



Rewarding Learning

General Certificate of Secondary Education
2013

Centre Number

--	--	--	--	--

Candidate Number

--	--	--	--

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

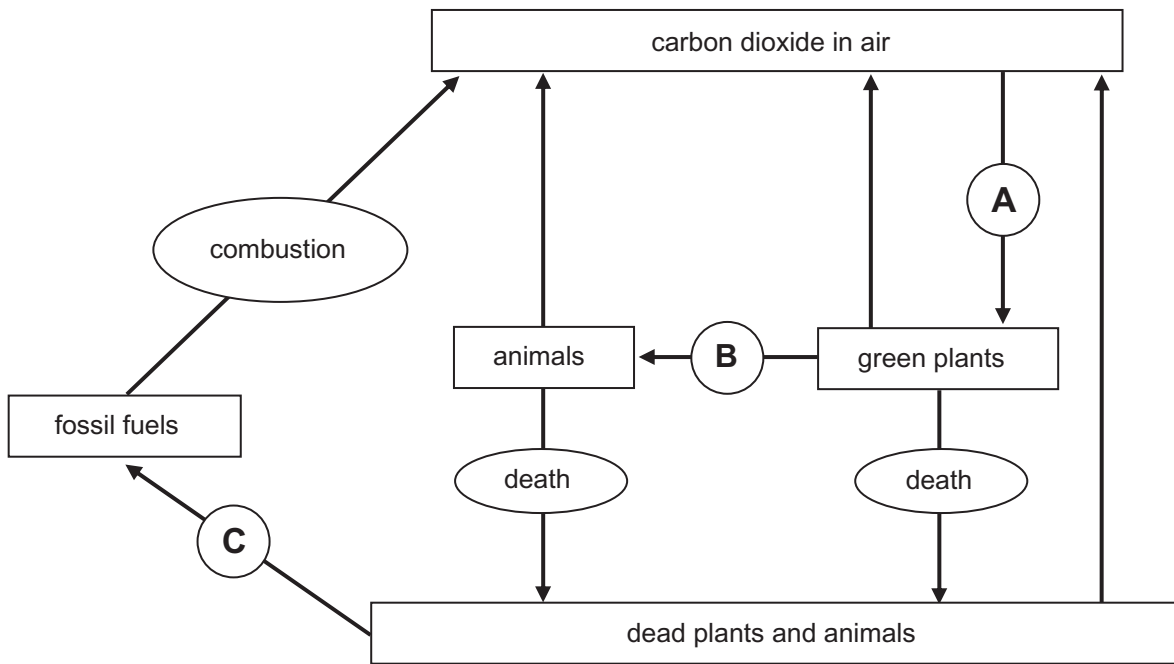
The total mark for this paper is **80**.

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	



(iii) Explain the changes shown in the jelly around the fruit juices.

[2]

(b) Why was water added to one of the holes?

[1]

Examiner Only

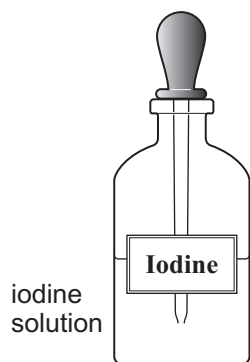
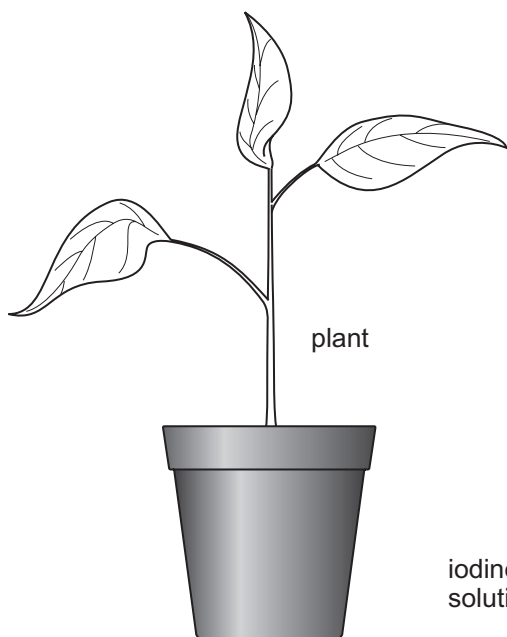
Marks	Remark
-------	--------

Total Question 3	

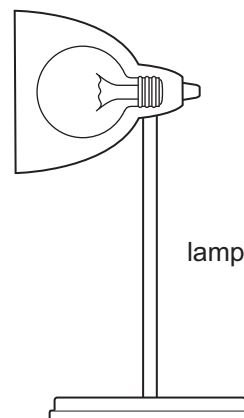
[Turn over



- 4 The diagrams show the apparatus used in an experiment to test where starch is present in a leaf.



black card



Examiner Only

Marks Remark



Describe and explain how the apparatus could be used to find if light is needed for photosynthesis.

In this question, you will be assessed on your written communication skills, including the use of specialist scientific terms.

[6]

Examiner Only	
Marks	Remark
Total Question 4	

[Turn over

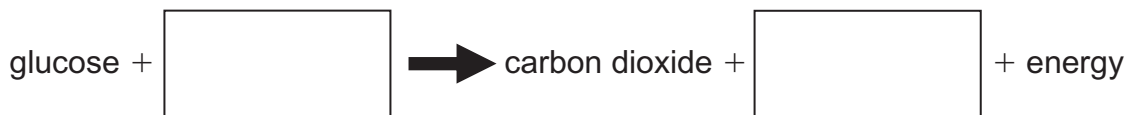


5 Living organisms release energy by aerobic respiration.

(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

© Copyright D G Mackean www.biology-resources.com

(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.

[1]

total amount of energy used per day.

[1]

Examiner Only

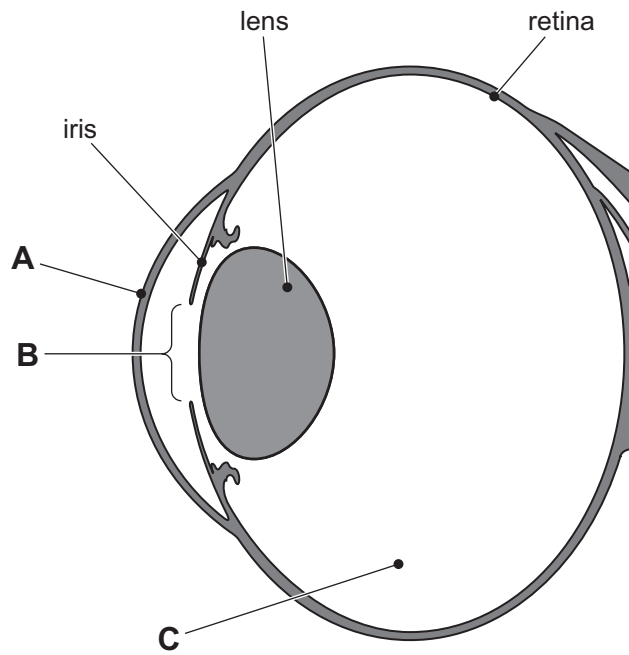
Marks	Remark
-------	--------

Total Question 5	

[Turn over



6 The diagram shows a section through an eye.



© Dr C J Clegg – Mammals Structure & Function by Dr C J Clegg, published by John Murray, 1998.

(a) Name parts **A**, **B** and **C**.

A _____

[1]

B _____

[1]

C _____

[1]

Examiner Only	
Marks	Remark



(b) Describe the function of the

iris. _____

_____ [2]

lens. _____

_____ [2]

retina. _____

_____ [1]

Examiner Only

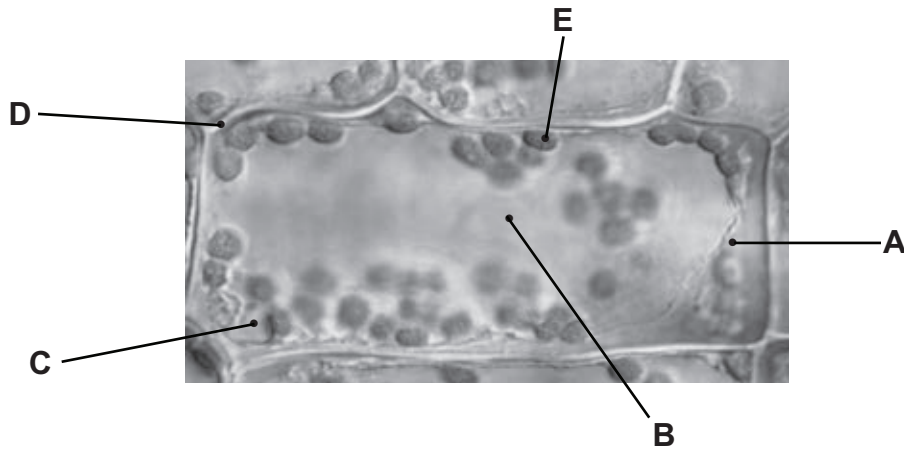
Marks Remark

Total Question 6	

[Turn over



7 The photograph shows a leaf cell.



© J C Revy, ISM / Science Photo Library

Examiner Only	
Marks	Remark

(a) (i) Name parts **A** and **B**.

A _____ [1]

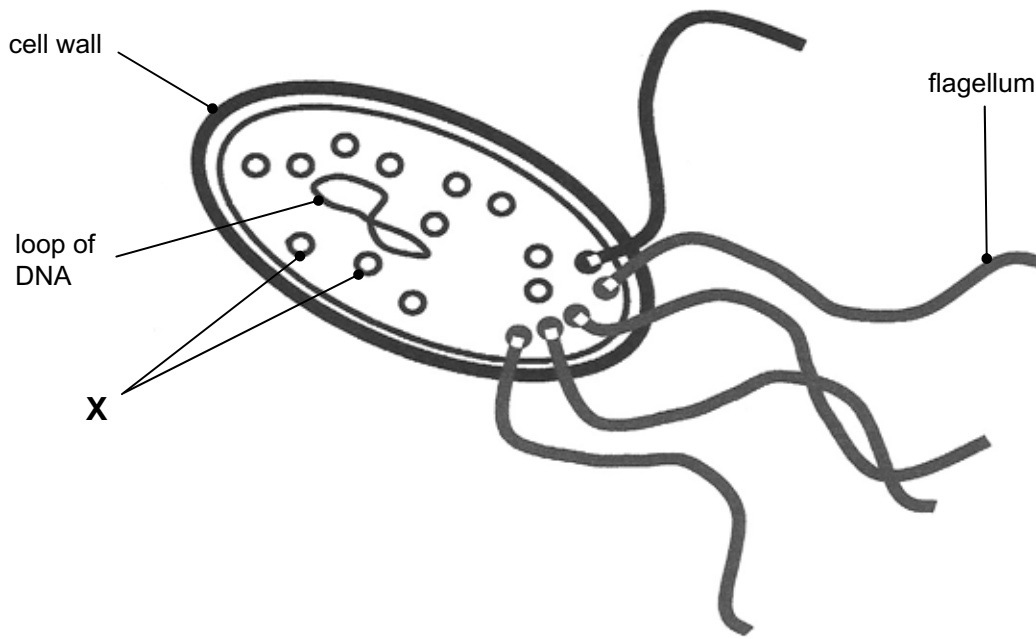
B _____ [1]

(ii) Give the letter of the part which contains
cellulose. _____ [1]

chlorophyll. _____ [1]



(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

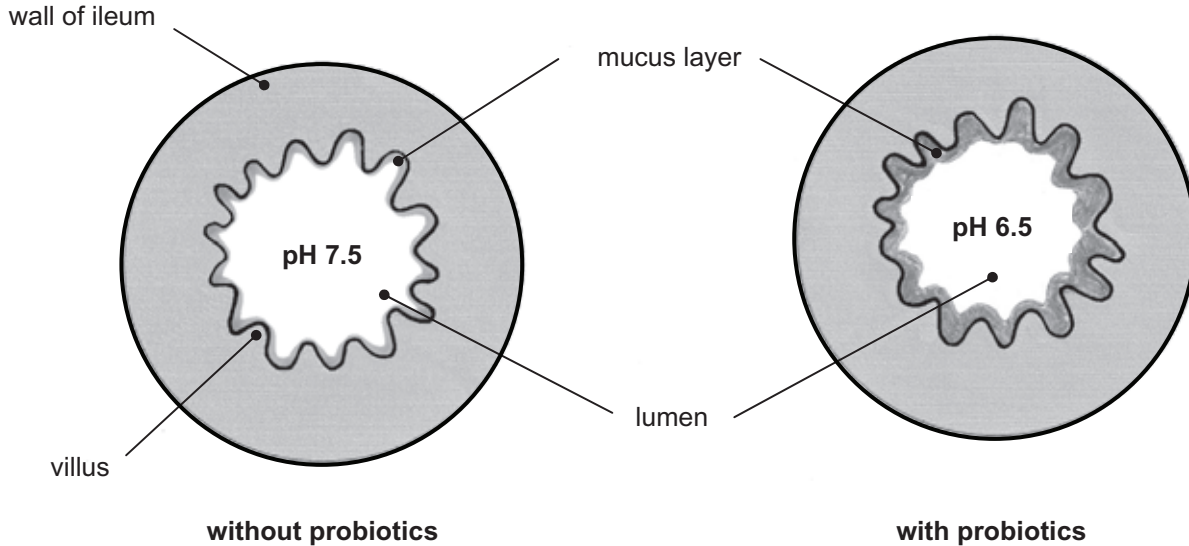


Salmonella bacteria can cause food poisoning.

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	



DO NOT WRITE ON THIS PAGE
(Questions continue overleaf)

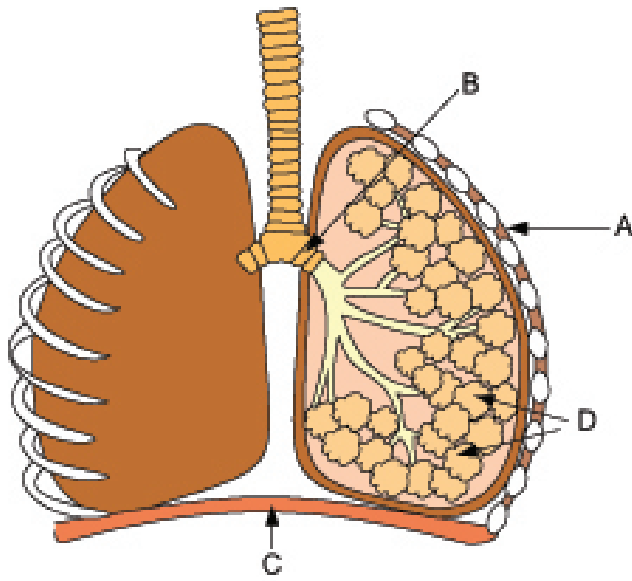
[Turn over

8213



28GBY1115

8 The diagram shows part of the respiratory system.



© Focus Educational Software Ltd

(a) Name parts **A**, **B**, **C** and **D**.

A _____

[1]

B _____

[1]

C _____

[1]

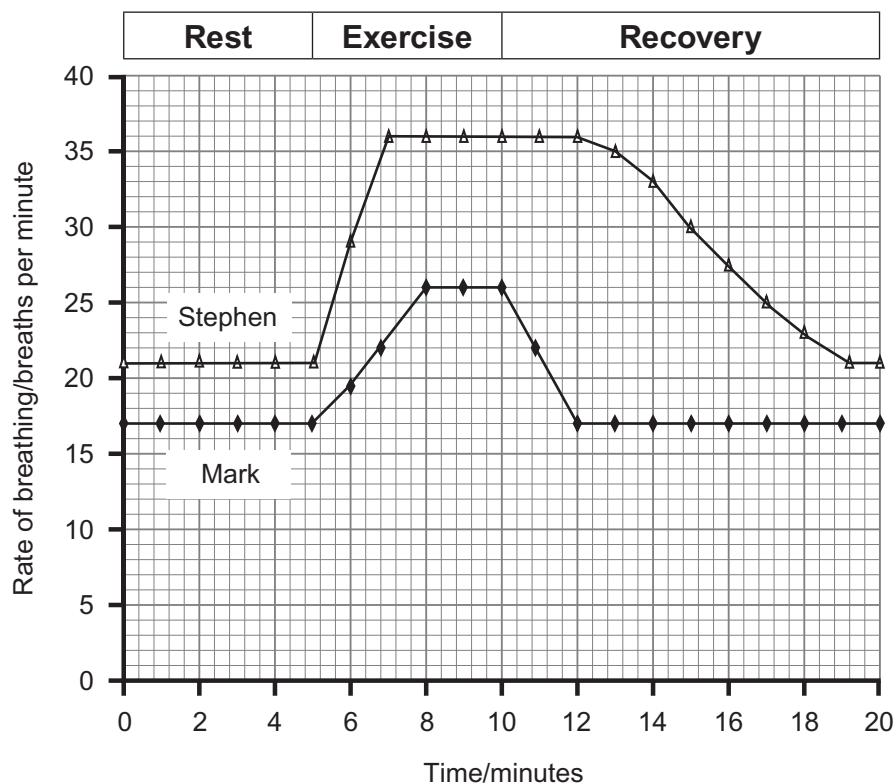
D _____

[1]

Examiner Only	
Marks	Remark



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



Respiratory fitness can be described as the ability to exercise with **little change** in breathing rate.

Examiner Only	
Marks	Remark

- (c) Suggest which pupil in this investigation is fitter.
Give **three** reasons for your choice, **using data from the graph.**

Pupil _____

_____ [3]

- (d) Describe how the pupils would have carried out this investigation to obtain these results.

_____ [4]



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.

[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]

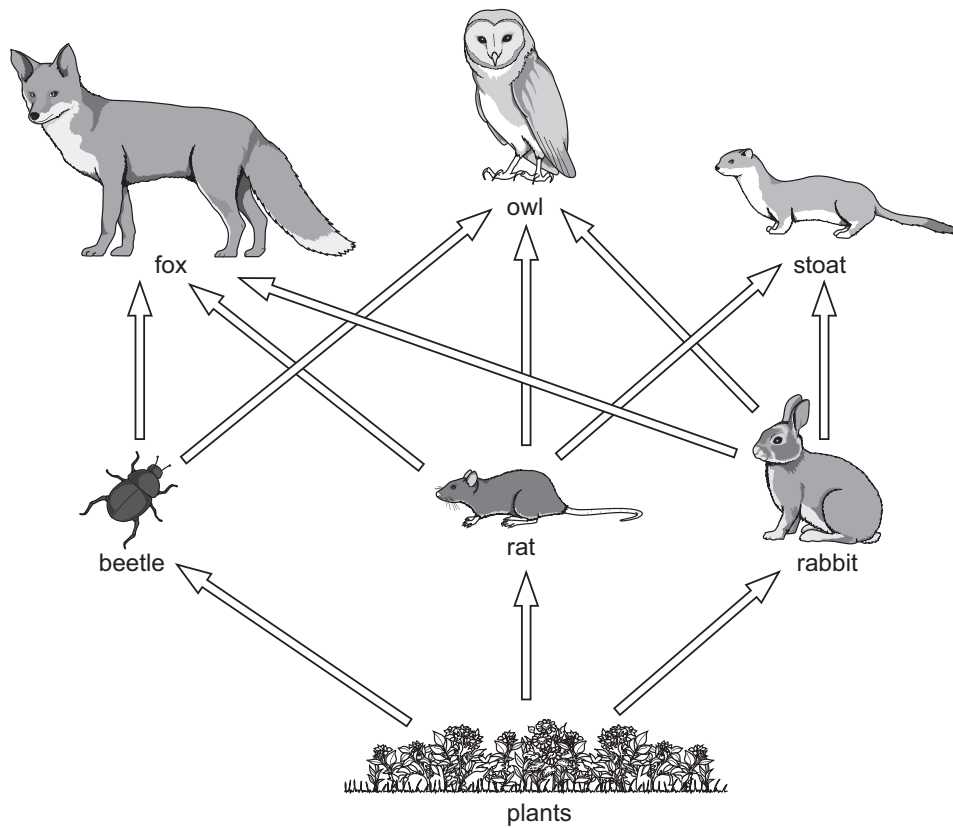
Examiner Only	
Marks	Remark
Total Question 9	



DO NOT WRITE ON THIS PAGE
(Questions continue overleaf)



10 The diagram shows part of a food web found in a forest ecosystem.



© Copyright D G Mackean www.biology-resources.com

(a) Why are plants important in a food web?

[2]

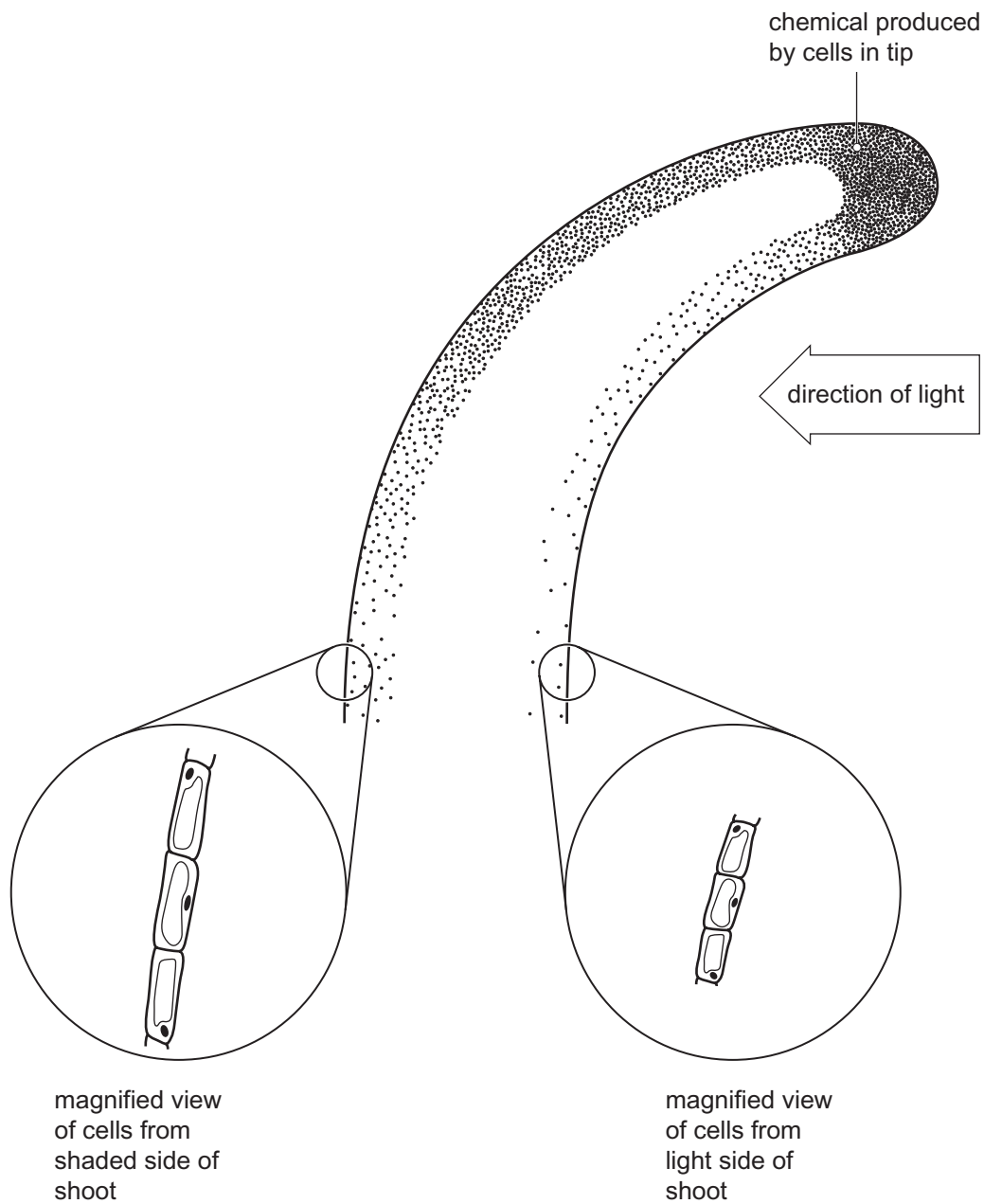
(b) What do the arrows in the food web represent?

[1]

Examiner Only	
Marks	Remark



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



© JD Boyd / CCEA

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

[1]

Examiner Only	
Marks	Remark



Use the diagram to answer the following questions.

(b) (i) Compare the distribution of the chemical in the light and shaded side of the shoot below the tip.

 _____ [1]

(ii) How has the chemical affected the cells in the shaded side of the shoot?

 _____ [1]

(c) Explain the advantage to the plant of bending towards light.

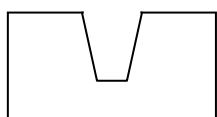
 _____ [2]

Examiner Only	
Marks	Remark
Total Question 11	

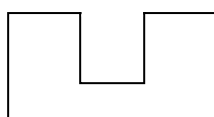
[Turn over



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



Enzyme A

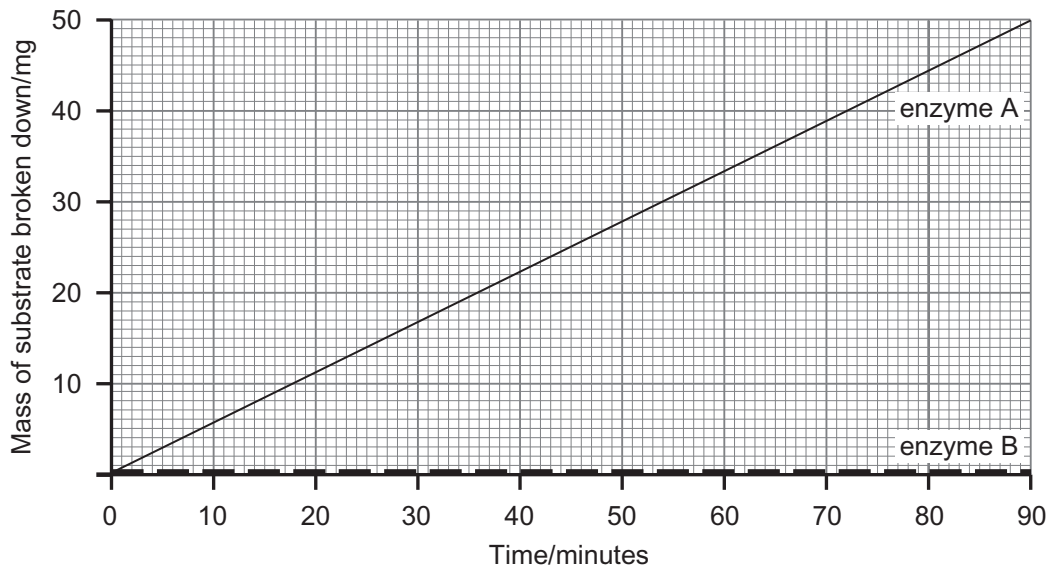


Enzyme B



Substrate

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



Examiner Only

Marks Remark



DO NOT WRITE ON THIS PAGE

For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

Total Marks	
--------------------	--

Examiner Number

Permission to reproduce all copyright material has been applied for.
In some cases, efforts to contact copyright holders may have been unsuccessful and CCEA will be happy to rectify any omissions of acknowledgement in future if notified.

113129



28GBY1128