



Rewarding Learning

General Certificate of Secondary Education  
2013

Centre Number

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Candidate Number

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## Biology

Unit 1

Foundation Tier

[GBY11]

WEDNESDAY 5 JUNE, AFTERNOON



\*GBY11\*

### TIME

1 hour 15 minutes.

### INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

**You must answer the questions in the spaces provided. Do not write outside the box, around each page or on blank pages.**

Complete in blue or black ink only. **Do not write with a gel pen.**

Answer **all twelve** questions.

### INFORMATION FOR CANDIDATES

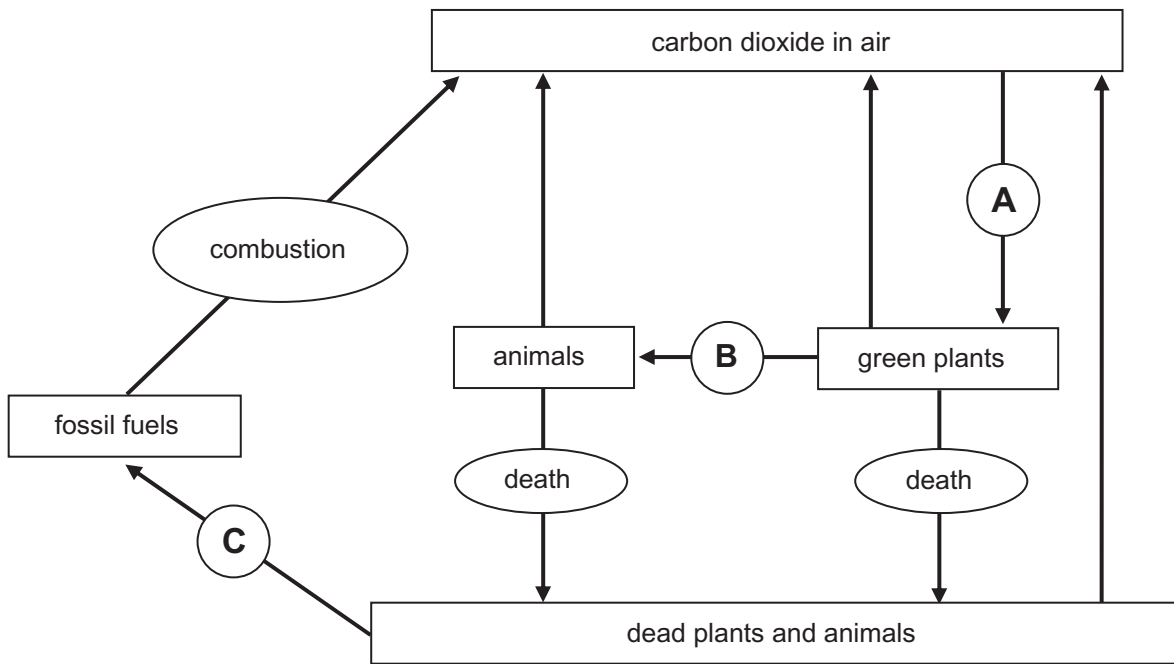
The total mark for this paper is **80**.

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

Quality of written communication will be assessed in questions **4 and 12**.



1 The diagram shows part of the carbon cycle.



(a) Name the processes **A**, **B** and **C**.

**A** \_\_\_\_\_ [1]

**B** \_\_\_\_\_ [1]

**C** \_\_\_\_\_ [1]

(b) Give **one** reason why carbon dioxide in the air is increasing.

\_\_\_\_\_  
 \_\_\_\_\_ [1]

Examiner Only	
Marks	Remark
Total Question 1	













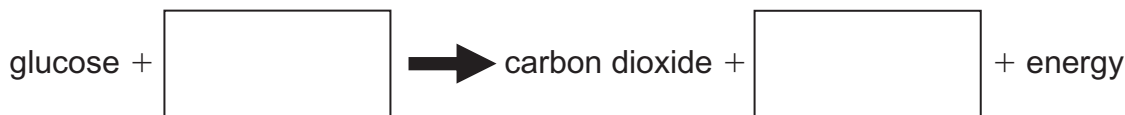
5 Living organisms release energy by aerobic respiration.

(a) (i) Where in the body does aerobic respiration take place?

\_\_\_\_\_

[1]

(ii) Complete the word equation for aerobic respiration.



[2]

(iii) Give **one** way living organisms use the energy released by aerobic respiration.

\_\_\_\_\_

[1]

The table shows the mass of four different animals and the energy they use.

Animal	Mass/kg	Energy used per kilogram of body mass per day/kJ	Total energy used per day/kJ
Pig	128	80	
Man	64	134	8576
Dog	15		3240
Mouse	0.02	2736	54.72

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(b) (i) Calculate the missing energy values. Complete the table by writing the answers in the empty boxes.

[2]

Examiner Only	
Marks	Remark





(ii) Describe the relationship shown in the table between the mass of the animal and the

energy used per kilogram of body mass per day.

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[1]

total amount of energy used per day.

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[1]

Examiner Only

Marks Remark

Total Question 5

[Turn over

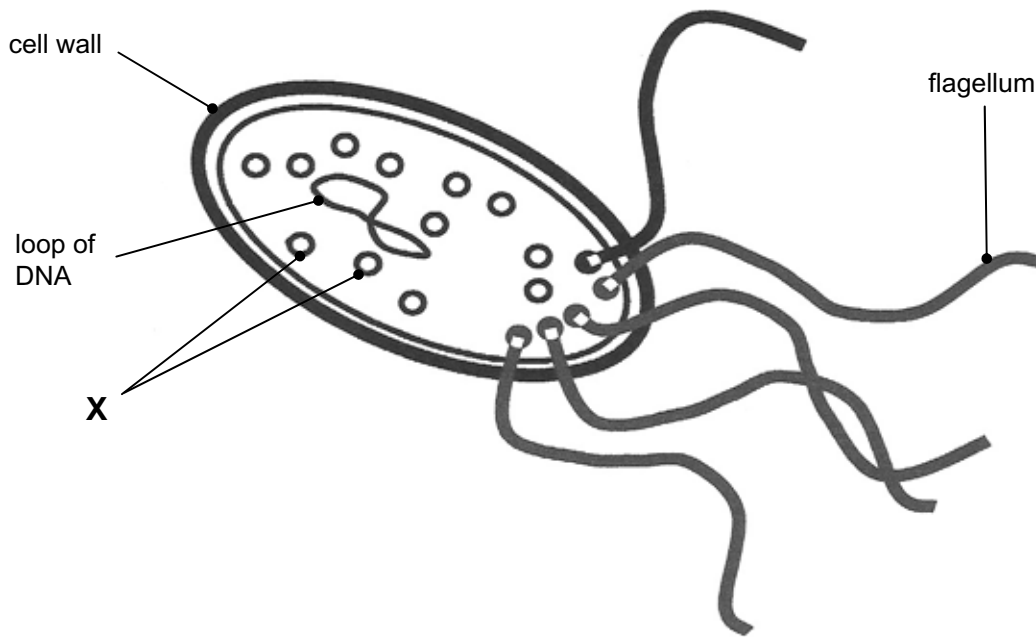








(b) The diagram shows a Salmonella bacterium.



(i) Name the structures labelled X.

\_\_\_\_\_

[1]

Plants do not have these structures.

(ii) Give **one other** way the Salmonella bacterial cell differs from a plant cell.

\_\_\_\_\_

\_\_\_\_\_ [1]

Examiner Only

Marks

Remark

[Turn over

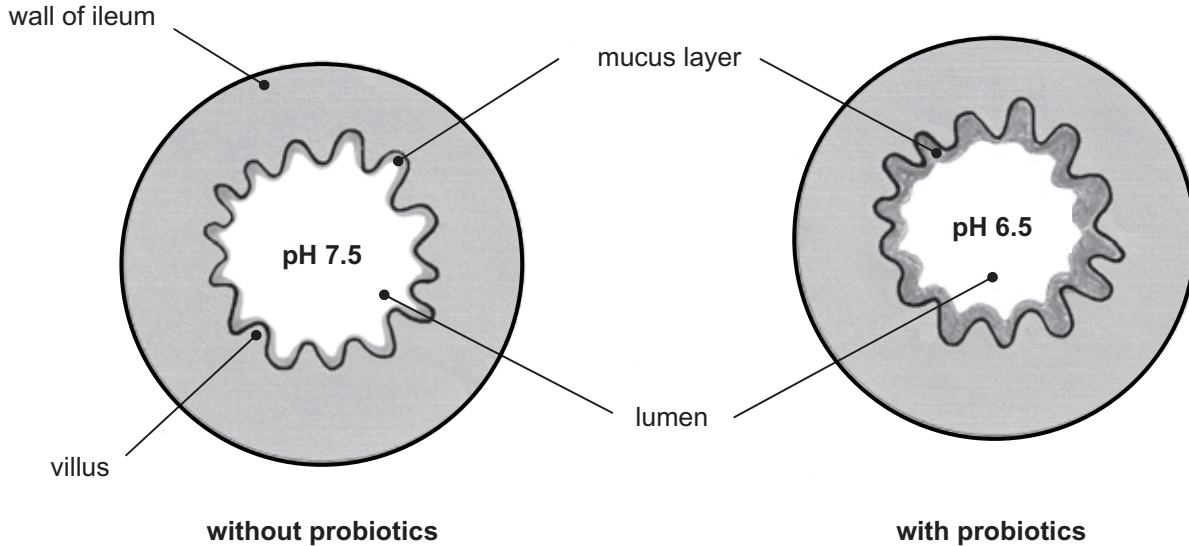


Salmonella bacteria can cause food poisoning.

Some probiotic drinks contain living bacteria.

Manufacturers claim these can help reduce the risk of Salmonella food poisoning.

The diagrams show a section through the ileum of a person who does not take probiotic drinks and one who does.



(c) Use evidence from the diagrams to describe and explain two ways probiotics may help reduce the number of Salmonella bacteria in the ileum.

1. Description \_\_\_\_\_  
\_\_\_\_\_

Explanation \_\_\_\_\_  
\_\_\_\_\_

2. Description \_\_\_\_\_  
\_\_\_\_\_

Explanation \_\_\_\_\_  
\_\_\_\_\_ [4]

Examiner Only	
Marks	Remark
Total Question 7	





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[Turn over

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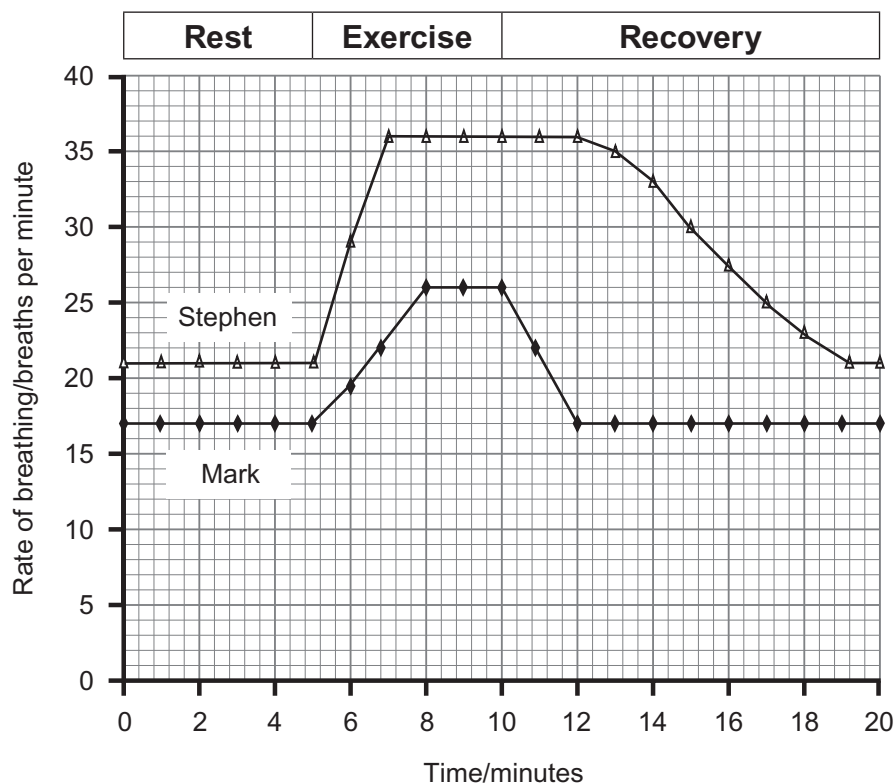


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The graph shows the results of an investigation into the effect of exercise on the breathing rate of two pupils Stephen and Mark.



(b) Calculate the increase in Stephen's breathing rate during exercise.

Show your working.

\_\_\_\_\_ breaths per minute [2]

Examiner Only	
Marks	Remark

[Turn over





During the investigation the percentage of oxygen in the air exhaled by Stephen was also measured.

The table shows the percentage of oxygen in the air exhaled by Stephen at 4 and 8 minutes during the investigation.

Time/minutes	Percentage of oxygen in exhaled air
4	16
8	12

(e) Look at the table and the graph.

Suggest why there is a difference in the percentage of oxygen exhaled between 4 and 8 minutes.

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[2]

Examiner Only

Marks Remark

Total Question 8

[Turn over



9 (a) Name **two** chemical elements found in all food molecules.

\_\_\_\_\_

[1]

(b) Complete the table about components of the diet.

Component	Example	Source	Function
Carbohydrate	Lactose		Energy
	D	Milk	Growth of bones and teeth
Mineral		Red meat	Needed for haemoglobin in red blood cells

[1]

[1]

[1]

Examiner Only

Marks	Remark
Total Question 9	

Total Question 9



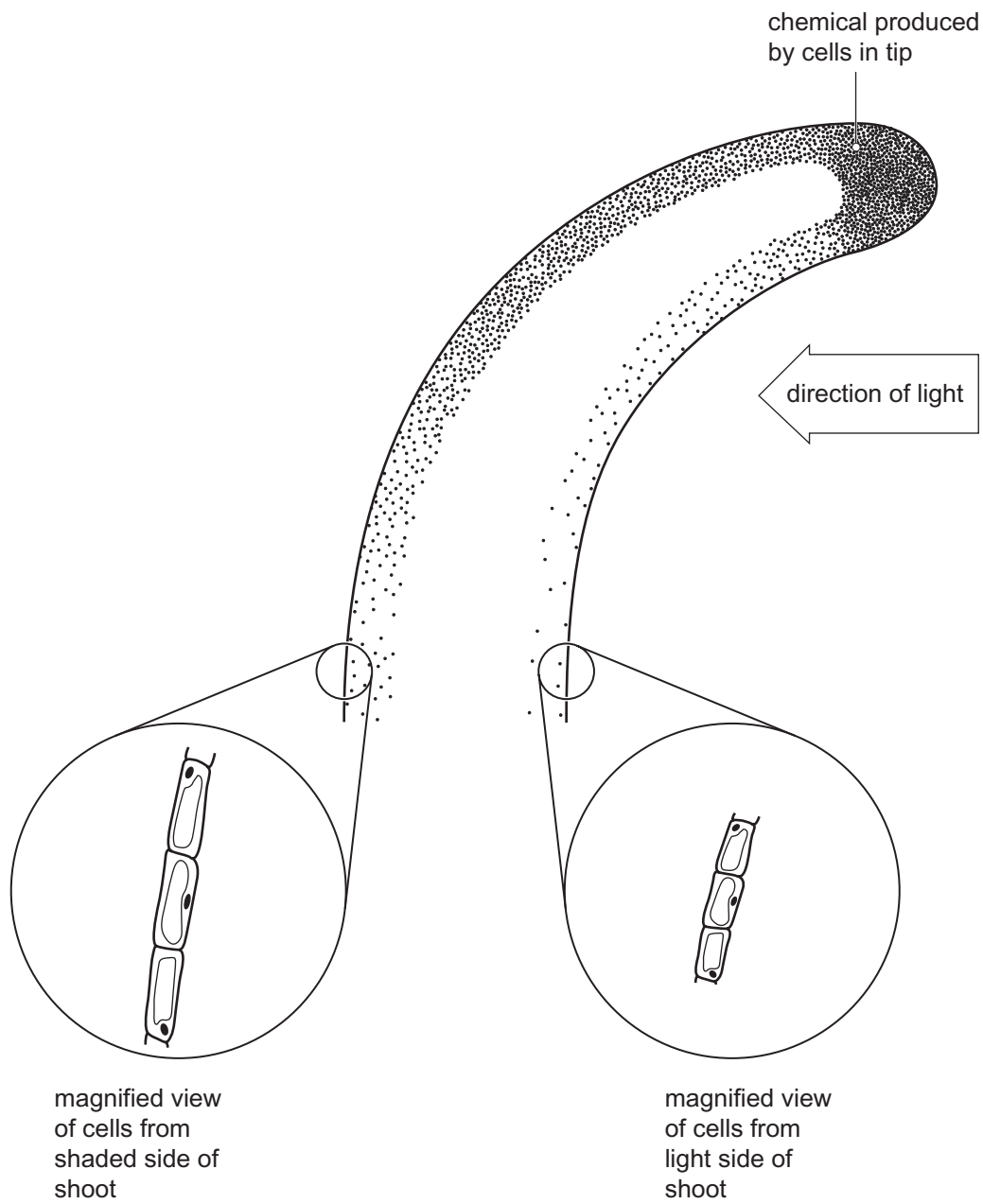
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11 The diagram shows a section of a shoot growing in one-sided light.



magnified view  
of cells from  
shaded side of  
shoot

magnified view  
of cells from  
light side of  
shoot

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(a) Name the chemical produced by cells in the tip.

\_\_\_\_\_

[1]

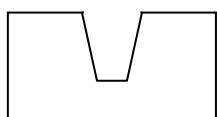
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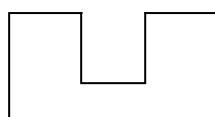




12 The diagram shows the shape of two enzyme molecules and a substrate molecule.



Enzyme A

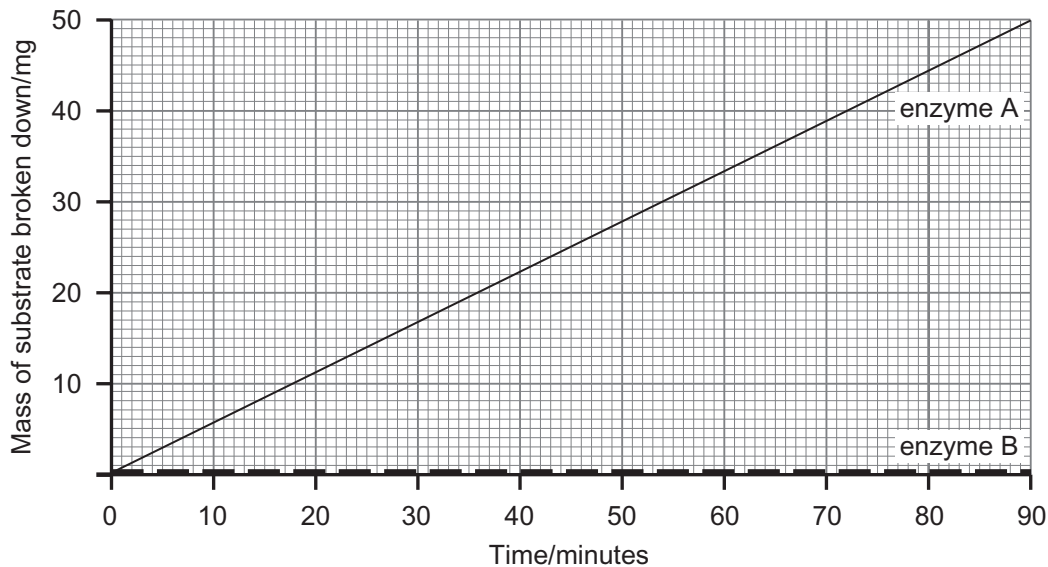


Enzyme B



Substrate

The graph shows the mass of substrate broken down by each enzyme over 90 minutes.



Examiner Only

Marks Remark





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Question Number	Marks
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

<b>Total Marks</b>	
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Examiner Number

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