

Additional background information for teachers

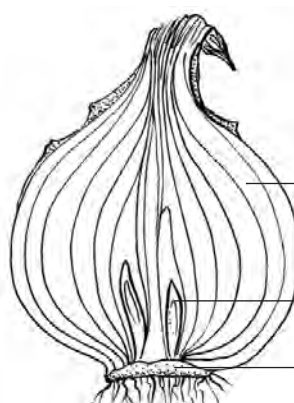
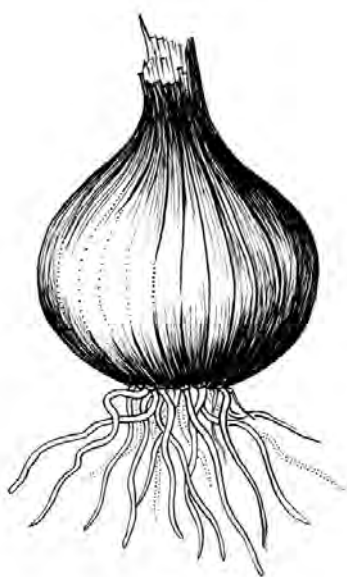
(see *Background information for teachers* in booklet, page 27)

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Asexual or vegetative reproduction

Many plants are able to reproduce by detaching bits of themselves, which then grow into new plants. Here are some examples.

1. An onion is a specialised underground shoot. Its swollen leaf bases are full of stored food and this helps the new shoot to develop in the spring. It also contains one or more buds, which form new bulbs at the end of the growing season.



swollen leaf base

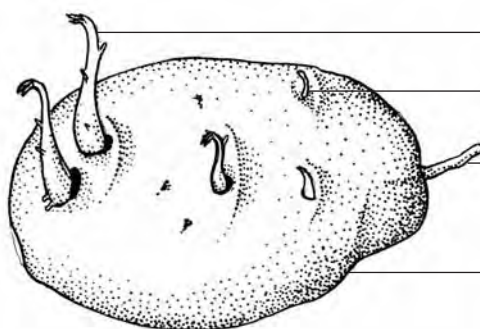
bud will form new bulb

flattened stem

Whole onion (left) and section through an onion (right)

2. The potato is a swollen stem tip, known as a tuber. The potato plant produces a large number of potatoes each with several buds. These buds can form new shoots.

A potato, showing new shoots growing from buds



new shoot

bud

underground stem

tuber



3. The Slender Speedwell, a common plant on lawns, grows readily from fragments of shoot spread around when the lawn is being cut.

The Slender Speedwell

Examples of dissected flowers

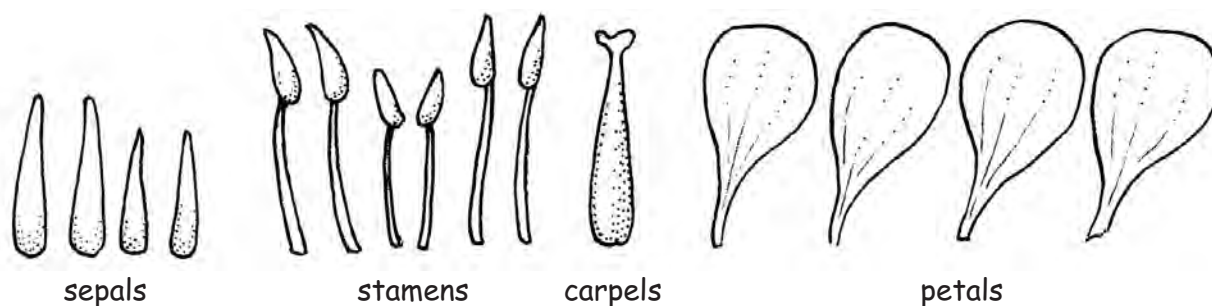
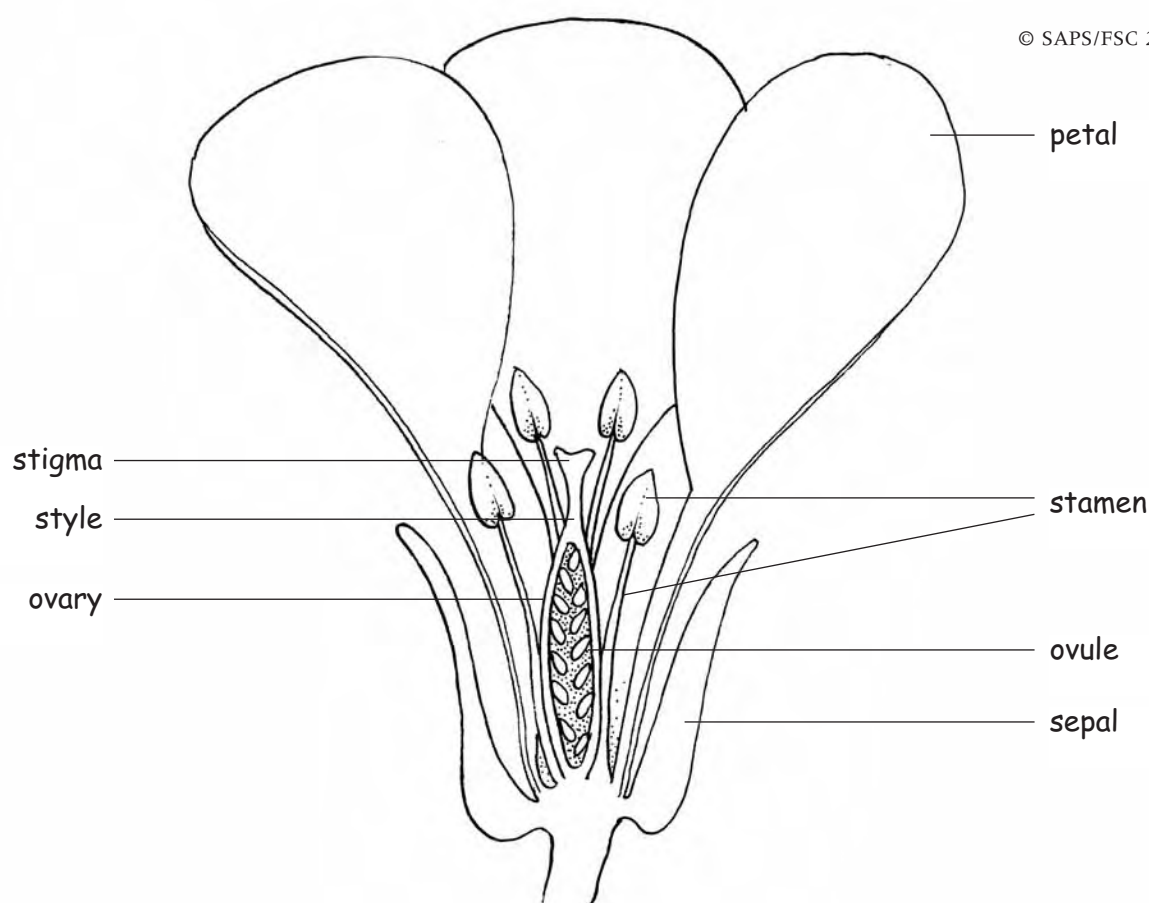
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1. Wallflower



General information

The Wallflower (*Erysimum cheiri*) belongs to the cabbage Family (Brassicaceae). This large family occurs in most parts of the world and is economically very important. It supplies us with a wide variety of familiar food plants e.g. mustard, cress, radish, turnip, swede, cabbage, Brussels sprouts, broccoli and cauliflower. Oil seed rape is also in this family.



The structure of the flower

- Sepals (4)** These drop off readily after the flower has opened and you might miss them. In the cultivated red and purple varieties they are often similar in colour to the petals. The yellow form usually has green sepals.
- Petals (4)** Red, orange, yellow or purple, or a mixture of these colours.
- Stamens (6)** 4 long ones and 2 short ones.
- Carpels (2)** The ovary is made from 2 fused carpels. The stigma is shallowly 2-lobed and joined to the ovary by a very short style.

Examples of dissected flowers

2. Garden Pea (sugar snap variety)

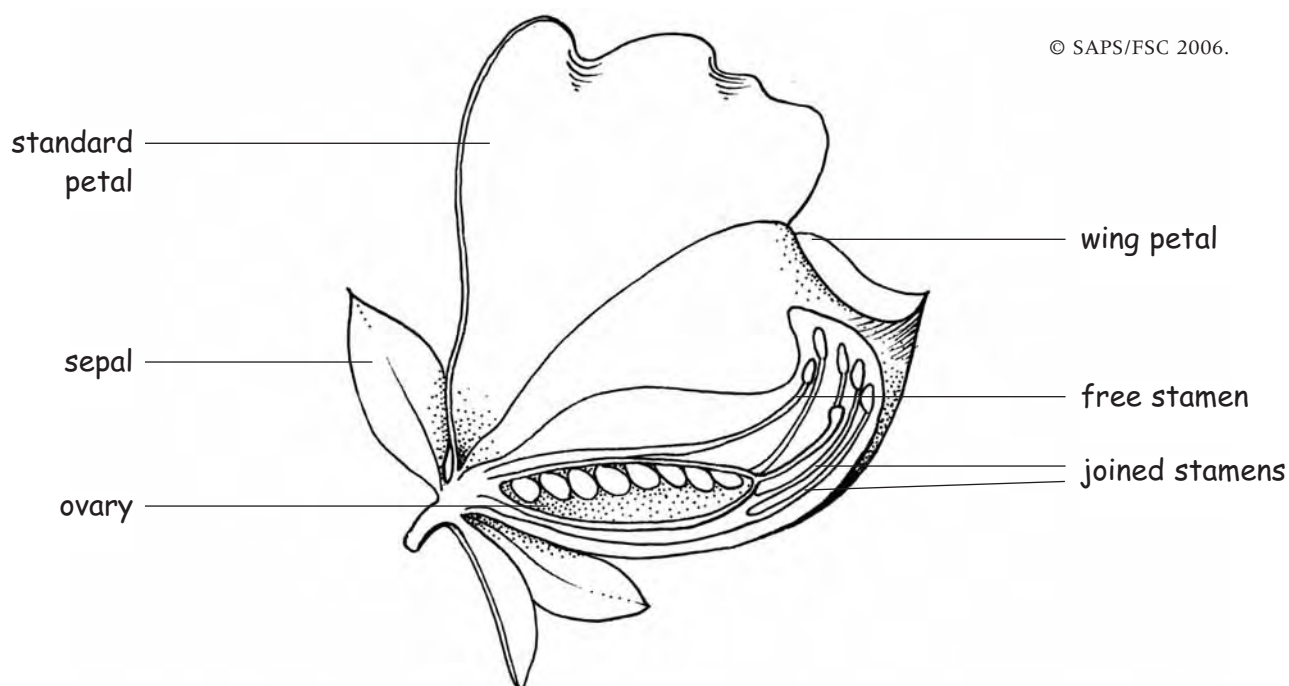
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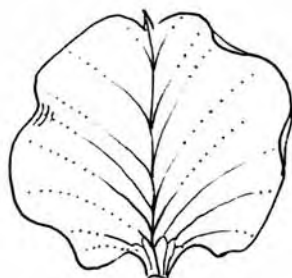
General information

The Garden Pea (*Pisum sativum*), particularly the sugar snap variety, is very easy to grow both in the classroom and out of doors and flowers and fruits readily. (See booklet 1, *The parts of a plant and their functions*). Other members of this family with flowers that are easy to study include the sweet pea and runner bean.

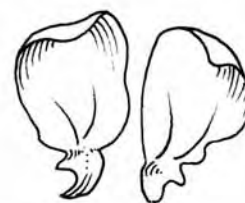
The Pea family is of great economic importance because it provides many sources of food for both livestock and humans e.g. beans, peas, lentils and peanuts. These foods are rich in protein and therefore particularly important to people whose diet is poor in animal protein. The roots of members of this family are able to fix nitrogen from the air and are therefore important in maintaining good crop growing conditions.



5 joined sepals



large standard petal



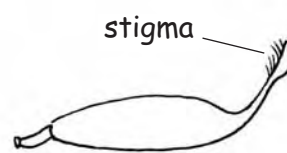
2 wing petals



2 petals joined to form keel



1 free stamen,
9 joined stamens



stigma

carpel

The structure of the flower

Sepals (5) These are joined together.

Petals (5) 1 large standard.

2 wings.

2 petals joined together to form the keel which encloses the stamens and carpel.

Stamens (10) 9 with their stalks joined below to form a tube and 1 which is free.

Carpel (1) The stigma is joined to the ovary by a short style. The elongated ovary forms the pea pod after fertilisation.