

Dissection of wind and insect-pollinated flowers

A level Specification reference: 4.2

Sexual reproduction in plants

Introduction

Pollination is the transfer of pollen grains from the anther to the stigma. Some species of plants have flowers adapted for pollination by birds, mammals and water but most use insects and wind. There are two types of flowering plant, the monocotyledons and dicotyledons. The monocotyledons have leaves with parallel veins e.g. grasses, barley, maize, lily and plantain. In monocotyledons the floral parts are in 3's or multiples of 3. The dicotyledons have leaves with netted veins eg. geranium, primrose and buttercup.

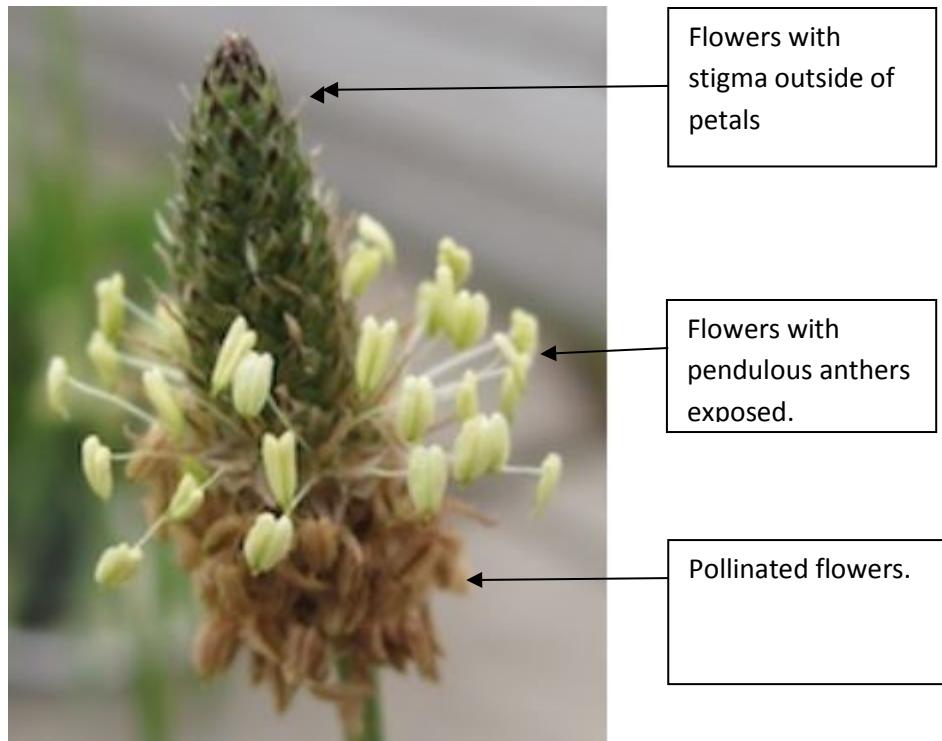
Apparatus

Insect pollinated flower
Wind pollinated flower
White tile
Fine forceps
Scalpel
Magnifying glass

Method for insect pollinated flower

1. Examine the flower, identify the floral parts and count the numbers of sepals and petals.
2. Place the flower onto the tile and from the stalk end cut the flower in half. One of the petals should be cut in half and the others should be intact.
3. Using the magnifying glass examine one of the halves.
4. Identify the floral parts at the centre of the flower which may have been covered by the petals.
5. Draw the flower as seen in section, identify and label the parts.

Method for wind pollinated flower, for example Plantain



1. Using the fine forceps remove one of the flowers with protruding anthers .
2. Examine using the magnifying glass.
3. Draw and label the flower.
4. Separate the floral parts using mounted needles.
5. Using fine forceps remove one of the flowers with a protruding stigma. Observe using a magnifying glass.
6. Using mounted needles separate the floral parts.

Risk assessment

Hazard	Risk	Control measure
Scalpel blades are sharp	may cut skin when dissecting flower	Press on stalk of flower and cut away from finger.
Flowers can be allergens	Allergic reaction	Avoid species of plants which cause an allergic response eg. geranium. Make students aware of flower type being used.

Teacher / technician notes

Any flower could be used but it is advised to avoid flower types with indistinguishable sepals and petals (eg. daffodil) or complex floral structures (eg. dandelion or daisy).

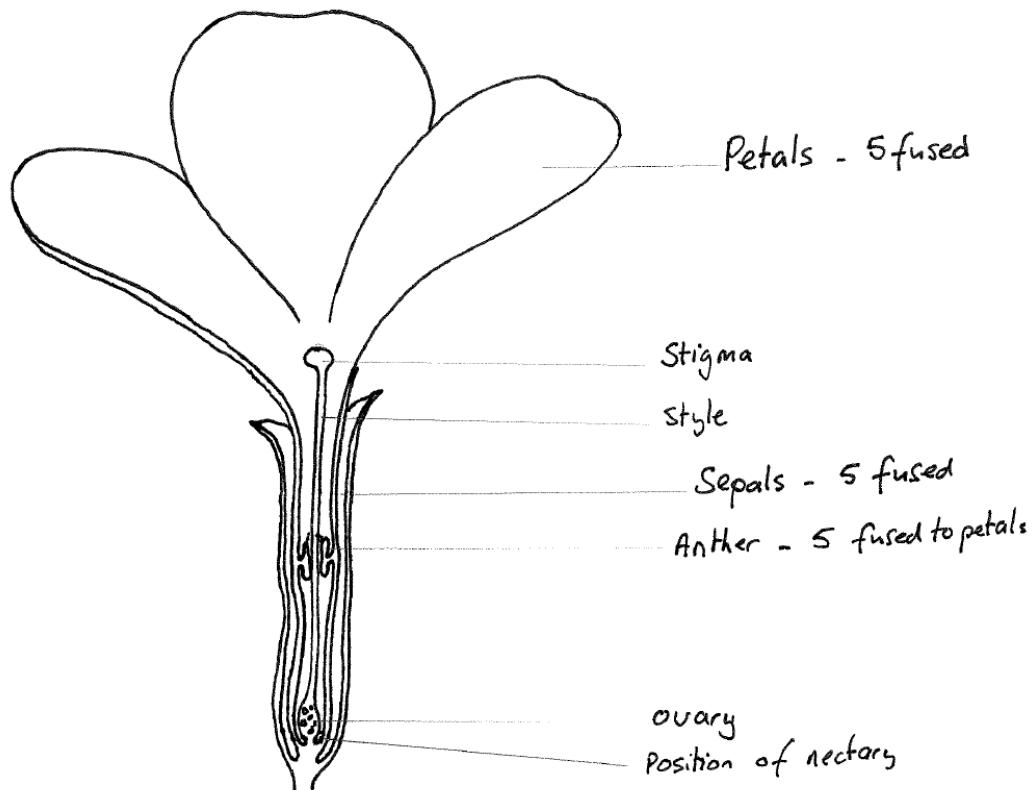
Half-flower *Ranunculus repens* [Buttercup]

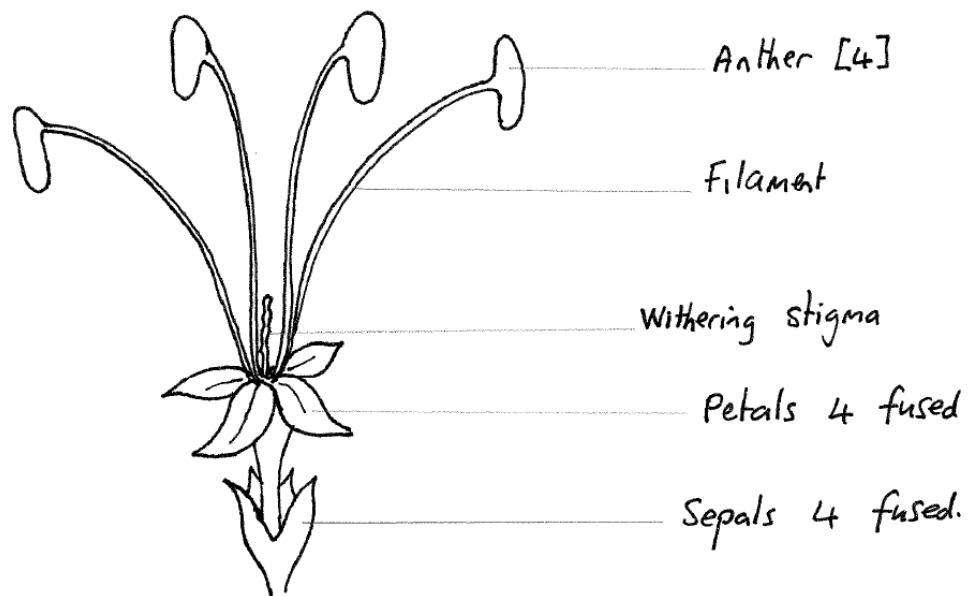
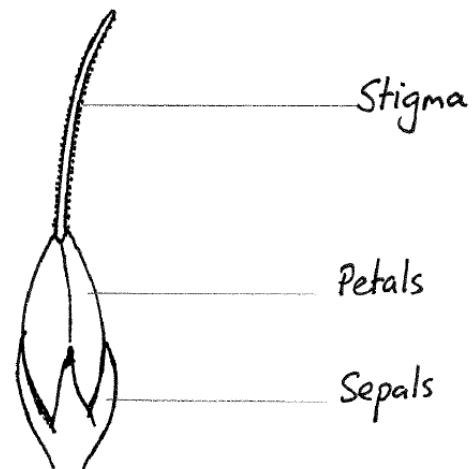


Cut line of sepal and petal indicated by a double line.

Magnification $\times 8$

Half-flower *Primula Vulgaris* [Primrose]





Magnification $\times 10$

Practical Techniques

- produce scientific drawing from observation with annotations
- safely use instruments for dissection of an animal organ, or plant organ