

**01** The leaves of plants often grow in a circular pattern such that the leaves on top are not positioned directly above the leaves below them.



- (a) What are the function(s) of the leaves on a plant ?
- (b) How does this arrangement of leaves help to ensure that they can carry out their function(s) effectively ?

Your solution here:

**02** The roots hold a plant firmly to the ground and also absorb water and mineral salts from the surroundings. In the case of mangrove plants growing in swampy areas, the entire plant is raised above ground level by the branching roots. Some of the ends of the roots even stick out of the soil.

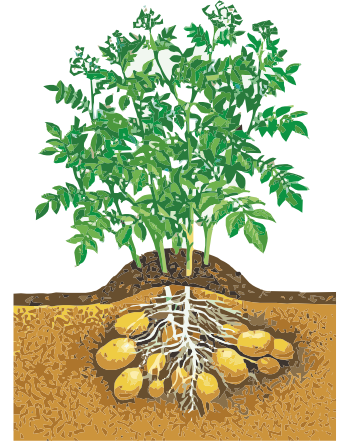


- (a) Why are mangrove plants lifted above ground level by the prop/stilt roots ?
- (b) Mangrove swamps have soils that are soaked with water and do not contain much air. By relating to this statement predict the function(s) of the root ends that stick out above the soil.

Your solution here:

**03** The stems of most plants can be found above the ground. However, some plants have large, bulging stems that grow underground instead.

When these plants are placed in a dark container for seven days, the plants do not wilt and die. Instead, their underground stems appear to have shrunk slightly.

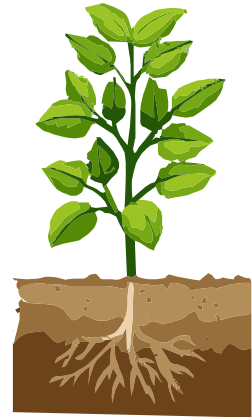


- (a) State the function(s) of a typical plant stem.
- (b) Explain why the underground stems appear to be smaller after the plants are kept in the dark for several days.

Your solution here:

**04**

A typical plant consists of several leaves, a stem and a root system. Occasionally, flowers and fruits may be found on the adult plant. All these parts must function together so that the plant can survive, grow and reproduce.



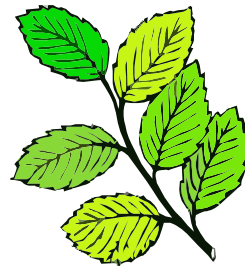
- (a) Explain what could happen if all the leaves of a plant are removed.
- (b) Explain what could happen if a section of the stem is clipped very tightly with a metal clip for several days.
- (c) With reference to your answers for plants (a) and (b), explain why it is important for a typical plant to have its leaves, stem and roots functioning properly.

Your solution here:

**05** The leaves of plants living in a desert are often thick and fleshy, while the leaves of plants in a tropical rainforest are usually thin, with pointed or round tips and smooth waxy surfaces.



**Thick and fleshy leaf**



**Thin leaf**

How do these differences in leaf structures help the plants to survive in their respective living environments ?

Your solution here: