Flowers to study – some suggestions

Here are some suggestions of plants with flowers in which the structure is easy to see and understand and which are usually readily available.

Winter

Hyacinth (*note this has tepals – i.e. the petals and sepals are alike*)
Snowdrop
Winter Jasmine

Spring to early summer

Campanula
Honesty
Paeony
Perennial geraniums (*garden varieties*)
Ramsons (wild garlic)
Wallflower

Summer and autumn

Campanula
Evening-primrose
Foxglove
Lilies
Rosebay Willowherb
Rose-of-Sharon
Sweet Pea

All year around (in the classroom)

Rapid-cycling brassicas (*a bit small*)

Campanulas, Rosebay Willowherb and Evening-primroses are good for study but note that they have inferior ovaries (*see Background information for teachers*).

The plants listed below are probably best avoided at primary level:

All members of the **Asteraceae** (i.e. daisy, dandelion and their allies) – here the 'flower' is a collection of tiny florets and the structure is very difficult to see

Buttercup – has lots of separate small carpels and this causes confusion

Convolvulus – in the large *Calystegia* species the sepals are hidden by bracts

Daffodil – has an odd petal structure

Iris – petal structure is difficult to sort out

Poppy – the sepals fall off as the flower opens and the latex could be a problem with young children

Rhododendron – the sepals are very small and difficult to see.

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FSC Bringing Environmental Understanding To All

Examples of dissected flowers

1. The cultivated perennial geranium (Crane's-bill)

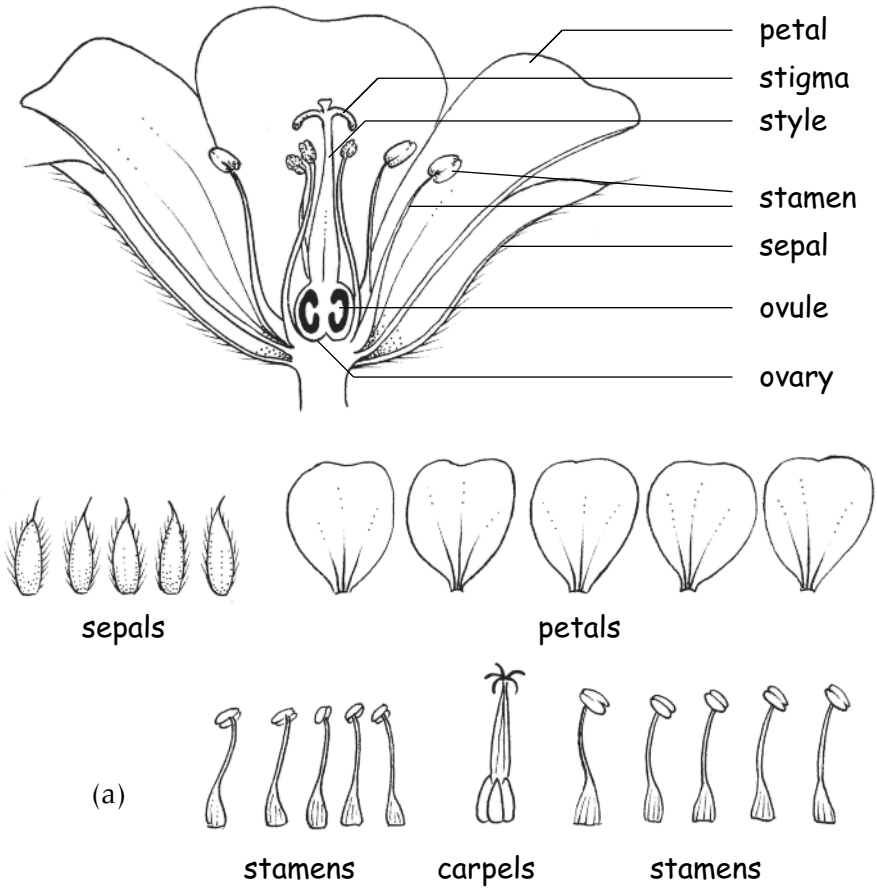

Figure 17

(a) Half-flower of the blue cultivated geranium with its parts after dissection.

(b) Blue cultivated perennial geranium in flower.

(b)

Flower structure

Sepals (5) Green

Petals (5) Brightly coloured, the actual colour depending on which species or cultivar you are looking at

Stamens (10) These are arranged in 2 whorls of 5. One whorl develops before the other so you may find only the filaments (stalks) left by the time the second whorl is fully developed

Carpels (5) The ovary is formed of 5 carpels fused together, which extend upwards to form a sterile beak, merging into the style. The 5 stigmas are not joined. When ripe, the ovary and the sterile beak split suddenly into 5 parts throwing out the seeds.

General information

The cultivated perennial geranium belongs to the Crane's-bill family (*Geraniaceae*), which also includes pelargoniums. There are a number of cultivated Crane's-bills that are suitable for study, for example, large blue flowered forms of *Geranium pratense* or the pink Bloody Crane's-bill *Geranium sanguineum*. Pelargoniums can also be used. Be careful in choosing your plant as many of the cultivated forms are hybrids and may be sterile, so this makes it more difficult to see the structure of the ovary. Flowers should not be collected from the wild where they are scarce. Plants in the Crane's-bill family (Family Geraniaceae) are mostly found in temperate and sub-tropical regions. The family is important for its cultivated ornamental plants. Many plants in this family have scented leaves and geranium oil is used in the perfume industry.

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2. The star gazer lily

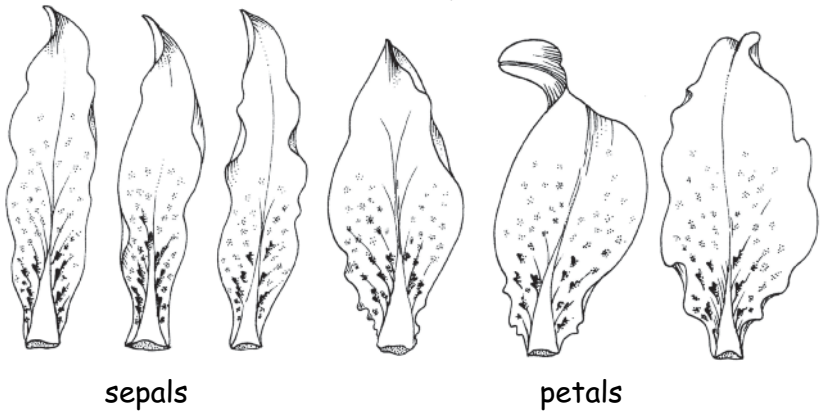
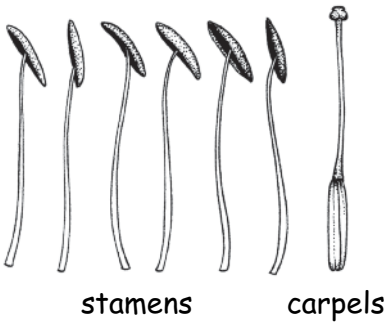


Figure 18

(a) Half-flower of the star gazer lily with its parts after dissection.

(b) Star gazer lily in flower.

(a)



(b)

Flower structure

Sepals (3) Pink with darker pink spots

Petals (3) Pink with darker pink spots. A little wider than the sepals but the sepals and petals are both petal-like and sometimes referred to as tepals

Stamens (6) The stalks are attached to the middle of the back of the pollen bags (anthers). These produce masses of orange pollen

Carpels (3) The ovary is made of 3 carpels fused together. This is best seen by cutting a cross section of the ovary. The stigma is also 3-lobed.

General information

The star gazer lily, as its name suggests, belongs to the Lily family (the Liliaceae). This is a large family containing many beautiful garden plants, which have probably been cultivated since the middle of the 16th century. The star gazer is a cultivated oriental hybrid. Onions and chives also belong to this family.

The pollen can stain. If it gets onto skin or clothing dust it off whilst it is dry. Wiping with a damp cloth will lead to staining. Note that the pollen is very poisonous to cats.

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Definitions (*which can be used to explain words to the children*)

carpel	*the female parts of a flower*
dispersal	*the spreading of seeds from a plant*
fertilisation	*joining of the male and female cells*
flower	*part of the plant where seeds are made*
fruit	*the part of the plant that contains the seeds*
germination	*when the seed starts to grow*
leaf	*usually green; the part where the plant makes its food*
ovary	*the part of the carpel that contains the ovules*
ovule	*found in the ovary and develops into a seed after fertilisation*
petal	*often brightly coloured and attracts insects and helps to protect the rest of the flower*
pollen	*dust-like powder made in the stamen*
pollination	*the transfer of pollen from the stamen to a stigma*
root	*takes up water and in many plants anchors or holds the plant in the soil*
seed	*develops from the ovule after fertilisation and may grow into a new plant*
sepal	*often green; protects the rest of the flower*
stamen	*the male part of the flower where pollen is made*
stem	*the part of the plant that the leaves and flowers are joined to*
stigma	*part of the carpel that pollen grains become attached to during pollination*

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