

03

The cell

3.1

Name the parts of the microscope shown in Figure 3.1.

- (a) _____
- (b) _____
- (c) _____
- (d) _____
- (e) _____
- (f) _____

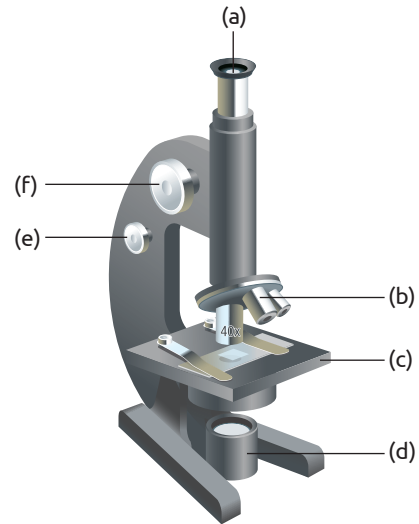


Figure 3.1

3.2

The parts of a light microscope are given in the first column of Table 3.1. In the second column fill in the function of each part of the microscope.

Microscope part	Function
Eyepiece	
Objective lens	
Nosepiece	
Stage	
Coarse focus wheel	
Fine focus wheel	
Diaphragm	

Table 3.1

3.3

- (a) When a sample of cells is examined under a microscope, the sample needs to be very thin. Why?

- (b) Sometimes a stain is added to a sample on a slide. Why?

- (c) Robert Hooke invented the modern version of the microscope. Using books or the internet find out information on Robert Hooke.

3.4

Table 3.2 gives a list of cell features. If the feature belongs to a plant cell, put a ✓ in the box under plant cell. If the feature belongs to an animal cell, put a ✓ in the box under animal cell.

Feature	Plant cell	Animal cell
Cell wall		
Cell membrane		
Cytoplasm		
Nucleus		
Vacuole		
Chloroplast		
Mitochondria		

Table 3.2

3.5

To observe a slide under a light microscope, certain steps must be taken. These are listed below, but not in the correct order. Using the letters given for each step, place them in the order in which they should occur. The letter of the first step is written for you.

- (a) Using the coarse focus wheel, the slide is brought into focus.
- (b) What you see can be observed and drawn.
- (c) Next, the medium power objective lens is put in place.
- (d) The microscope is plugged in and the light is turned on.
- (e) The iris diaphragm, under the stage, is used to adjust the light coming through.
- (f) Now the fine focus wheel is used to make the slight adjustment needed to bring the object into clear focus.
- (g) A slide is placed on the stage.
- (h) The stage is raised to its highest position.
- (i) The rotating nosepiece is turned to fix the low power objective lens in place.

Correct order: (d), _____

3.6

All plants and animals are composed of cells. In Table 3.3 write the letter **B** beside two cell parts that are found in both animal and plant cells.

	Cell wall
	Nucleus
	Cell membrane
	Chloroplast

Table 3.3

3.7

Figure 3.2 shows a sketch of a cell.

- (a) Is this a plant cell or an animal cell?

- (b) Give a reason for your answer.

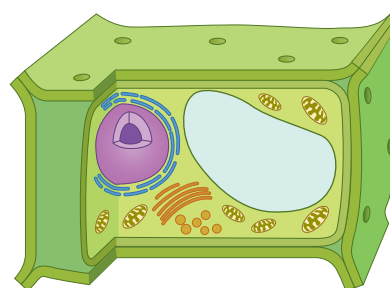


Figure 3.2

3.8

Examine Figure 3.3 which shows a microscope and answer the questions below.

(a) In Table 3.4:

Write the letter **A** beside the **name** of the part labelled **A**.

Write the letter **B** beside the **name** of the part labelled **B**.

Write the letter **C** beside the **name** of the part labelled **C**.

Write the letter **F** beside the **function** of the part labelled **D**.

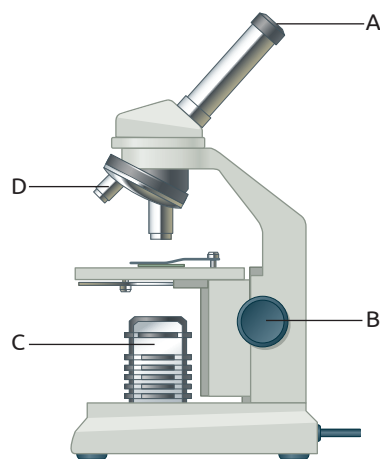


Figure 3.3

	Lamp
	Arm
	Eyepiece
	Focus wheel
	Base
	To magnify
	To focus
	To hold sample

Table 3.4

(b) Name the part of the microscope that you would place the slide on for viewing.

3.9

Fill in one function for each of the parts of the microscope in Table 3.5.

Part	Function
Eyepiece	
Light	
Stage	
Clips	
Objective lens	
Coarse focus wheel	
Fine focus wheel	
Iris diaphragm	

Table 3.5

3.10

(a) Why is the microscope used in school known as a 'light microscope'?

(b) Why should the sample on the microscope slide be as thin as possible?

(c) Why is a cover slip placed on the sample on the glass slide?

(d) How should the cover slip be placed on the slide?

3.11

When you examined a plant cell, you added a stain to the sample on the slide.

(a) Why? _____

(b) What stain did you use with the plant cell? _____

(c) If you observed an animal cell, what stain would you use? _____

3.12

(a) Which objective lens are you advised to start with when you examine a slide under the microscope?

(b) Why do you start with that lens?

(c) Which lens should you use next?

(d) Which focus wheel do you use to focus this lens?

Multiple Choice questions on this chapter



1 What is the name of the small piece of glass that is placed on a glass slide to hold the sample?

- (a) Glass cover (c) Second slide
(b) Glass slip (d) Cover slip

Answer: _____

2 What stain is used for plant cells?

- (a) Methylene blue
(b) Red dye
(c) Blue ink
(d) Iodine

Answer: _____

3 What stain is used for animal cells?

- (a) Methylene blue
(b) Red dye
(c) Blue ink
(d) Iodine

Answer: _____

4 The eyepiece on a microscope is marked $\times 10$. The objective is marked $\times 10$. By what magnification can an object be seen through the microscope?

- (a) 20
(b) 1
(c) 10
(d) 100

Answer: _____



Figure 3.4

5 When viewing an object through a microscope, which objective lens should be used first?

- (a) It does not matter
(b) $\times 4$

(c) $\times 10$

(d) $\times 40$

Answer: _____

6 What type of microscope is used to see extremely small parts of cells?

- (a) Proton microscope
(b) Electron microscope
(c) Neutron microscope
(d) Light microscope

Answer: _____

7 What angle should a cover slip be placed at when applying it to a glass slide?

- (a) 45°
(b) 50°
(c) 60°
(d) 55°

Answer: _____

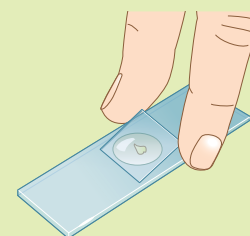


Figure 3.5

8 Where are proteins made in a cell?

- (a) Nucleus (c) Mitochondrion
(b) Chloroplast (d) Ribosome

Answer: _____

9 What is the smallest working unit of a living organism?

- (a) Organ (c) Cell
(b) Tissue (d) System

Answer: _____

10 Genes control our traits. Where in a cell are genes found?

- (a) Ribosome (c) Cytoplasm
(b) Nucleus (d) Mitochondrion

Answer: _____

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