

## Beginner Age Division Horticulture Plant Parts Study Guide



**Roots:** Roots are important because they allow the plant to absorb water and nutrients from the soil that the plant uses to make food. Roots also hold the plant in the soil and prevent soil from washing away (eroding) during heavy rain. Roots may also store the energy the leaves make for the plant to use later.

*Uses:* Some examples of roots that people eat are carrots, beets, radishes, turnips, rutabagas, daikon, and parsnips.



**Stems:** Stems are where water and nutrients go up and down between the roots and the leaves. The stem also supports the plant, allowing it to grow taller. Sometimes the stem is called a shoot (See diagram 1).

*Uses:* Examples of stems that people eat are kohlrabi and asparagus. Potatoes and onions are modified stems that grow underground.



**Leaves:** Leaves are where the plant makes food. This process of making food is called photosynthesis. To make food, leaves use the energy of the sun and combine it with carbon dioxide and water the roots pull from the ground to make food for the plant. The leaves take in the carbon dioxide through tiny openings on the underside of the leaf called stomata. The leaves also release oxygen through these same openings. This oxygen is what you and all animals breathe to stay alive.

*Uses:* Some examples of leaves that people eat are lettuce, cabbage, endive, kale, basil, and many other herbs.



**Flowers:** Flowers are the beginning of a plant's seeds. Flowers provide food for bees and other insects. The bees and insects spread pollen from plant to plant. Pollen is the yellow dust inside flowers. Pollination is when pollen is spread from one flower to another to fertilize the seeds. If a flower is fertilized, it will make seeds that will grow into new plants.

*Uses:* Squash flowers can be stuffed and baked. Other flowers, like pansies and nasturtiums, can be eaten in salads. If you eat the flower it cannot make a fruit, so if you want fruit leave the flowers on the plant. Broccoli is another type of flower that we eat.



**Fruit:** After a flower is fertilized, a fruit may form. Fruit is the covering that protects the seed. Fruit also attracts animals. This is important because the animals carry the fruit away to eat it, helping spread the seeds.

There are many different types of fruits from around the world.

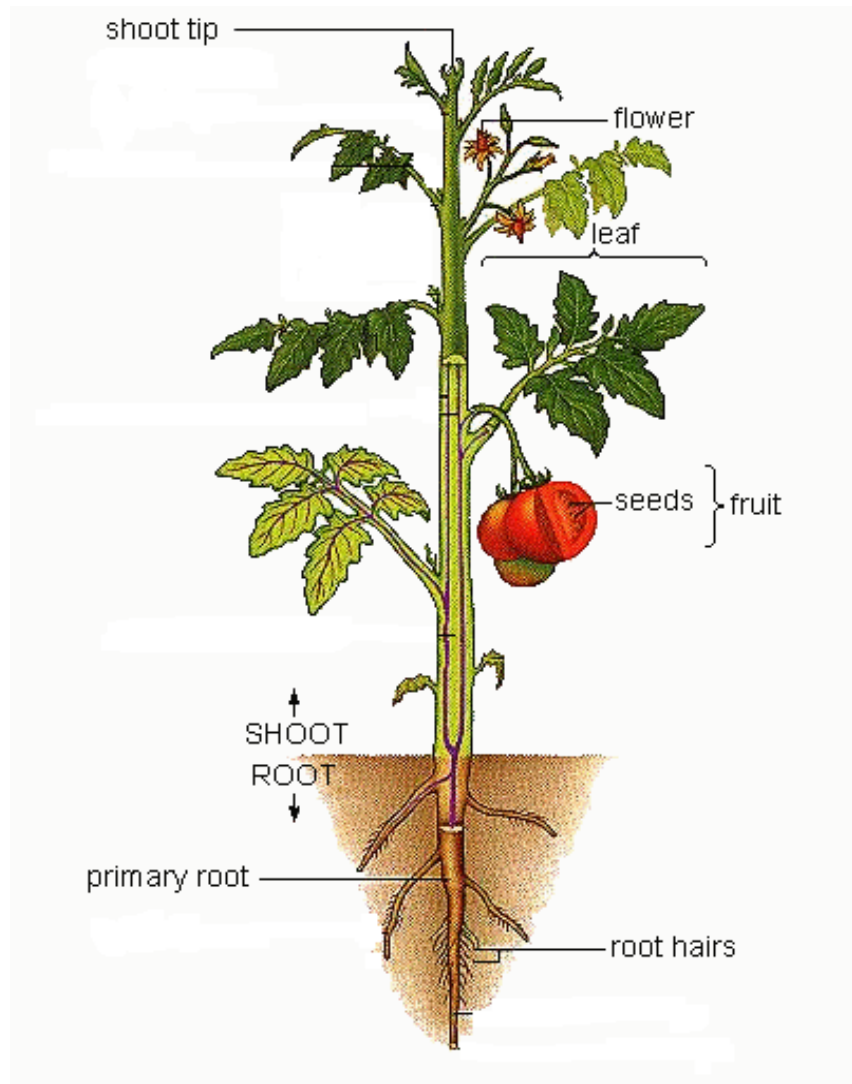
*Uses:* Any part of the plant that contains seeds is a fruit. These include cucumbers, squash, apples, pears, cherries, lemons, and many more!



**Seeds:** The main purpose of seeds is to make new plants. Each seed contains a tiny plant, called an embryo that can grow into an entirely new adult plant. When a seed sprouts, it will grow a tiny root and one or two tiny leaves. The leaves and root will get a little energy from the seed, and then will start working just like an adult plant to make its own food.

*Uses:* Some of the seeds we eat are dried, like beans, rice, and barley. Some are ground into flour like wheat, or meal like corn. Others are immature, like green peas and sweet corn.

## Plant Parts Diagram 1



## Glossary

Eroding: to be gradually worn away by wind or water

Photosynthesis: a process by which green plants produce sugar from carbon dioxide and water, using energy from the sun.

Carbon Dioxide: a gas given off into the air by animals when they breathe. It is taken up by plants and used in photosynthesis.

Stoma (plural: stomata): a tiny hole in the outer layer of a plant leaf that controls the passing of water vapor, carbon dioxide, and oxygen.

Oxygen: a gas given off by plants during photosynthesis and used by animals when they breathe.

Pollen: a powdery substance produced by flowering plants that contains the male reproductive cells. It is carried by wind and insects to other plants, which it fertilizes.

Pollination: to transfer pollen grains from the male part of the plant to the female part of the plant. This leads to fertilization.

Fertilization: when female cells are united with male cells, enabling the development of a seed.

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