

Answer **all** questions in the spaces provided.

Do not write
outside the
box

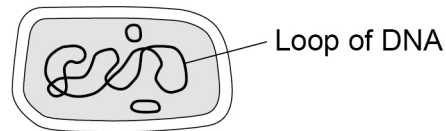
0 1

This question is about cells.

0 1 . 1

Figure 1 shows a cell.

Figure 1



What type of cell is shown in **Figure 1**?

[1 mark]

Tick (✓) **one** box.

Animal

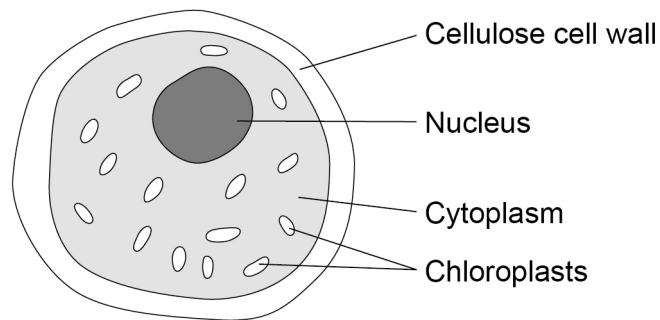
Bacterium

Plant



Figure 2 shows an algal cell.

Figure 2



0 1 . 2 What is the function of the cell wall?

[1 mark]

Tick (✓) **one** box.

To contain the genetic material

To stop the chloroplasts leaking out

To strengthen the cell

0 1 . 3 The algal cell is green.

Which part of the algal cell makes it green in colour?

[1 mark]

Tick (✓) **one** box.

Cellulose

Chloroplast

Cytoplasm

Nucleus

Turn over ►



0 1 . 4 Cells contain sub-cellular structures.

Draw **one** line from each structure to its function.

[3 marks]

Structure

Function

	Controls transport of substances into the cell
Cell membrane	Where energy is released
Mitochondria	Where glucose is made
Ribosomes	Where photosynthesis takes place
	Where proteins are made

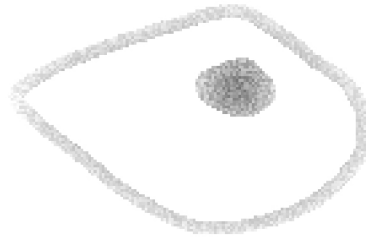


A student prepared a microscope slide of cheek cells.

The student looked at one cell using a microscope.

Figure 3 shows the image the student saw.

Figure 3



0 1 . 5

What should the student do to get a clear image?

[1 mark]

Tick (✓) **one** box.

Adjust the focus knob

Make the light dimmer

Put water on the slide

Question 1 continues on the next page

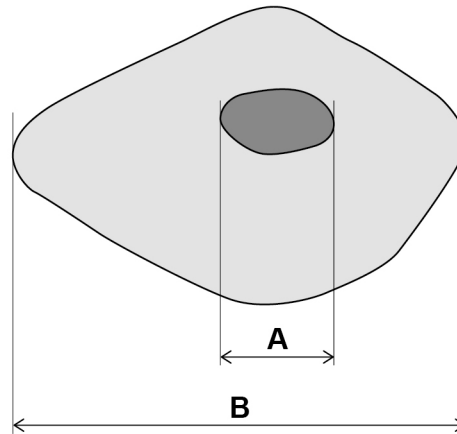
Turn over ►



The student then obtained a clear image.

Figure 4 shows the clear image.

Figure 4



0 1 . 6 Measure the length of the nucleus (**A**) and the length of the cell (**B**) in millimetres (mm).

[2 marks]

A = _____ mm

B = _____ mm

0 1 . 7 How many times longer is the cell (**B**) than the nucleus (**A**)?

[1 mark]

Number of times longer = _____



0 1 . 8

The student looked at another cell.

The image width of the cell was 40 mm

The real width of the cell was 0.1 mm

Calculate the magnification of the cell.

[2 marks]

Use the equation:

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

Magnification = × _____

12

Turn over for the next question

Turn over ►

Question	Answers	Extra information	Mark	AO / Spec. Ref.												
01.1	bacterium		1	AO2 4.1.1.1												
01.2	to strengthen the cell		1	AO1 4.1.1.1 4.1.1.2												
01.3	chloroplast		1	AO2 4.1.1.2 4.2.3.1												
01.4	<table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: left;">Structure</th> <th style="width: 50%; text-align: left;">Function</th> </tr> </thead> <tbody> <tr> <td style="border: 1px solid black; padding: 5px;">Cell membrane</td> <td style="border: 1px solid black; padding: 5px;">Controls transport of substances into the cell</td> </tr> <tr> <td style="border: 1px solid black; padding: 5px;">Mitochondria</td> <td style="border: 1px solid black; padding: 5px;">Where energy is released</td> </tr> <tr> <td style="border: 1px solid black; padding: 5px;">Ribosomes</td> <td style="border: 1px solid black; padding: 5px;">Where glucose is made</td> </tr> <tr> <td></td> <td style="border: 1px solid black; padding: 5px;">Where photosynthesis takes place</td> </tr> <tr> <td></td> <td style="border: 1px solid black; padding: 5px;">Where proteins are made</td> </tr> </tbody> </table> <p>additional line from a box on the left negates the mark for that box</p>	Structure	Function	Cell membrane	Controls transport of substances into the cell	Mitochondria	Where energy is released	Ribosomes	Where glucose is made		Where photosynthesis takes place		Where proteins are made		3	AO1 4.1.1.2 4.1.3.1
Structure	Function															
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01.5	adjust the focus knob		1	AO3 4.1.1.2 RPA1												
01.6	(A =) 15 (mm) (B =) 60 (mm)	allow a tolerance of $\pm 1\text{mm}$	1 1	AO2 4.1.1.2 RPA 1												
01.7	$\frac{60}{15} = 4(.0)$	allow ecf from question 01.6	1	AO2 4.1.1.2 RPA 1												

01.8	$\frac{40}{0.1}$ 400	do not accept if a unit is given	1 1	AO2 4.1.1.5 RPA 1
Total			12	