Dissection and Scientific Drawing

Learning outcomes

You will:

- Observe the structure of a flower
- Observe, dissect and record the floral parts of that flower
- Prepare a longitudinal section of a flower
- Produce an annotated scientific drawing of the longitudinal section of the flower
- Understand how the structure of the flower is adapted to its function.

Dissection and Scientific Drawing

Health and Safety

CLEAPSS Student Safety Sheet 74 provides information about assessing the risk posed by plant material.

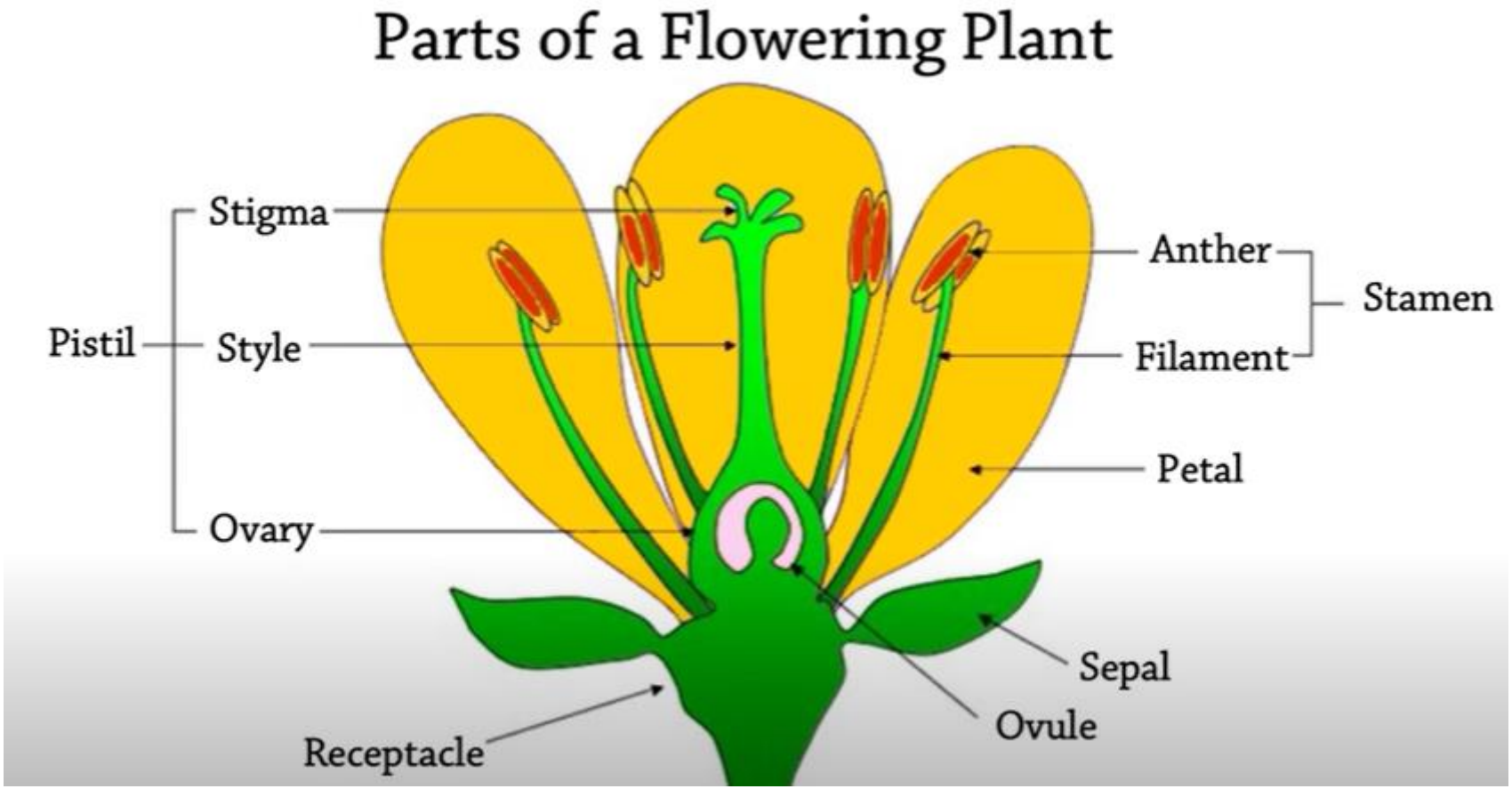
Many plants contain toxins. To minimize any potential risk, inform your teacher if you are aware of allergies to a particular plant so that it can be avoided.

The pollen of some lilies stains clothing. Wear a lab coat to protect your clothes.

Take care when using sharp instruments such as single-edged (safety) razor blades, scalpels, scissors and mounted needles.

When drawing it is important to take regular breaks to avoid eye strain and damage to the wrist and back. A short rest from drawing every half hour is a good idea.

State why flowers have petals



Match each parts of a flower to its function

- Anther
- Filament
- Stigma
- Style
- Ovary
- petal

Hold up the anther

Brightly coloured to attract insects

Produces pollen

Contains ovules

This is sticky to catch pollen grains

Holds up the stigma

Match each parts of a flower to its function

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Hold up the anther

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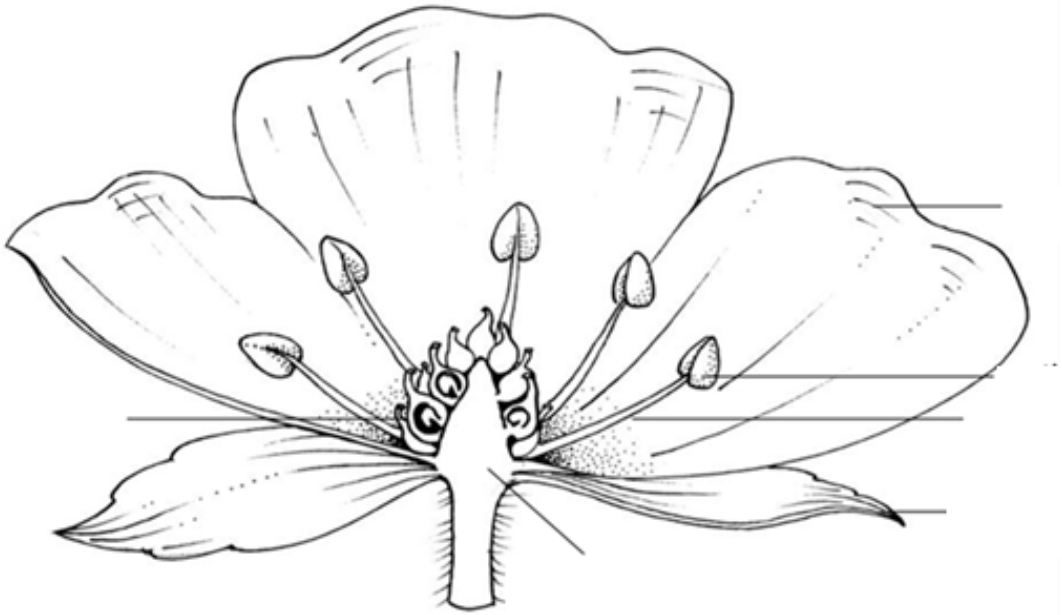
Label parts of flower



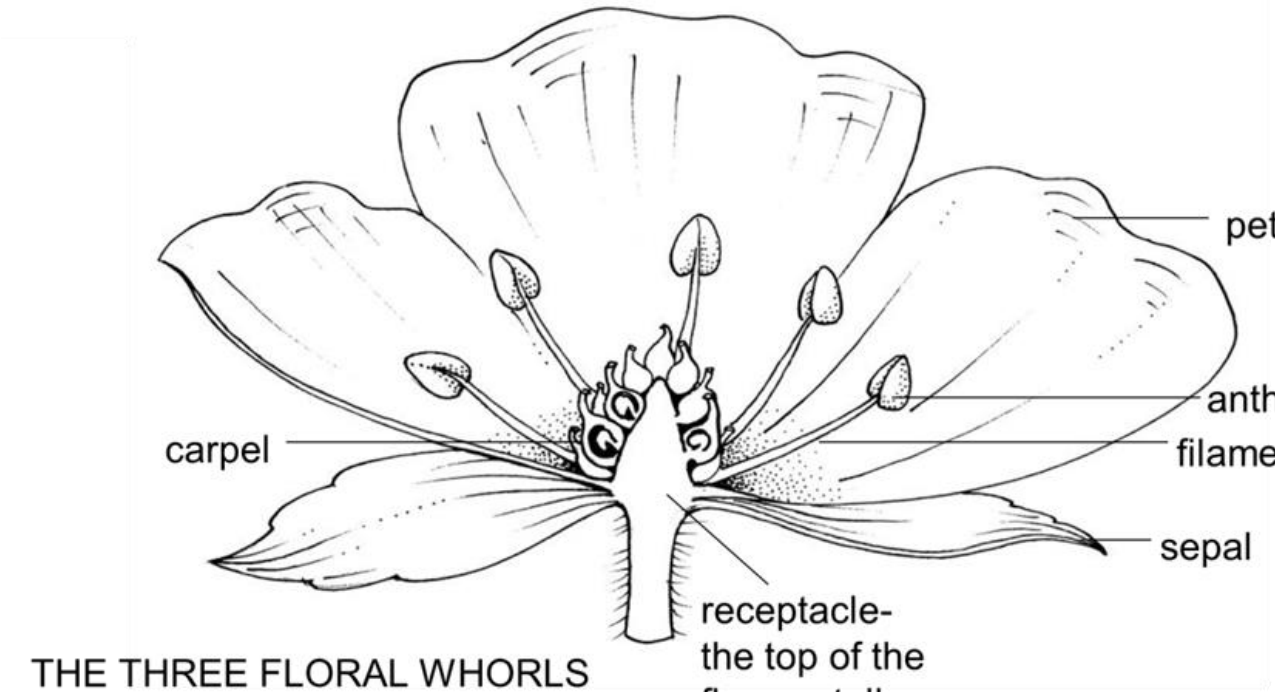
THE THREE FLORAL WHORLS

PERIANTH — calyx - sepals; corolla - petals } tepals - sepals and petals that look the same

ANDROECIUM — the male part of the flower - stamens

GYNOECIUM — the female part of the flower - carpels

Generalised structure of a flower



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ANDROECIUM the male part of the flower - stamens

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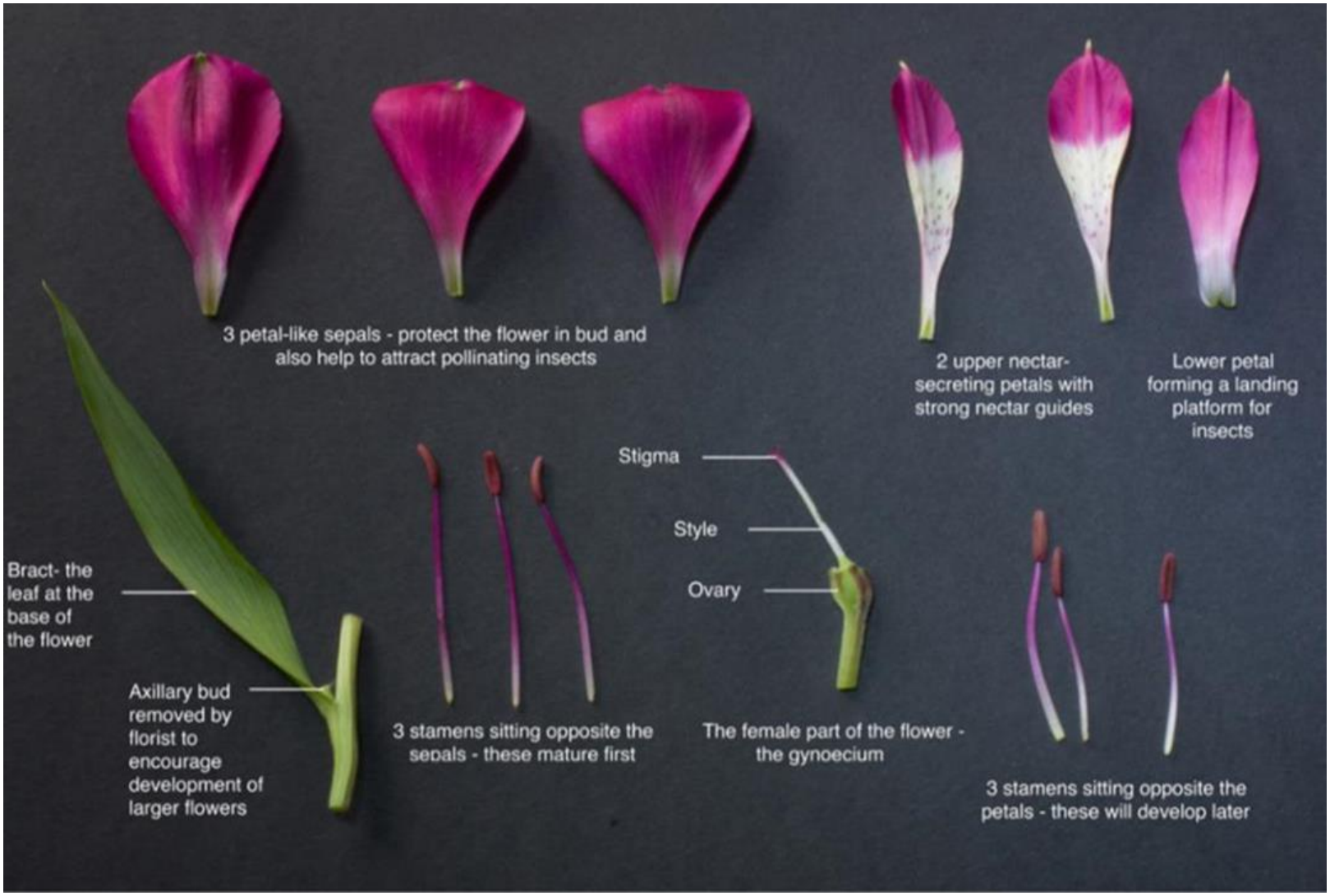
Task: Things to observe under the microscopes

- We can look at anther, vascular bundle, xylem and phloem.
- The leaf we can look at the stomata and trichomes.
- Pollens

Apparatus used

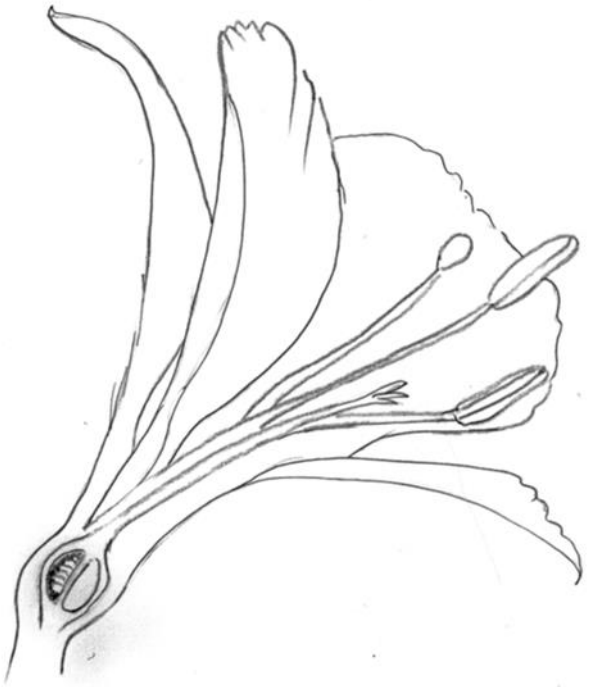
- For observing and dissecting flowers
- At least 2 flowers per student. The flowers should have stems at least 1cm long.
- Containers (jam jar) for students to put their specimen in
- Tile or cutting mat
- Single-edged (safety) razor blade
- Dissecting needle or seeker for separating parts
- Fine (pointed) forceps
- Small pointed sharp dissecting scissors
- Hand lens x10
- Sticky tape or glue.

Parts of an *Alstroemeria* flower

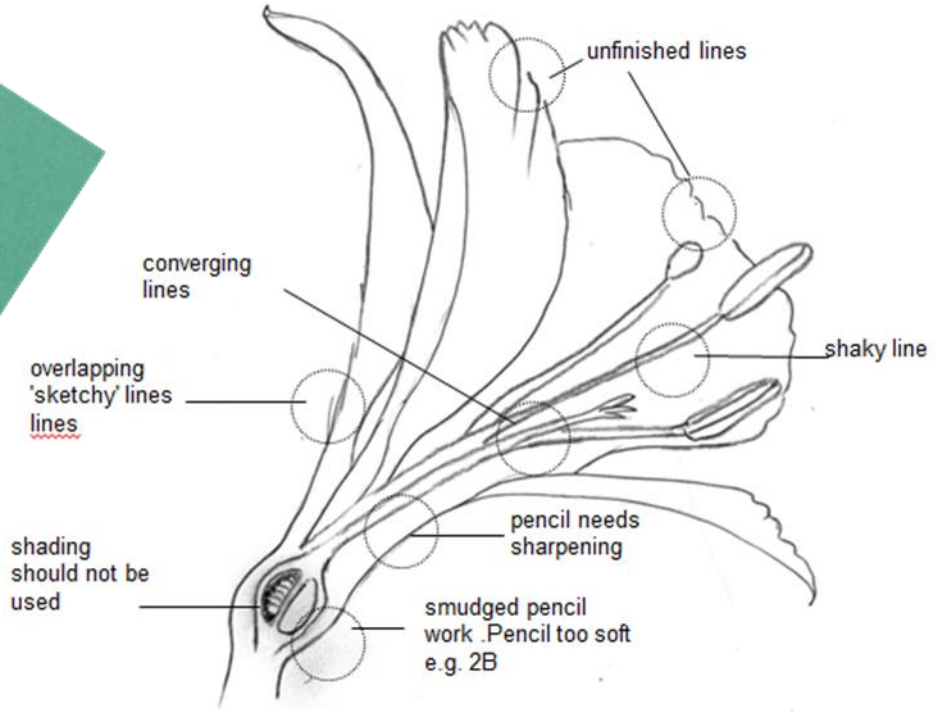


Cutting a longitudinal section through a flower

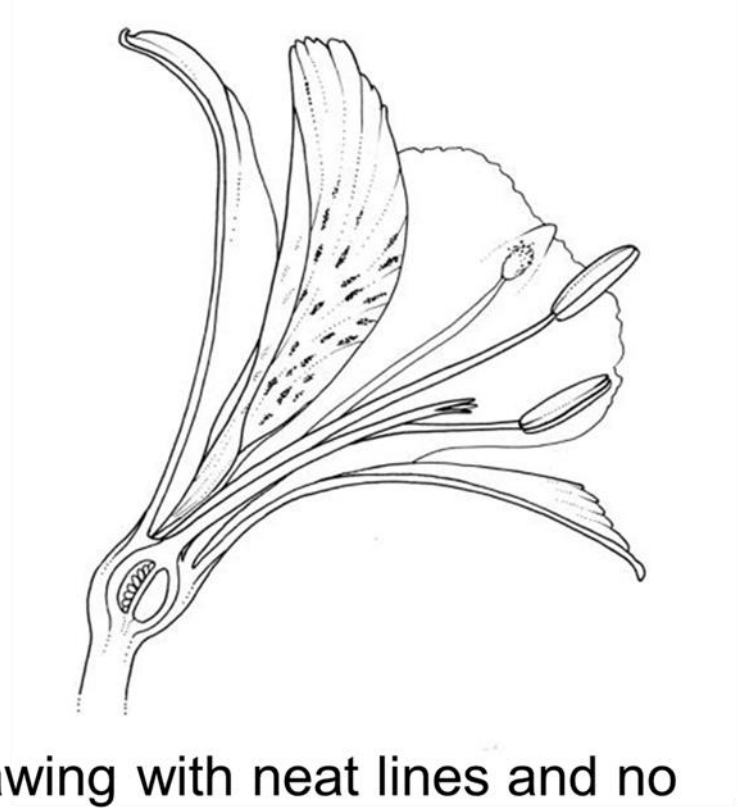
Common drawing errors



Common drawing errors

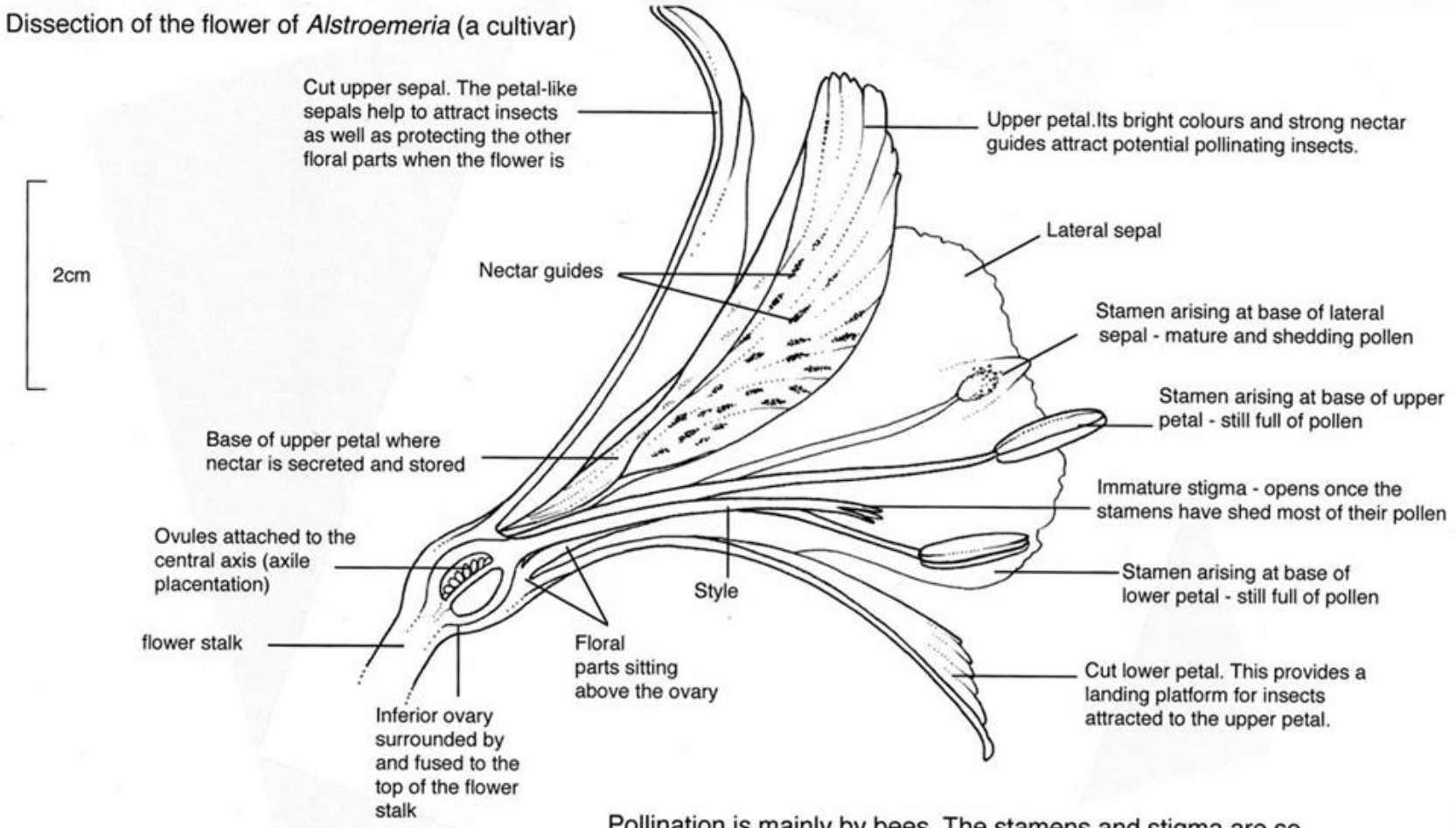


Scientific drawing



Drawing with neat lines and no shading

Fully annotated scientific drawing



Geranium family (Geraniaceae).

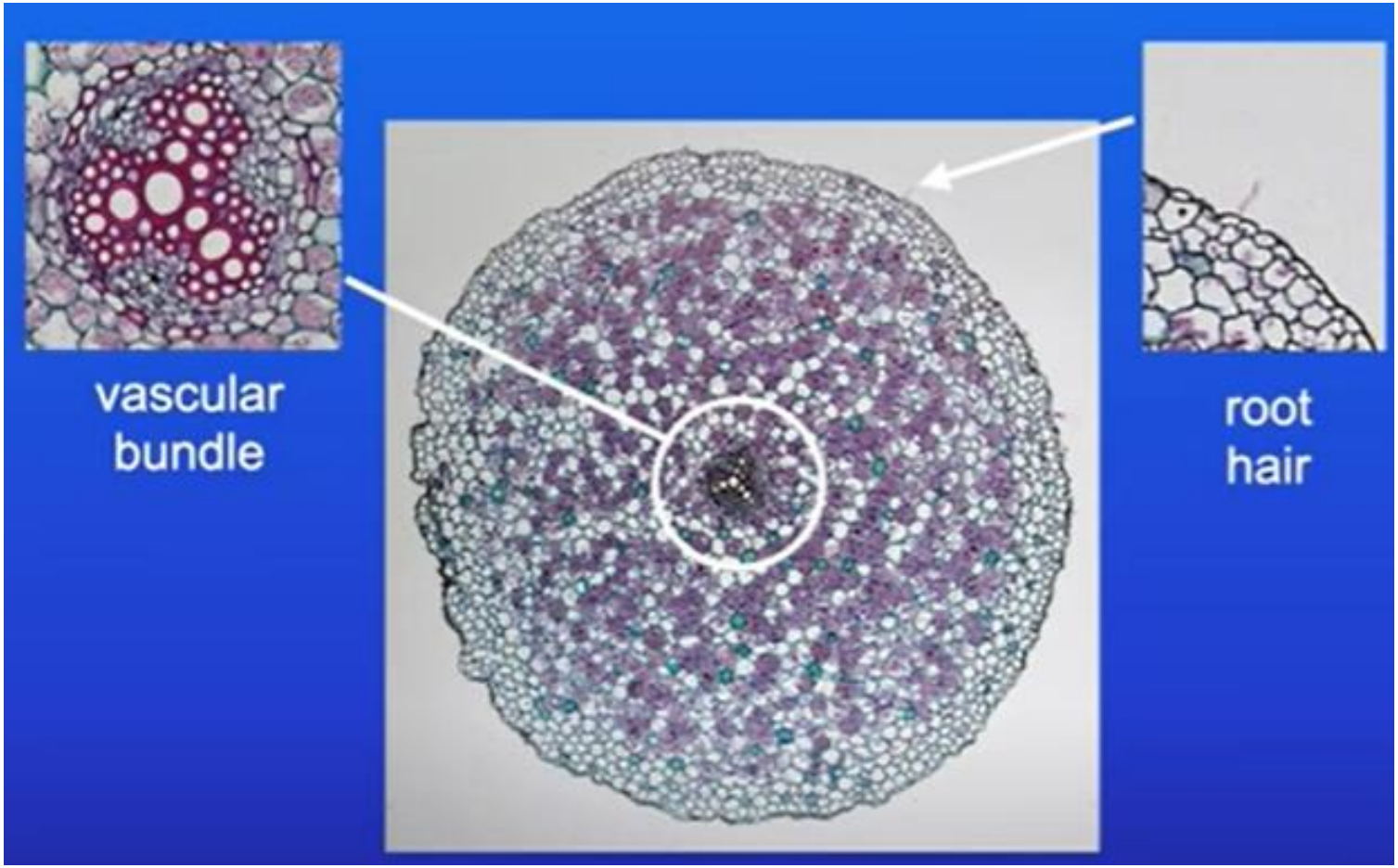
List of Apparatus

- Fresh flowering plants
- Tweezers
- Scissors
- Magnifying glass and microscopes
- HB pencils
- Plain paper

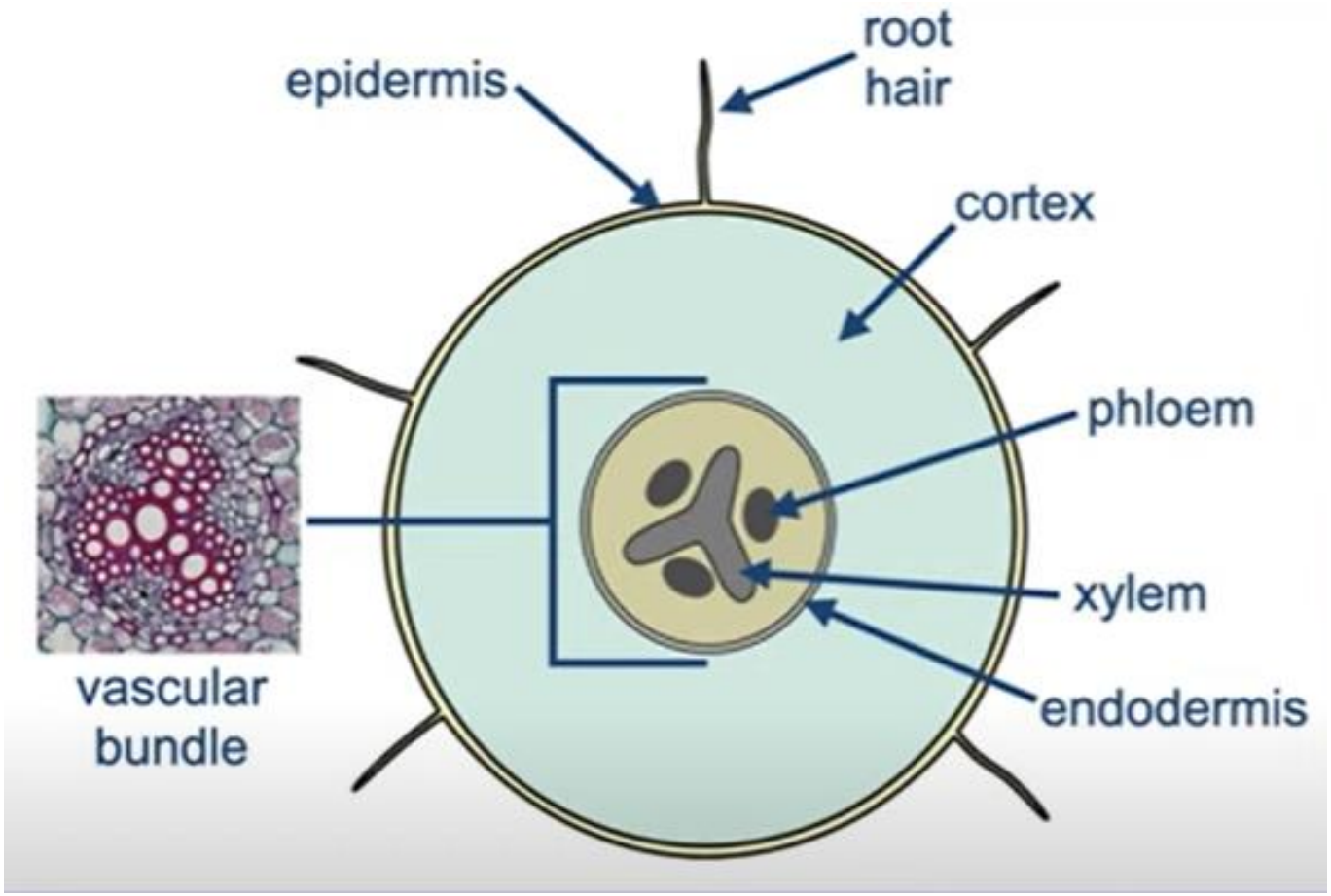
Method used

- 1 - remove sepals
- 2 - remove petals
- 3 - remove stamens opposite sepals
- 4 - remove stamens opposite petals
- 5 - bissect the ovary
- 6 - identify the line of symmetry in the flower
- 7 - slice along the line of symmetry
- 8 - continue slicing through the petals
- 9 - arrange the parts for drawing
- 10 - observe the flower parts
- 11 - produce anatomical flower drawing

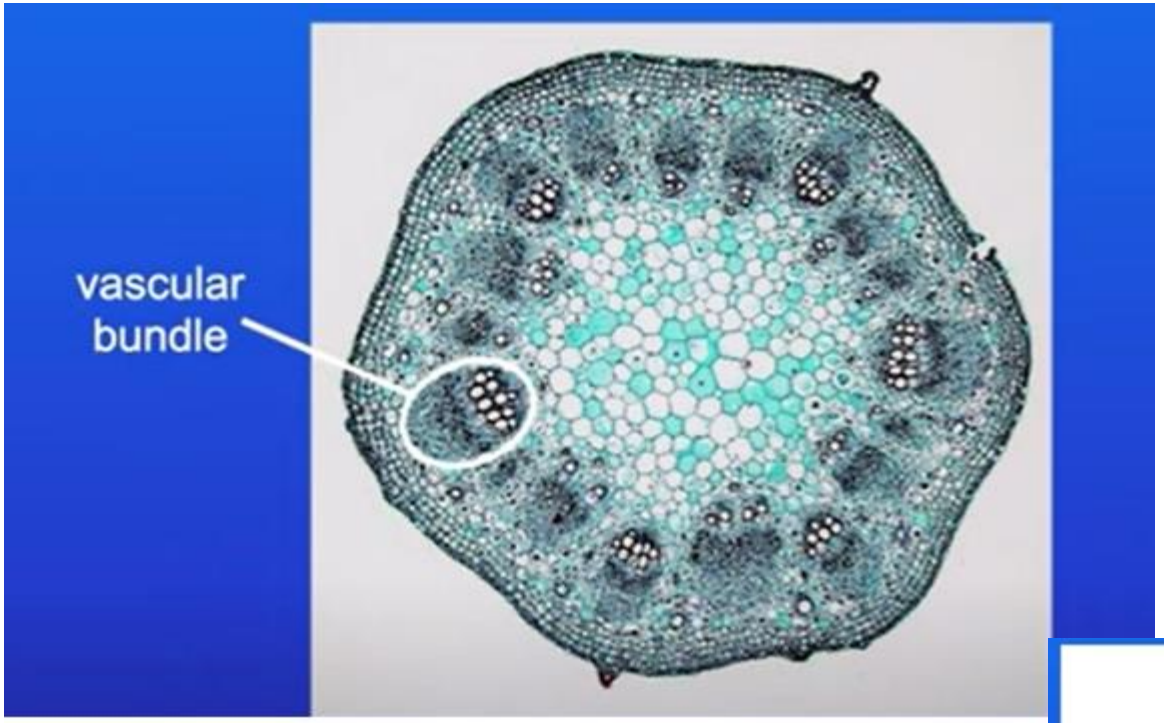
The root

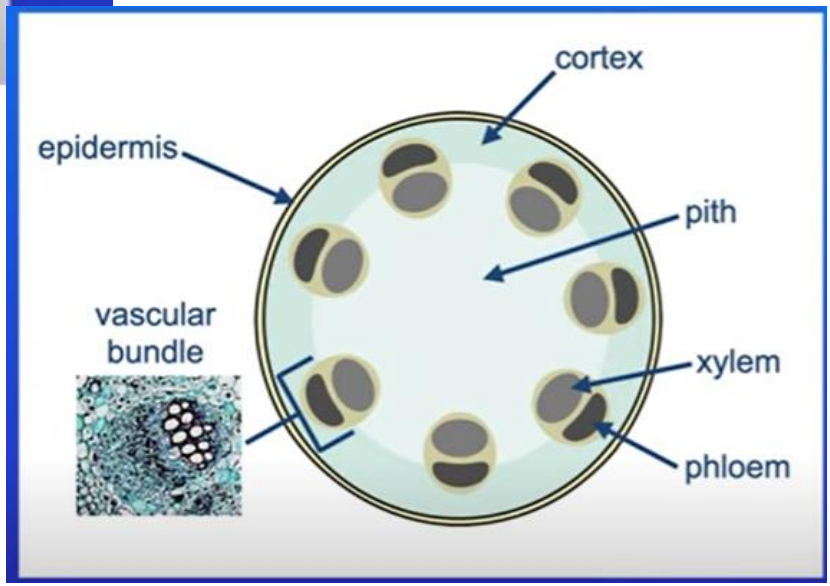


The root cross section



A cross section of stem





The leaf cross section