

BIOLOGY



KS3 SCIENCE EXAM PREPARATION STUDENT BOOK

CELL STRUCTURE

Please complete all of these questions in this book and store this work in your student revision files.

This will provide a useful resource for revision.

Name	
Class	
Teacher	

Revision Question Book
KS3 Science

This book is suitable for
students carrying out the KS3
Science course



In the following book there are several questions based on KS3 Science. These questions are additional to the work which you do on in your lessons.

To gain the highest grade possible in KS3 Science it is recommended that you complete these questions at home or in revision sessions outside of lessons.

This will both familiarise yourself with both the concepts found in the syllabus and the examination technique found in examinations.

The mark scheme to the questions is integrated in the book for you to use independently.

To improve competency in answering questions on KS3 Science and achieve mastery in this module, answer all of these questions independently.

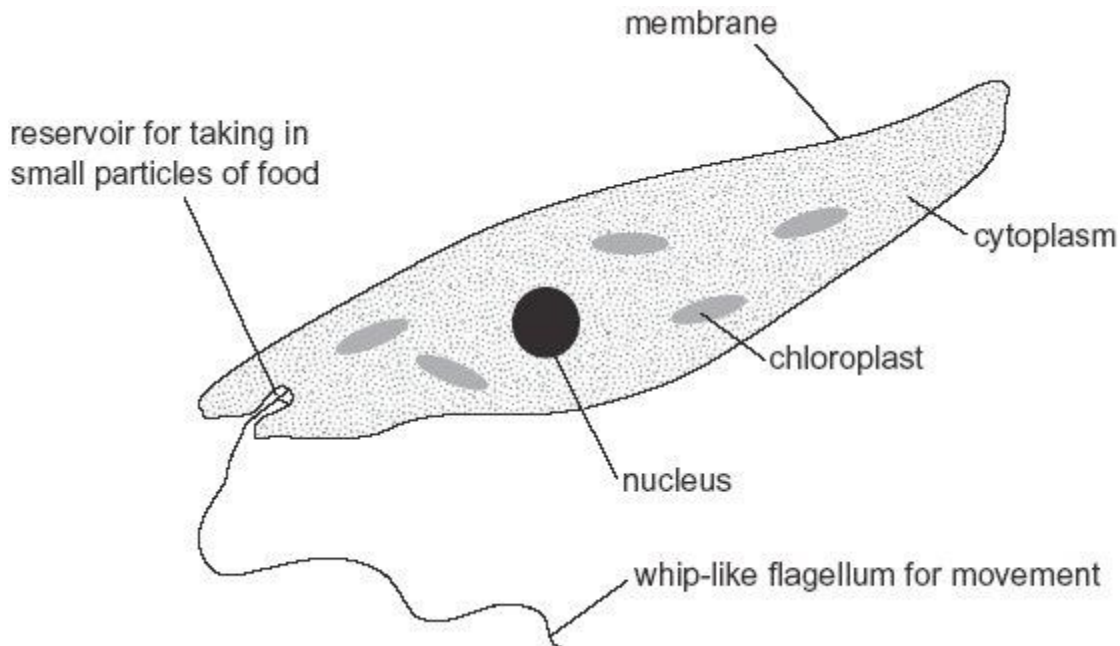
When you have completed your work in this book, please store this work in your student files.

Many thanks for all of your hard work in Science.

Mr. Turnbull



1. The diagram below shows an organism called Euglena. It is made of only one cell. It lives in ponds and streams. Euglena have features of both plants and animals.



1.1 Look at the diagram of Euglena.

Give **two** pieces of evidence which suggest it is an **animal** cell and **not** a plant cell.

[2 Marks]

1.
2.

1.2 Plant cells can carry out photosynthesis.

How can you tell from the diagram that Euglena can carry out photosynthesis?

[1 Mark]

.....

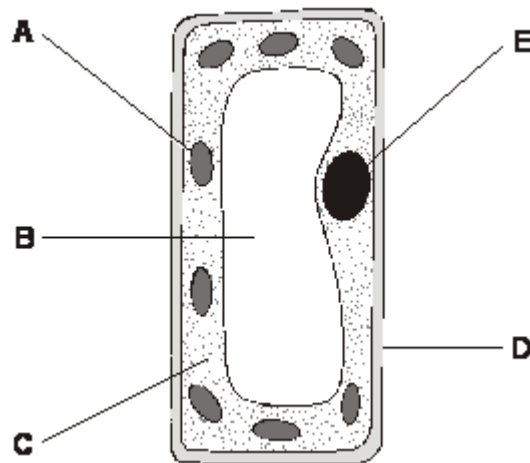
1.3 Complete the word equation for photosynthesis.

[2 Marks]

carbon dioxide + → glucose +



2. The diagram shows a plant cell.



2.1 Give the name of part **A**.

[2 Marks]

Give the function of part **A**.

2.2 Give the name of part **E**.

[2 Marks]

Give the function of part **E**.

2.3 Give the letters of **two** parts that are present in plant cells but **not** in animal cells.

[1 Mark]

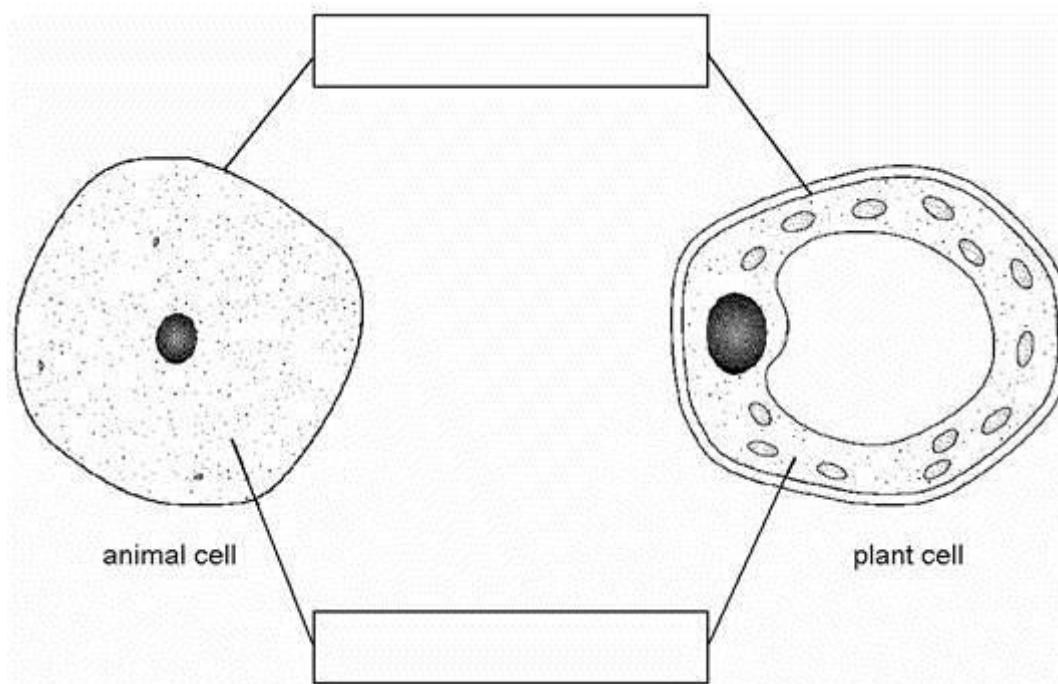
..... and

2.4 How can you tell that the cell in the diagram is from a leaf and **not** from a root?

[1 Mark]



3. The diagrams below show an animal cell and a plant cell.



3.1 The lines from the boxes show the positions of two of the parts that are present in both cells. In the boxes, write the names of these **two** parts.

[2 Marks]

3.2 Give the names of **two** parts which are present in plant cells but **not** in animal cells.

[2 Marks]

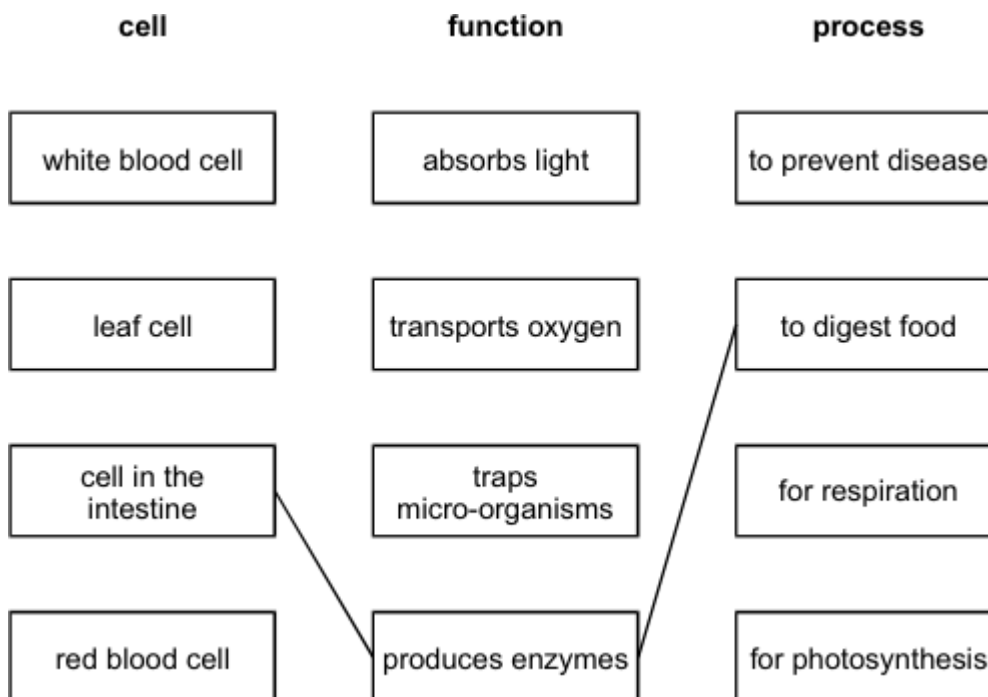
1.

2.

**3.3** Organs can carry out their functions because of the special cells they have.

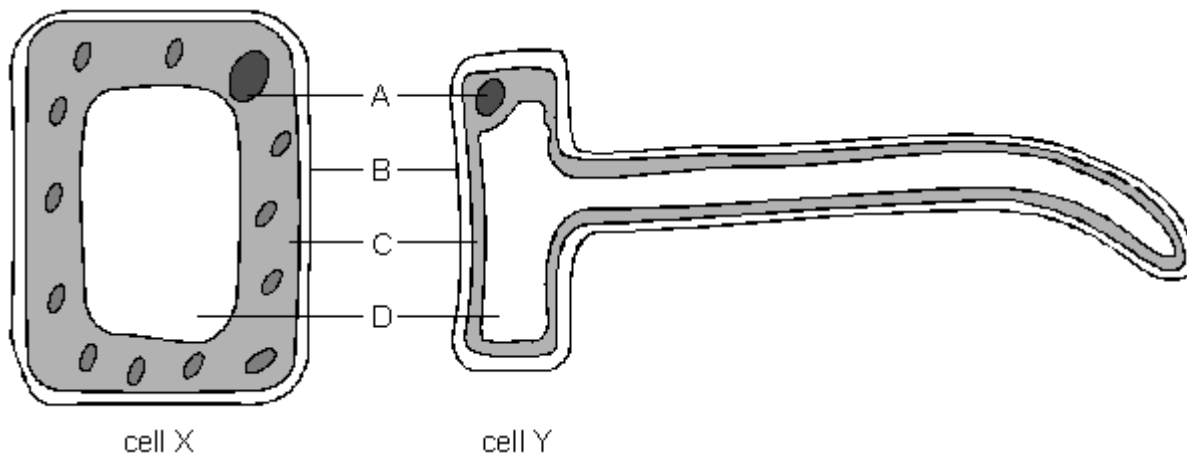
Draw a straight line from the name of each type of cell to the function of the cell and then to the process it carries out.

One has been done for you.

[3 Marks]



4. The diagrams show two plant cells.



not to scale

4.1 In which part of a plant would these cells be found?

[2 Marks]

cell X

cell Y

4.2 Give the name of part B.

[1 Mark]

.....

4.3 Give the letter which labels the nucleus.

[1 Mark]

.....

4.4 What is the function of the nucleus?

[1 Mark]

.....

.....

4.5 How can you tell from the diagram that photosynthesis **cannot** take place in cell Y?

[1 Mark]

.....

.....



4.6 Which process takes place in **both** cell **X** and cell **Y**?
Tick the correct box.

[1 Mark]

egestion ☐

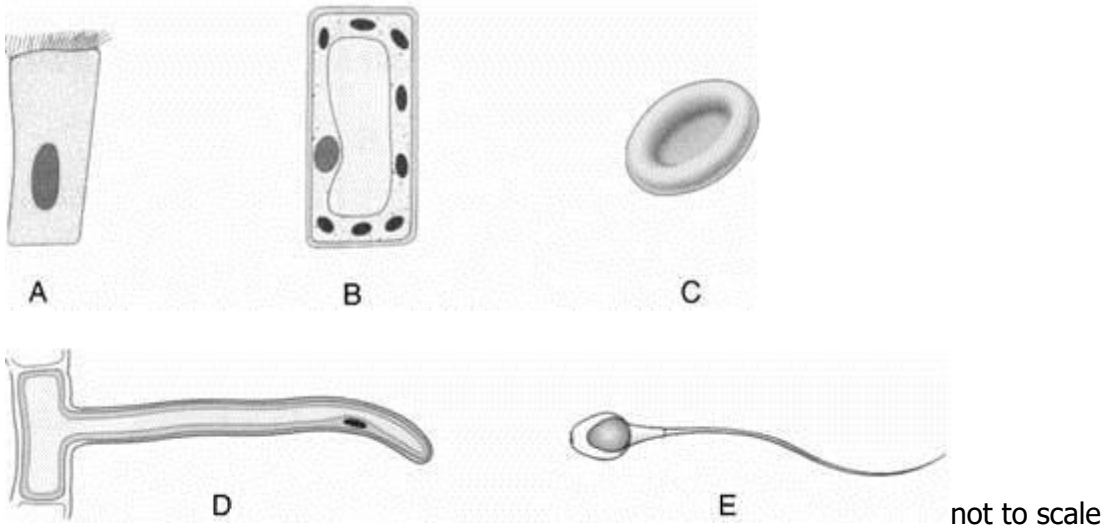
fertilisation ☐

pollination ☐

respiration ☐



5. The drawings show some plant and animal cells. Each cell has a different function.



5.1 Give the name of cell **C**.

[1 Mark]

.....

The main functions of two of the cells are listed below.

Write the letter of the correct cell next to each function.

[2 Marks]

5.2 photosynthesis

5.3 improvement of mucus

5.4 Give the name of the organ where cell **E** is produced.

[1 Mark]

.....

5.5 Give the name of the part of a plant where cell **B** is found.

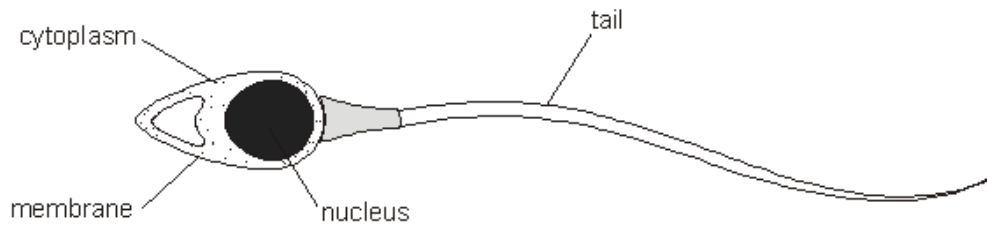
[1 Mark]

.....



6.

6.1 The diagram shows a sperm cell. Sperm cells are adapted for fertilisation.



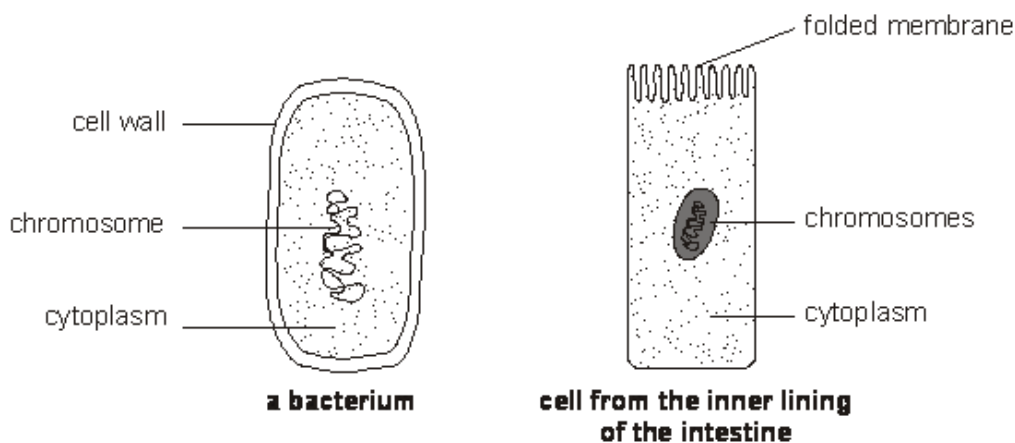
Sperm cells use their tails to swim towards an ovum (egg).
Give **one** other way the sperm cell is adapted for fertilisation.

[1 Mark]

.....

.....

The diagrams below show two other cells.



6.2 Look at the diagrams above.

What is the difference between the location of the genetic material in the bacterium and in the cell from the lining of the intestine?

[1 Mark]

.....

.....

6.3 What is the function of the genetic material in a cell?

[1 Mark]

.....

.....



Cells in the lining of the intestine are adapted to absorb digested food.

6.4 How does the folded membrane of these cells enable them to absorb the maximum amount of digested food?

[1 Mark]

.....

.....

6.5 A group of cells in the lining of the intestine is a tissue.

Why is a number of sperm cells **not** a tissue?

[1 Mark]

.....

.....



MARK SCHEME

1.1 any **two** from

- it has a flagellum or tail to help it move
accept 'can move or swim'
accept 'it has a tail'
'whip' is insufficient
- it does not have a (cell) wall
accept 'it does not have a fixed shape' or 'it changes shape'
*do **not** accept 'it does not have a membrane'*
'it only has a cell membrane' is insufficient
- it does not have a vacuole
- it has a reservoir (for taking in food)
accept 'it takes in or eats food'
accept 'it has a mouth-like structure'
'it has a mouth' is insufficient

2 (L6)

- ## 1.2 • it has chloroplasts
- accept 'chlorophyll'*
'it makes food' is insufficient

1 (L6)

- ## 1.3 • water
- accept 'H₂O'*

1 (L6)

- oxygen
accept 'O₂'
answers must be in the correct order

1 (L6)
[5]



2.1 chloroplast

accept 'chlorophyll'

1 (L6)

any **one** from

- photosynthesis

*accept 'it produces food **or** glucose **or** sugar*

***or** carbohydrate'*

'contains chlorophyll' is insufficient

- absorbs or traps light

1 (L6)

2.2 • nucleus

1 (L6)

- it controls the cell

accept 'it tells the cell what to do'

'brain of the cell' is insufficient

*accept 'it transfers **or** contains genetic information **or** chromosomes'*

*do **not** accept 'for reproduction'*

'it controls substances entering or leaving the cell' is insufficient

1 (L6)

2.3 any **two** from

- A
- B
- D

*accept 'chloroplast' **or** 'chlorophyll'*

accept 'vacuole'

accept 'cell wall'

1 (L6)

2.4 • it has chloroplasts **or** chlorophyll

accept 'it is green'

'it is a different shape' is insufficient

'it does not have a hair' is insufficient

1 (L6)
[6]



3.1 cell membrane

accept 'membrane'

1 (L6)

cytoplasm

answers must be in the correct order

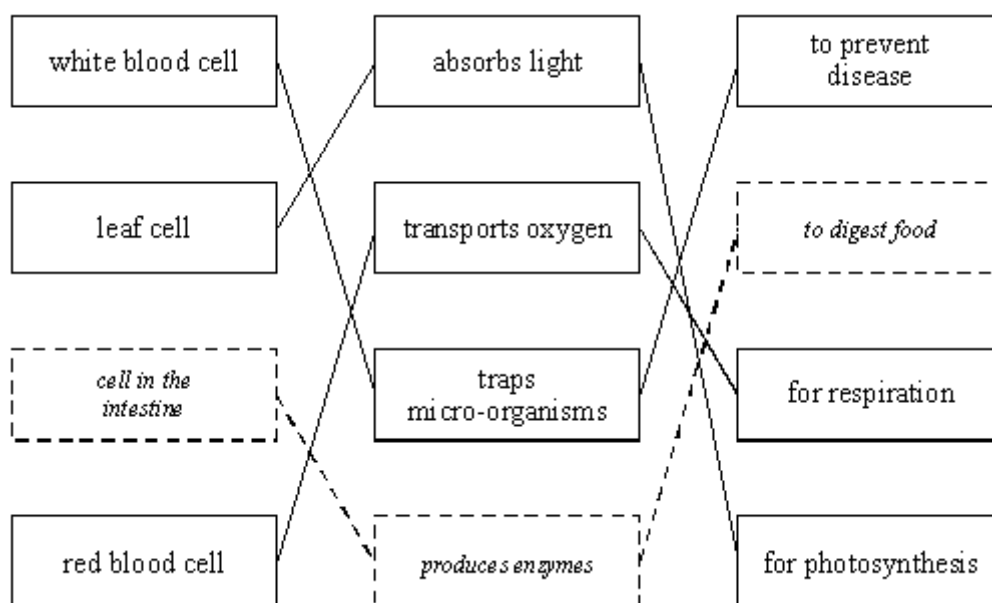
1 (L6)

3.2 any **two** from

- cell wall
- chloroplast
accept 'chlorophyll'
- large vacuole
accept 'vacuole'

2 (L6)

3.3



*if more than one line is drawn from any cell **or** function, award no mark for those linkages*

3 (L6)
[7]



4.1 the leaf

answers must be in the correct order

accept 'a green part'

*accept 'stem' **or** other named green part*

1 (L5)

root

accept 'root hair'

1 (L6)

4.2 cell wall

1 (L6)

4.3 A

1 (L6)

4.4 to control the cell

accept 'contains genetic information'

***or** 'controls the production of enzymes'*

1 (L6)

4.5 any **one** from

it has no chloroplasts **or** no chlorophyll

1 (L6)

4.6 respiration

if more than one box is ticked, award no mark

1 (L6)

[7]



5.1 red blood cell

*accept 'blood cell' **or** 'erythrocyte'*

1

5.2 B

1

5.3 A

1

5.4 testis **or** testicle

1

5.5 leaf

*accept 'stem' **or** 'sepal' **or** 'stalk' **or** 'any green part'*

1

[5]



6.1 any **one** from

- it is streamlined
*do **not** accept 'it is slimline'*
- it has a pointed head
'its shape' is insufficient
- it does not have much cytoplasm
accept 'there are enzymes in the head'
'it has a nucleus' is insufficient as it is not a specific adaptation of a sperm cell

1 (L7)

6.2 any **one** from

- in the cytoplasm of the bacterium
- in a nucleus **or** within a membrane in the cell from the intestine
*accept 'the bacterium does not have a nucleus **or** nuclear membrane'*
accept 'in the bacterium it is not enclosed'

1 (L7)

6.3 any **one** from

- it determines the characteristics of the cell
- it transfers information
accept 'gives the cell instructions'
accept 'it tells the cell what to do'
accept 'to control the cell'
accept 'allows the cell to reproduce'

1 (L7)

6.4 any **one** from

- it has a large surface area
- the folds increase the surface

1 (L7)

- 6.4** they are independent cells **or** they do not work together
or do not work in a group
*accept 'each sperm cell is individual **or** works individually'*
'the cells are not joined together' is insufficient

1 (L7)
[5]



Acknowledgements

This document has been produced by Mr J Turnbull.

All relevant information has been credited in the document.

This document has been produced for educational purposes only.

This document has been produced for the KS3 Science Specification.

