B1 L3 Using a microscope: Exam questions worksheet

AQA GCSE Combined Science: Trilogy (8464) and Biology (8461)
Biology Paper 1 · Topic B1 Cell biology

Name _____ Class _____

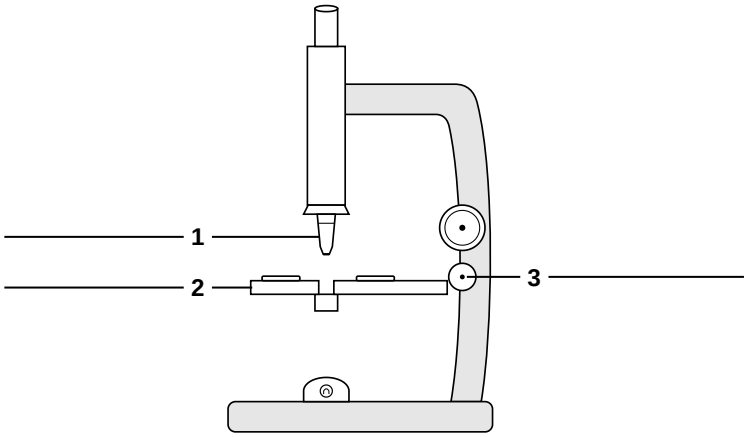
Total: ..... / 20

Instructions
- Answer **all** questions in the spaces provided.
- Use black ink or black ball-point pen.
- The marks for each question are shown in brackets.
- In calculations, show clearly how you work out your answer.
- Time: about 25 minutes.

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0 1 **Figure 1** shows a light microscope.

Figure 1



0 1 . 1 Complete **Figure 1**. [3 marks]

Choose answers from the box.

coarse focusing knob	eyepiece lens	fine focusing knob
lamp	objective lens	stage

Question 1 continues on the next page

Do not write outside the box

0 1 . 2 The eyepiece lens has a magnification of × 15. [2 marks]

The objective lens has a magnification of × 10.

Calculate the total magnification.

Use the equation:

total magnification = eyepiece lens magnification × objective lens magnification

Total magnification = × .....

0 2 A student prepared a slide of onion cells.

These are the steps the student used, in the wrong order.

P	Peel a thin layer of epidermis from an onion with forceps.
Q	Lower a coverslip onto the specimen.
R	Lay the epidermis flat in a drop of water on a slide.
S	Add a drop of iodine solution.

0 2 . 1 Write the letters **P**, **Q**, **R** and **S** in the correct order. [2 marks]

☐ → ☐ → ☐ → ☐

0 2 . 2 Iodine solution is an irritant. [1 mark]

Give **one** safety precaution the student should take when using iodine solution.

.....

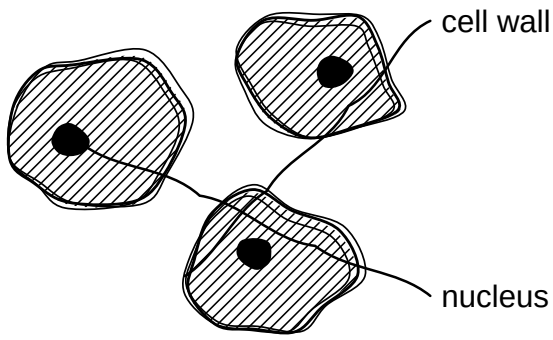
Turn over for the next question

Do not write outside the box

0 3 A student looked at cheek cells stained with methylene blue.

Figure 2 shows the student's drawing.

Figure 2



0 3 . 1 Give **two** ways the student could improve the drawing. [2 marks]

1 .....

2 .....

0 3 . 2 The student labelled a cell wall. [1 mark]

Give **one** reason why this label is wrong.

.....

.....

0 4 **Table 1** compares a light microscope and an electron microscope.

Table 1

	Light microscope	**Electron microscope**
What it uses	light	a beam of electrons
Maximum magnification	about × 1500	about × 2 000 000
Resolution	about 200 nm	about 0.2 nm

0 4 . 1 Which structure can be seen with an electron microscope but **not** with a light microscope? [1 mark]

Tick (✓) **one** box.

- Cell wall ☐
- Chloroplast ☐
- Nucleus ☐
- Ribosome ☐

Do not write outside the box

0 4 . 2 Electron microscopes were first built in the 1930s. [2 marks]

Explain how electron microscopes have helped biologists to learn more about the structure of cells.

Use **Table 1**.

0 5 A student has a prepared slide of onion cells. [6 marks]

Describe how the student should use a light microscope to see the cells clearly at high power, and then make a labelled drawing of what they see.

Do not write outside the box

END OF QUESTIONS

There are no more questions in this paper. Original practice paper © sciencegcse.co.uk – free to use for non-commercial education. Not an AQA paper.