

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

Introduction

Cheek cells are typical animal cells, they have a cell membrane, cytoplasm and a nucleus. Onion cells are plant cells, they have a cell wall, cell membrane, cytoplasm, nucleus and vacuole. This practical requires you to prepare cheek cell slides and onion cell slides. These slides can then be observed using a microscope.

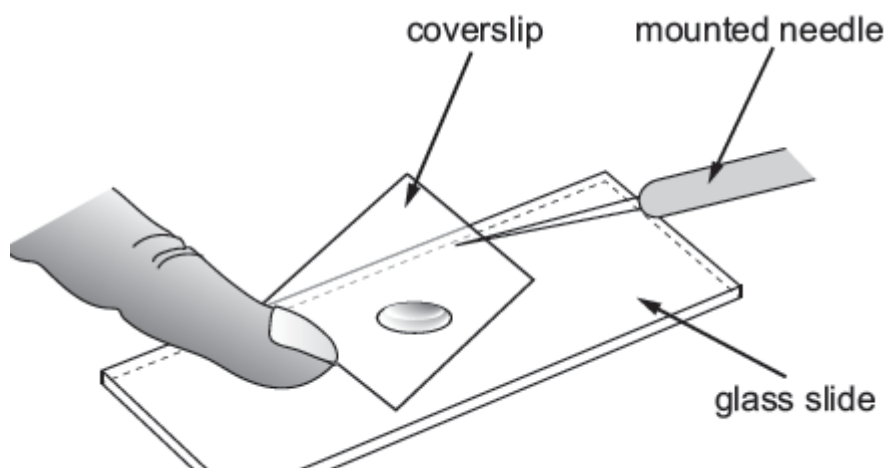
Apparatus

light microscope
 2 × glass slides
 2 × cover slips
 cotton wool bud
 mounted needle
 forceps
 freshly cut onion
 0.1 % methylene blue solution
 iodine solution

Access to:

beaker of disinfectant

Diagram of Apparatus



Method

Cheek Cells:

1. Put a drop of methylene blue on a glass slide.
2. Gently rub the inside of your cheek with a cotton bud.
3. Wipe the end of the cotton bud in the drop of methylene blue on the glass slide.
4. Place the cotton bud in the beaker of disinfectant.
5. Use the mounted needle to gently lower a coverslip onto the glass slide.
6. Using a light microscope, examine the slide using the $\times 10$ objective lens.
7. Use the $\times 40$ objective lens to identify some of the cell structures.
8. Draw a cell diagram. Identify and label: cell membrane, cytoplasm and nucleus.

Onion Cells:

1. Using forceps, peel a thin layer of epidermis from the inside of a freshly cut onion piece.
2. Lay the epidermis onto a glass slide.
3. Add a drop of iodine solution to the onion epidermis on the glass slide.
4. Use the mounted needle to gently lower a coverslip onto the glass slide.
5. Using a light microscope, examine the slide using the $\times 10$ objective lens.
6. Use the $\times 40$ objective lens to identify some of the cell structures.
7. Draw a cell diagram. Identify and label: cell wall, cell membrane, cytoplasm and nucleus.

Analysis

1. Calculate the total magnification of the image seen by multiplying the power of the objective lens by the power of the eyepiece.
2. Your teacher will tell you the actual size of the cell, calculate the magnification of your diagram.