

Different groups of plants

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¹ Scientists believe that there are more than 300,000 species of plants. The variety of plants on our planet is amazing. Giant sequoia trees are plants just as much as strawberries or tiny mosses. Plantae is the scientific name for the plant kingdom. It consists of many different divisions and groups of plants. Scientists group plants according to their common characteristics.



² Scientists group plants by their similar parts, for example, plants' roots. Just think of the huge roots of some trees. Sometimes they can grow through the pavement on walkways. Compare that to the roots of beets or yard grass. They do look very different, don't they?

³ There are two major kinds of root systems. The root system that looks like one major root--like the one the beet plant has--is called a taproot. A taproot grows down and forms many small secondary roots. Plants with taproot systems use their roots to store food. You can see these plants and roots in many gardens and grocery stores--carrots, beets, radishes, and turnips. Some trees also have taproot systems. Pine trees can grow their taproots as far down as 6 meters (about 20 feet)!

⁴ The second major kind of root system is called fibrous roots. They are made up of large numbers of roots that are more or less equal in size. Instead of growing deep down, they usually spread over large areas. Most grasses and some trees, like maple and beech trees, have fibrous root systems.

⁵ Even though the roots are different, their functions are the same--to anchor and support the plant, and to absorb, transport, and store water and nutrients. The tissues that roots are made of are the same, too. The outside covering of a root is called epidermis (ep-i-dur-mis). Epidermis directly contacts the soil and absorbs water and nutrients.

⁶ The tissues inside the roots are called xylem (zi-lem) and phloem (flo-em). They are tube-like tissues through which water and nutrients move. Xylem helps to move water and nutrients from the roots to the stems and leaves. Phloem conducts food made in the leaves to all other parts of a plant that need them. Xylem and phloem are separate inside the plant, and they are continuous from the root, stem and leaves.

⁷ Have you ever seen a stump after a tree has been cut down? Do you know what those rings represent? They are separate xylem and phloem rings, with the xylem ring inside the phloem ring. The xylem tissue becomes the wood of a tree. Every year, as the tree grows, a circle of wood is added. That is why those rings are also called growth rings, and that's the way you can tell the age of a tree.

⁸ Plant stems, of course, are very different. They can be soft and weak, or very hard and woody. Woody stems are rigid and hard. They contain a lot of xylem tissue. Woody stems are usually able to survive more severe conditions. Nonwoody stems are usually green and soft. They are called herbaceous (hur-ba-shus) stems. Many garden plants and flowers have herbaceous stems.

⁹ Think of some plants with either woody or herbaceous stems. If you think all woody plants are large and all herbaceous plants are small, you are not correct. Banana plants look like trees, but they are not trees because they do not have woody stems. Have you seen a strawberry plant? They are little and sprawl on the ground, but they are not herbs because their stems are truly woody.

¹⁰ Not all plants have xylem and phloem tissues, so that is another way to classify plants. Those plants that have tube-like xylem and phloem tissues are called vascular plants. Plants that don't have those tissues are nonvascular. Moss is a good example of a nonvascular plant. Mosses don't have regular roots. Instead, they have special structures called rhizoids. Rhizoids attach the mosses to the surface on which they are growing. Mosses get water and nutrients directly through their stems and leaves.

¹¹ Plants can also be grouped by the length of their lives. There are annual, biennial, and perennial plants. Annual plants grow, reproduce, and die in one year. A biennial requires two years to complete its life cycle. They produce leaves and food in one year and reproduce and die in the next one. Perennial plants may live many seasons, producing year after year. Can you think of some examples of annual, biennial, and perennial plants?

¹² There are many more ways scientists classify plants--the way plants reproduce, the number of flowers and leaves plants have, the environment in which plants live, and others. People have been studying botany, the science of plants, for centuries. Since plants are so important in the lives of people, animals, and the whole planet, many scientists work hard to improve plants and to protect the environment. Maybe you will also choose botany as your professional field.

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1. Scientists believe there are how many different kinds of plants? <input type="radio"/> A More than 300,000 <input type="radio"/> B More than 3,000,000 <input type="radio"/> C More than 30,000 <input type="radio"/> D More than 3,000	2. All plants have xylem and phloem tissues. <input type="radio"/> A False <input type="radio"/> B True
3. Annual plants grow, reproduce, and die in what span of time? <input type="radio"/> A One season <input type="radio"/> B One month <input type="radio"/> C Two years <input type="radio"/> D One year	4. Fibrous roots grow deep into the ground. <input type="radio"/> A False <input type="radio"/> B True
5. Banana plants are trees. <input type="radio"/> A False <input type="radio"/> B True	6. Xylem tissue becomes a tree's _____. <input type="radio"/> A Sap <input type="radio"/> B Wood <input type="radio"/> C Leaves <input type="radio"/> D Fruit
7. Nonwoody stems are called _____. <input type="radio"/> A Herbaceous <input type="radio"/> B Leafy <input type="radio"/> C Aerial <input type="radio"/> D Fibrous	8. What kind of root does a beet plant have? <input type="radio"/> A Fibrous root <input type="radio"/> B Taproot <input type="radio"/> C Aerial <input type="radio"/> D None of the above