

WJEC England Biology GCSE

SP1.1 and 2.2: Microscopy

Practical notes



Microscopy

Aim

Examination of plant and animal cells using a light microscope and production of labelled scientific drawings from observation.

Examination of artery and vein using a light microscope and production of labelled scientific drawings of these from observation.

Equipment

- Light microscope
- Microscope slide
- Cover slip
- Onion
- Forceps
- Iodine solution
- White tile
- Scalpel
- Prepared slides of cross sections of an artery and a vein

Method

1. Peel off an epidermal layer on the onion using forceps.
2. Mount onto the microscope slide with a drop of water using a pipette, making sure the tissue lies flat.
3. Add 2 drops of iodine solution to stain the cells
4. Place the cover slip on by first placing one edge down on the slide and slowly lowering the other side of the cover slip using forceps. Make sure no air bubbles are trapped.
5. Remove any excess stain by soaking it with paper towels.
6. Place the slide on the stage of the microscope.
7. Turn the nosepiece to select a low power objective.
8. Set up the microscope - don't look into the eyepiece yet. Instead, use the coarse adjustment knob to raise the stage until the cover slip just touches the objective.
9. Now look into the eyepiece and turn the coarse adjustment knob to move the stage away until the image comes into focus (doing this helps avoid you breaking the slide).
10. Turn the nosepiece to select a high power objective.
11. Repeat the same process as above and then look into the eyepiece and turn the fine adjustment knob until the image comes into focus.
12. Make a labelled drawing of a few of the cells you can see, including any features eg. cell wall, nucleus. Write down the magnification.
13. Repeat these steps using a prepared animal artery / vein slide. Observe at low and high power. Draw a biological diagram and label the structures: tough outer layer, elastic fibres, lumen, muscle fibres.

Safety precautions

Wear safety goggles when handling the iodine solution.

