

Parts of a plant

Background information for teachers

These notes are provided to give teachers the background they may need when teaching these topics on plants. The vocabulary and words used are botanically correct. It is always advisable to keep closely to the standard terminology so that pupils have a firm foundation to build on and don't have to 'undo' their learning and vocabulary at a later stage. However, it is not intended that you pass these notes on to pupils in the form presented here.

Parts of a plant

At primary level, when learning about parts of a flowering plant, the children are first expected to recognise and name the root, stem, leaf and flower. These notes give you some extra information about these structures.

Root

The roots anchor or hold the plant in the soil. They take up water and dissolved mineral salts. [See 'Food' in plants, page 20.]

Stem

The stem holds the leaves and flowers above the ground in their most appropriate position (for example, holding the leaves in the best position to get maximum light). The stem also contains vascular tissue (the transport system of the plant). Mineral salts and water are transported from the roots to the leaves and other parts of the plant. Sugars and other substances are carried away from the leaves.

Leaf

The main part of the leaf is the leaf blade and this is often joined to the stem by a stalk. The transport system in the stem continues through the stalk into the veins of the leaf. An important function of the leaf is to carry out photosynthesis.

Leaves at the base of the plant (known as basal leaves) are often different in shape and/or size from leaves higher up the stem (stem leaves).

At the base of the leaf stalk, there may be a pair of leafy outgrowths called stipules. You can see this on the diagram of the sugar snap pea. In some plants (such as the sugar snap pea), the leaves are deeply divided into separate leaflets. A leaf differs from a leaflet by having a bud at the point where it joins the stem. In the sugar snap pea you can also see that some of the leaflets are modified to form tendrils. If the first formed pair of leaves look different from other leaves they are probably seed leaves. These were part of the seed and provided a store of food for the germinating seed. The scientific name for a seed leaf is a cotyledon.

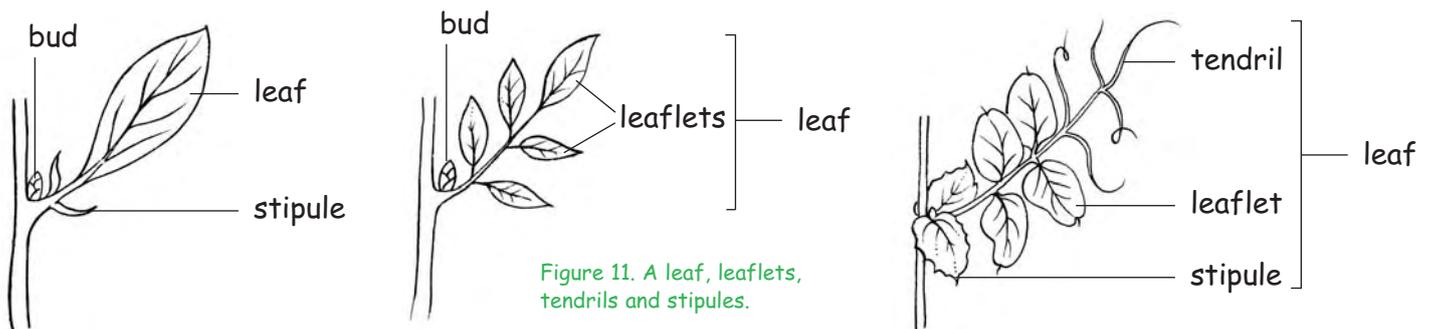


Figure 11. A leaf, leaflets, tendrils and stipules.

Bud

A bud is an immature shoot, sometimes consisting of immature flowers as well as leaves. The shoot is compressed and enclosed by protective scale leaves. All leaves have an axillary bud where the leaf stalk joins the stem. At the tip of the stem there will be a terminal bud.

Flower

The flower is the part of the plant where the seeds are made. [For more information see the SAPS website.]

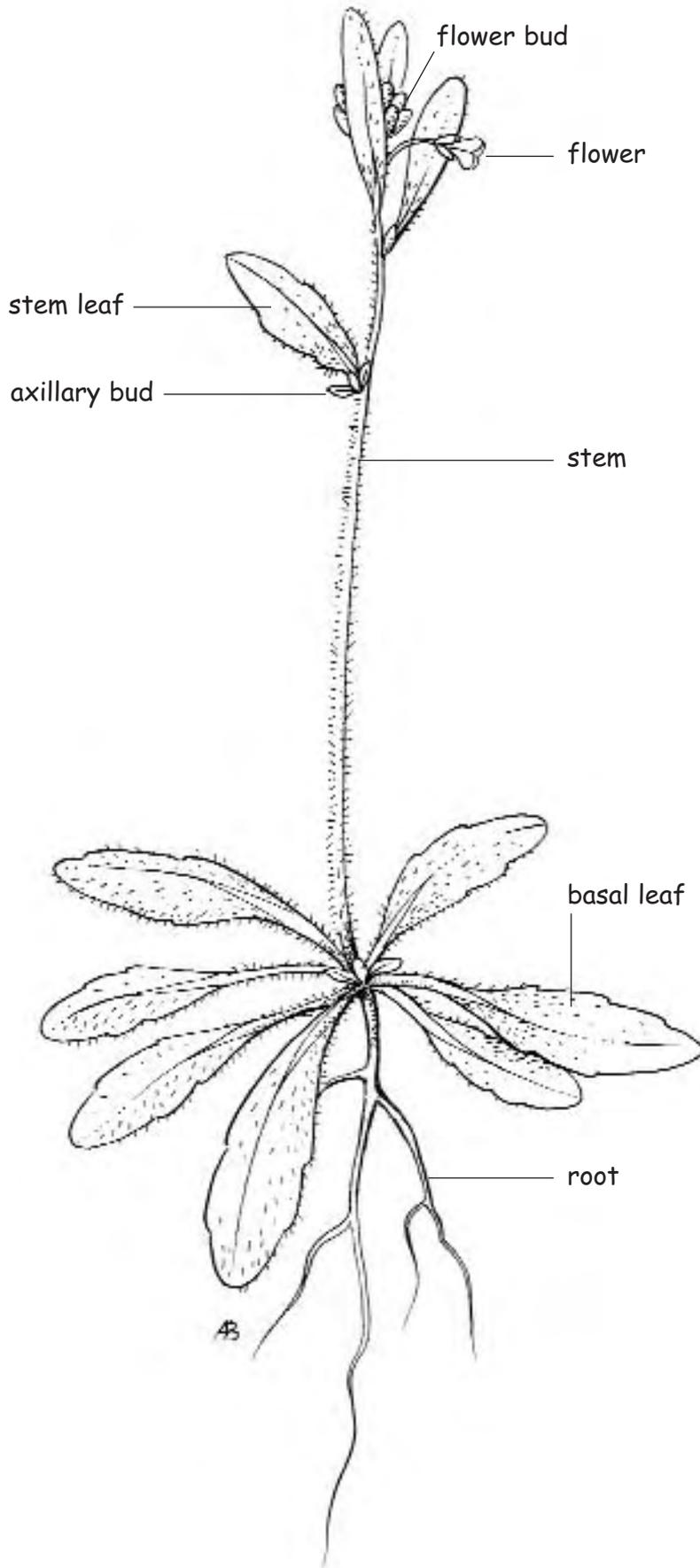


Figure 12.
Thale Cress
(*Arabidopsis thaliana*).

General note

'Food' in plants

Food provides a source of energy for living processes.

Animals are known as consumers and obtain their energy from the plants and animals that they consume.

Green plants are known as producers and are able to trap energy from the sun, using the green pigment chlorophyll. This energy is used to produce sugars, by the process of photosynthesis. The sugars are subsequently broken down to provide the source of energy for living processes in the plants. Plants are therefore said to make their own food.

In addition to obtaining energy, all animals and plants need other substances to build up their cells and grow successfully. These substances include mineral salts. Animals obtain their minerals from the plants and animals that they consume. Plants usually obtain their minerals from water taken up by the roots, and this water contains dissolved mineral salts.

Children are often confused by use of the term 'food' particularly when they know that 'plant food' can be purchased (say from a garden centre) and added to the soil to 'feed' plants. (This is mainly mineral salts.) They should understand that in science, we link 'food' primarily with it being a source of energy.

Curriculum links

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National Curriculum (Sc2)	KS1: 3b, 3c; KS2: 3b, 3c
QCA guidelines – Scheme of work	Unit 1B; Unit 2B
Scottish ISE 5-14 framework/attainment targets	LT-B2.3, LT-B2.4, LT-C2.4

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