WJEC Wales Biology A Level

SP 4.2c: Scientific drawing of cells from prepared slides of anther

Practical notes

Introduction

The **anther** is the region of a plant that **holds** the **pollen grains**.

A **light microscope** can be used to observe a prepared slide of anther.

Equipment

- Light microscope
- Slide of T.S. anther
- Eyepiece graticule
- Stage micrometer

Risk assessment

Hazard	Risk	Precaution	Emergency
Broken glass	Cuts	Keep glassware away from the edge of the desk; handle microscope slides carefully	Dispose of broken glassware carefully; elevate cuts; do not remove glass from cuts; seek medical assistance

Method

1. **Calibrate** the microscope for all three objective lens magnifications (see 'Calibration of a light microscope' practical).
2. Place the microscope slide containing a specimen under the clips on the microscope stage.
3. Turn the **lowest power objective lens** (×4) on the nose piece.
4. Turn the **coarse adjustment knob** to move the stage closer to the lens.
5. Look down the microscope and turn the **coarse adjustment knob** to **focus** the image.
6. Turn the **fine adjustment knob** until the best image is obtained.
7. Rotate to the medium power objective lens (×10) and focus using the **fine adjustment knob.**

8. Draw a **low power plan** to show the distribution of tissues but **not** individual cells. *The high power objective lens (×40) can be used to aid in the identification of the different tissue layers.*

9. Using the **eyepiece graticule**, draw two lines on the low power plan, measured in **eyepiece units.**

10. Label the following structures: **epidermis**; **outer wall** (fibrous layer); **inner wall** (tapetum); **stomium**; **pollen sac**; **xylem**; **phloem** and **parenchyma.**

11. Calculate the actual size of the low power plan and hence the **magnification** of the drawing.

Tips for biological drawings

- Drawing should fill at least half of the provided space
- Only draw what you can see
- Use a **sharp pencil**
- Ensure lines are **single**, **complete** and **non-overlapping**
- Do **not** use shading or colour
- Create **straight lines** for labels using a ruler
- Label lines should **not** have arrow heads
- Label lines should **not** intersect
- Include a scale in terms of **eyepiece units**
- Include a title and objective lens power
- Include a **magnification**

Magnification of drawings

$$\text{magnification} = \frac{\text{size of image}}{\text{size of object}}$$