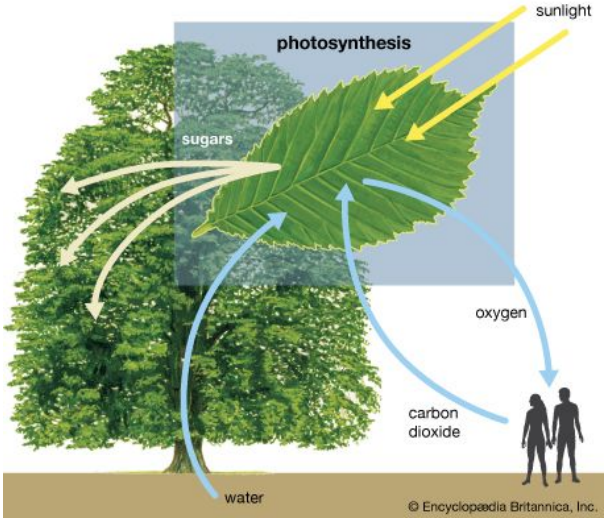
ARTICLE

plant

Hundreds of thousands of different species, or kinds, of plant grow on Earth. Some plants are so tiny that people can hardly see them. Others are trees that grow as tall as skyscrapers.

Most plants grow flowers of some kind. The flowers are where the plant produces its seeds.

Pete Oxford/Nature Picture Library



Green plants, such as trees, use carbon dioxide, sunlight, and water to create sugars. Sugars provide the energy that makes plants grow. The process creates oxygen, which people and other animals breathe. People breathe out carbon dioxide, and the cycle continues.

Encyclopædia Britannica, Inc.

Most plants have several things in common. They need sunshine, water, and air to grow. They are not able to move around. Their cells have stiff walls made of a tough material called cellulose. All green plants use the Sun’s energy, water, and a gas called carbon dioxide to make their own food. This process is called photosynthesis.

Where Plants Grow

Plants grow nearly everywhere on Earth. Most plants grow in soil. They get the water and nutrients they need from the soil. But some plants do not need soil. Plants called epiphytes grow on hard surfaces, such as other plants or rocks. They get most of the water and nutrients they need from rain and the air. Still other plants float in water. A few species of plant live on and get their nutrients from other plants.

Types

Plants are very diverse. Although many have the same basic parts, they can look very different.

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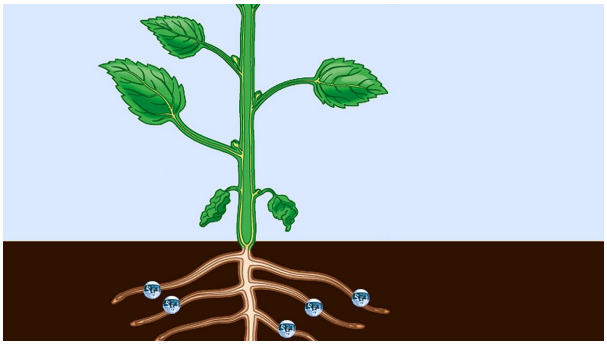

The vascular system works to move water and nutrients throughout a plant.

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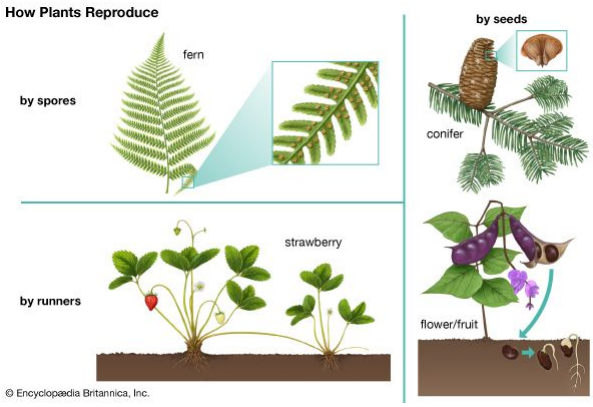
All plants belong to one of two main groups, vascular plants and nonvascular plants. Vascular plants have special tissues, called xylem and phloem, that carry water and food throughout the plant. Vascular plants also have roots, stems, and leaves. Vascular plants include herbaceous plants, shrubs, and trees. Herbaceous plants have soft stems. Shrubs and trees have woody stems.

Nonvascular plants do not have xylem or phloem. They also lack true roots, stems, and leaves. Nonvascular plants include mosses, liverworts, and hornworts. They are generally small and grow in moist places.

Reproduction



Plants reproduce by seeds, spores, or runners.

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A bean is the seed of a bean plant. When the seed germinates, or starts to grow, small parts inside the seed grow into the root and stem. Most of the seed is used for food by the young plant. When the plant grows green leaves it begins to make its own food by photosynthesis.

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Plants reproduce, or make more of their kind, either by seeds or spores. Seeds and spores are small structures that develop on plants and then fall off. They then may grow into new plants. Seeds are larger and more complex than spores.

Most vascular plants reproduce by seeds. Most seed-bearing plants grow flowers. Fruits grow from the flowers, and seeds grow inside the fruits.

Plants called conifers have cones that contain the plant's seeds.

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Other vascular plants do not grow flowers or fruits. For example, the plants called conifers form their seeds inside cones. Conifers include pines, spruces, firs, and similar trees and shrubs.

Nonvascular plants reproduce by spores. A few kinds of vascular plants, such as ferns, also reproduce by spores.

Sometimes plants can reproduce without spores or seeds. Stems, leaves, or other parts of a plant may grow into new plants. For instance, strawberry plants grow runners, or stems that creep along the ground. These stems may form roots and grow into new plants. This process is called vegetative reproduction.

Importance

Plants are vital to life on Earth. They provide food for people and animals. They also make the oxygen that other living things breathe. Plants produce the oxygen as part of the process of photosynthesis.

Human beings use plants in countless ways. They get many foods, drinks, and flavorings from plants. They build homes from wood and many other parts of plants. People also burn wood for heat and energy. Many of the fibers used to make cloth come from plants, especially cotton. Other useful things made from plants include medicines, paper, chewing gum, cork, rubber, and cocoa butter.

People also use flowers for decoration. They plant trees and flowers in their yards and in large formal gardens.

Citation (MLA style):

"Plant." *Britannica LaunchPacks: Plants and Their Functions*, Encyclopædia Britannica, 23 Mar. 2025. packs.eb.com. Accessed 4 May. 2025.

While every effort has been made to follow citation style rules, there may be some discrepancies. Please refer to the appropriate style manual or other sources if you have any questions.

IMAGE

sugar pine

Britannica Note:

Some plants produce their seeds in cones. When the cones drop to the ground, the seeds can be released to form new trees.

Pine cones of a sugar pine (*Pinus lambertiana*). The female cones of the sugar pine are the longest of any pine species, reaching up to 61 cm (24 inches) in length.

Richard Sniezko/US Forest Service

Citation (MLA style):

Sugar pine. Image. *Britannica LaunchPacks: Plants and Their Functions*, Encyclopædia Britannica, 23 Mar. 2025. packs.eb.com. Accessed 4 May. 2025.

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IMAGE

fern: sporangia

Britannica Note:

Ferns and some other plants release spores to create new plants.

In ferns, spores are contained within cases called sporangia that are located on the undersides of leaves.

Citation (MLA style):

Fern: sporangia. Image. *Britannica LaunchPacks: Plants and Their Functions*, Encyclopædia Britannica, 23 Mar. 2025. packs.eb.com. Accessed 4 May. 2025.

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VIDEO

pollen

Britannica Note:

Insects help plants reproduce by carrying pollen from one plant to another.

Video Transcript

NARRATOR: Insects are important agents of pollination. Flowers have evolved to produce the colors, scent, and food sources that will be most attractive to insects. In their quest for food, insects brush against anthers and stigmas, effectively cross-pollinating flowers. Insects are blissfully unaware of their vital role in the life cycles of the plants they pollinate. Some flowers, such as these foxgloves, have evolved in parallel with their insect pollinators. The size and shape of the flowers ideally suit the bumblebee. The markings and hairs on the lower petals serve as a landing strip to guide the pollinator straight to the nectaries.

Insects play an important role in pollination.

Encyclopædia Britannica, Inc.

Citation (MLA style):

Pollen. Video. *Britannica LaunchPacks: Plants and Their Functions*, Encyclopædia Britannica, 23 Mar. 2025. packs.eb.com. Accessed 4 May. 2025.

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INTERACTIVE

photosynthesis

Britannica Note:

Green plants create their own food through a process called photosynthesis.

Green plants such as trees use carbon dioxide, sunlight, and water to create sugars. Sugars provide the energy that makes plants grow. The process creates oxygen, which people and other animals breathe.

Encyclopædia Britannica, Inc.

Citation (MLA style):

Photosynthesis. Interactive. *Britannica LaunchPacks: Plants and Their Functions*, Encyclopædia Britannica, 23 Mar. 2025. packs.eb.com. Accessed 4 May. 2025.

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