1 Cells

1.1 Plant cells

Exercise 1.1A Structure of a plant cell

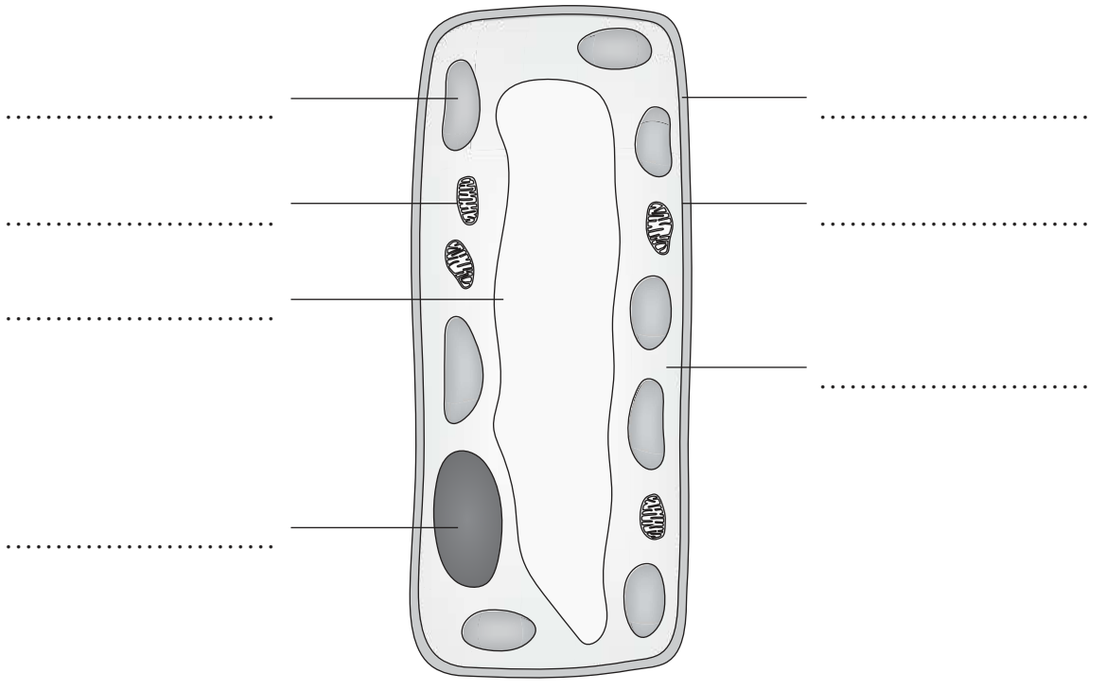
Focus

This exercise will help you to learn the names of the parts of a plant cell.

Complete the labels on the plant cell.

Use these words.

cell wall **cell membrane** **cytoplasm** **mitochondrion**
nucleus **sap vacuole** **chloroplast**

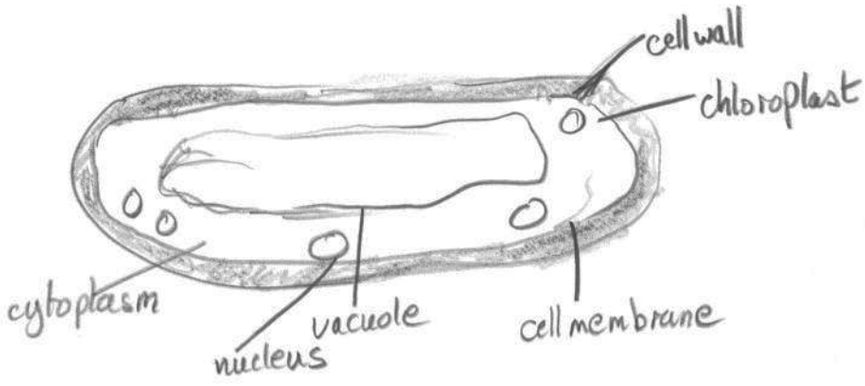


Exercise 1.1B Drawing and labelling a plant cell

Practice

In this exercise, you will practise making and labelling a clear, simple diagram.

Marcus makes a drawing of a plant cell.



Marcus's teacher gives him a list of three things he needs to do, to improve his drawing.

1 Write down **two** more ways that Marcus can improve his labels.

……

……

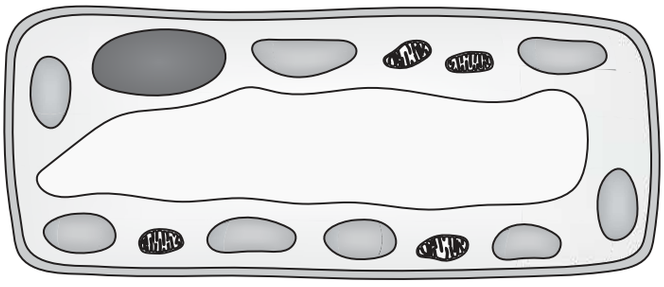
2 In the space below, draw and label a better diagram of the same plant cell.

Exercise 1.1C Different plant cells

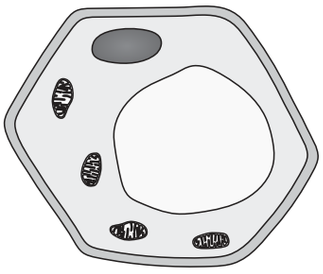
Challenge

In this exercise, you will practise making comparisons.
You will also think about why plant cells are not all the same.

The diagrams show two plant cells.



Plant cell **A.**



Plant cell **B.**

1 Describe **three** differences between Plant cell **A** and Plant cell **B**.

The first difference has been started for you.

First difference: Plant cell A has .....

but Plant cell B .....

.....

Second difference:

.....

.....

Third difference:

.....

.....

2 Suggest which cell comes from a leaf.

Explain your suggestion.

.....

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1.2 Animal cells

Exercise 1.2 How to use a microscope

Some of the things that biologists study are very small. Answering these questions will help you to become confident in using a microscope to see very small things.

Focus

1 The diagram shows a microscope.

Label the parts of the microscope. Use all of the words in this list.

stage **eyepiece** **mirror** **high-power objective lens**
medium-power objective lens **low-power objective lens**
coarse focusing knob **fine focusing knob**

Practice

2 Zara is using a microscope to look at some animal cells on a slide. She knows that there are animal cells on the slide but when she looks through the microscope, she cannot see any cells.

List **three** possible reasons why Zara cannot see any cells.

First reason: .....

Second reason: .....

Third reason: .....

Challenge

3 Write some advice to Zara, to help her to see the cells on her slide.

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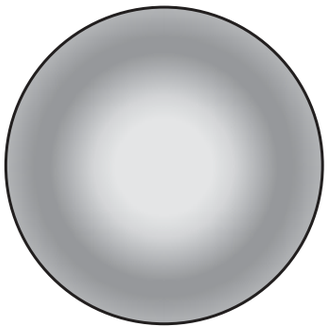
1.3 Specialised cells

Exercise 1.3 How cells are specialised for their functions

This exercise will help you to explain how cells are specialised for their functions. For Question 3a you will need to think hard about designing a table that is easy for everyone to understand. It is a good idea to try out several ideas on rough paper first.

Focus

1 The diagram shows a red blood cell.



Complete the sentences.

Choose words from the list.

You can use each word once, more than once or not at all.

capillaries **cytoplasm** **food** **haemoglobin** **oxygen**

a Red blood cells contain a substance called

…… . This helps them to carry

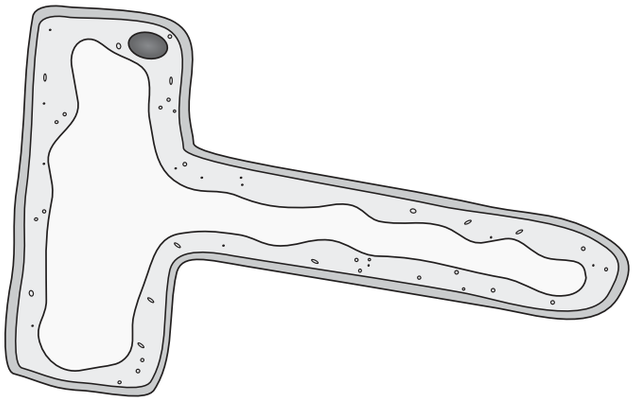
…… around the body.

b Red blood cells are smaller than most cells. This helps them to squeeze through the small blood vessels called

……

Practice

2 The diagram shows a specialised cell.



a Name this cell.

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b Explain how you can tell that this is a plant cell and not an animal cell.

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c Describe the function of this cell.

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d Explain how this cell is adapted for its function.

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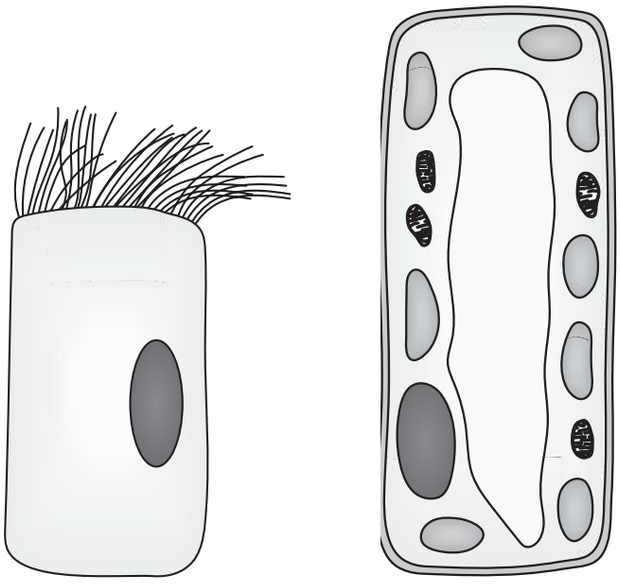
Challenge

3 The diagrams show two specialised cells.



a Design and draw a table that you can use to compare the structures of these two cells.

Then complete your table.

b In your own words, explain how the structure of each cell is adapted for its function.

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