


## Stem

 The main part of the shoot system which grows upwards above the ground is called stem. Stems bear branches, leaves, buds, flowers, fruits and seeds. Stems expose the leaves, flowers and branches to sunlight, as they need to absorb nutrients for their growth. It bears leaves located internode at regular intervals. Such places are called Internodes. The portion between the two nodes is called intercede. The stem is the strongest part of the tree and is called trunk. A thick brown covering of the trunk is called bark It provides protection to the stem.

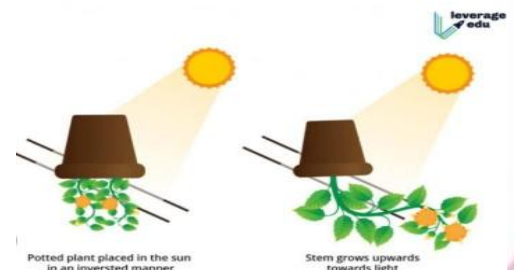
### Functions of the stem

1. It keeps the plant straight and upright.
2. It transports water and minerals absorbed by the roots to all parts of it.
3. It transports food, prepared by the leaves, to all parts of the plant.
4. It holds the leaves in such a way that leaves obtain optimum sunlight for performing photosynthesis to manufacture food.
5. It stores food in some plants.
6. Stem of green plants can perform the process of photosynthesis to manufacture food.

### Experiment

To show that stem always grows upwards.

Take a potted plant. Place the pot in an inverted manner so that the stem appears to grow downwards. Do not disturb the pot for a week. After a week, you will notice that the stem of the plant has taken a bend from its new position and that it is now growing upwards. This observation reveals that the stem always grows upwards towards the light and away from gravity.



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## Modifications of the stem

In some plants the stem performs some special functions as well. Such stems are called modified stems. They are of the following types:

**1. Storage of Food:** In some plants like ginger and potato, the entire stem remains underground. Only leaves and flowers are seen above the ground. The underground stem stores food. It looks like a root being present below the ground but it is a stem having nodes, internodes and scale leaves.

**2. Stem that provides support:** Some plants like grapes and pea have very weak stem. Since they cannot stand upright, they are supported by thin long spring-like structures that grow from the stem. These structures (tendrils) coil around the supports, such as a pole, a branch of a tree or they simply spread on the ground.

**3. Stem that manufactures food:** In some plants such as cacti, the stem is leaf shaped, fleshy and green. The stem manufactures the food for the plant in the absence of leaves.

**4. Vegetative Propagation:** Some plants are modified to produce new plants from their stems. Certain plants that creep on ground or on water are called runners or stolons. They strike roots at intervals, where nodes are present and new shoots grow from these nodes.

**5. Protection:** Some plants such as rose and bougainvillea have thorns growing on their stems, which are the modified stems or branches of that particular plant. These thorns protect the plants from predator.