

Surname	Centre Number	Candidate Number
Other Names		0



**GCSE**

0239/01

**ADDITIONAL SCIENCE  
FOUNDATION TIER  
BIOLOGY 2**

A.M. MONDAY, 28 January 2013

45 minutes

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1	8	
2	8	
3	7	
4	12	
5	8	
6	7	
<b>Total</b>	<b>50</b>	

0239  
010001

**ADDITIONAL MATERIALS**

In addition to this paper you may require a calculator and a ruler.

**INSTRUCTIONS TO CANDIDATES**

Use black ink or black ball-point pen.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided in this booklet.

**INFORMATION FOR CANDIDATES**

The number of marks is given in brackets at the end of each question or part-question.

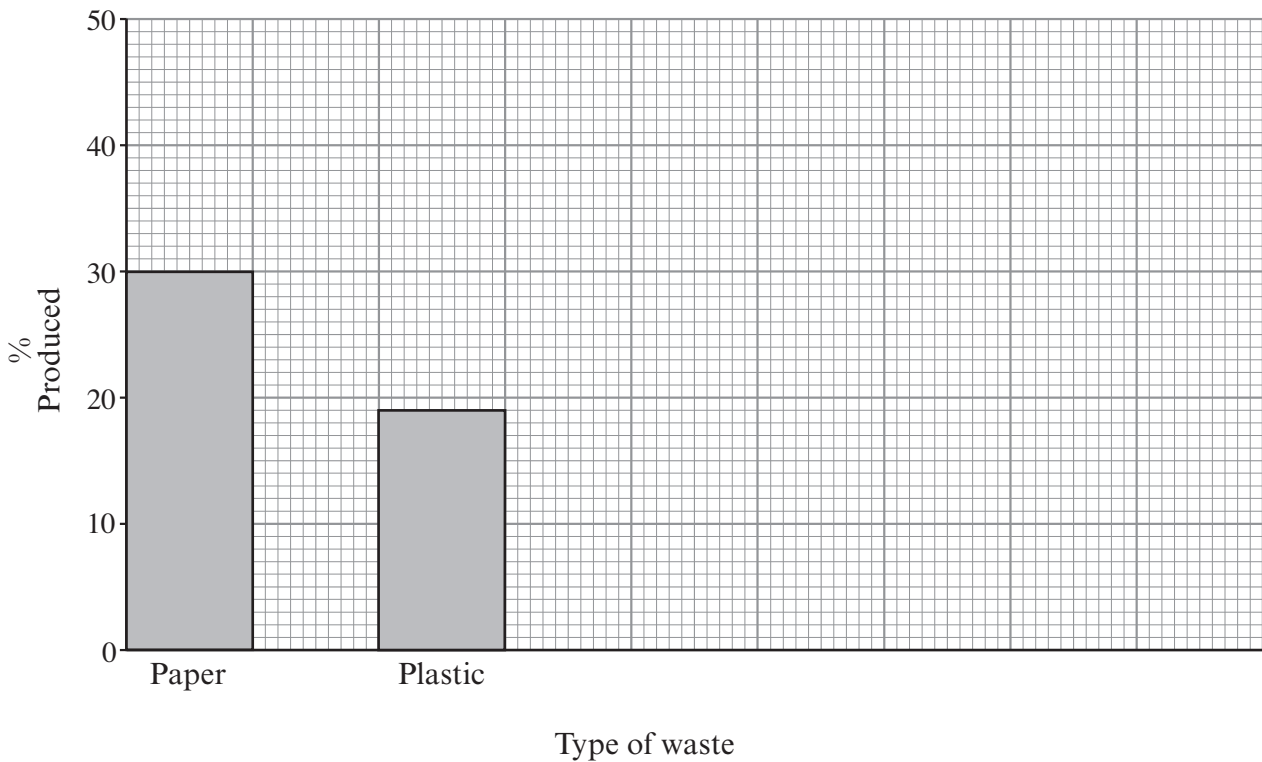
You are reminded of the necessity for good English and orderly presentation in your answers.

Answer **all** questions.

1. Pupils in a school investigated the different types of waste the school was producing. The results are shown in the table below.

Type of waste	Percentage (%) produced
Paper	30
Plastic	19
Cardboard	11
Glass	3
Food Waste	37

- (a) Use a ruler to plot a bar graph to show these results. Two have been completed for you. [3]



(b) The pupils researched the effect of plastic waste on wildlife.  
They found that:

- 2 million seabirds die each year due to eating or getting wrapped in plastic.
- Turtles eat plastic bags mistaking them for jellyfish, their normal food.
- A dead whale was found to have a kilogram of plastic in its stomach.
- Burning plastic releases poisonous gases.
- The UK is running out of sites to dump plastic.



Turtle eating plastic

Using this information, answer the following questions.

[3]

(i) What do turtles normally eat?

.....

(ii) Why do so many seabirds die?

.....

(iii) Why should plastic waste not be burnt?

.....

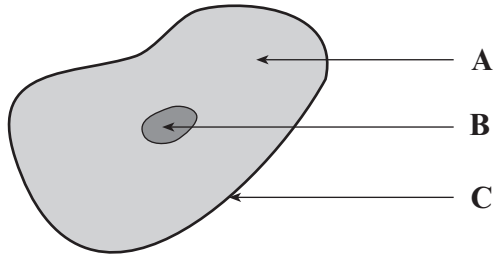
(c) Suggest **two** ways in which we can cut down the amount of plastic waste.

[2]

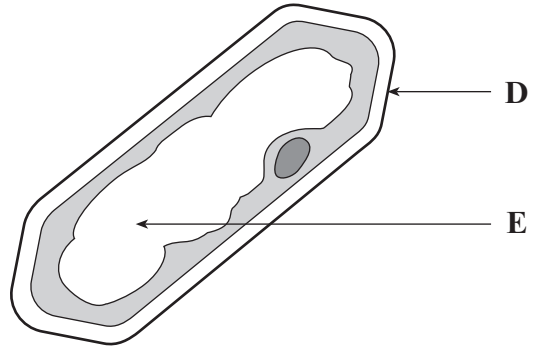
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2. The diagram below shows the structure of an animal and plant cell.



Animal Cell



Plant Cell

(a) Name parts **A** to **E** by using some of the following words.

[5]

nucleus, vacuole, cell wall, chloroplast, cell membrane, cytoplasm

- A .....
- B .....
- C .....
- D .....
- E .....

(b) Use the **letters from the diagram** to show which part:

[3]

- (i) contains genes; .....
- (ii) is found **only** in plants; .....
- (iii) controls the entry of substances into the cell. ....

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3. Read the information about organisms in a woodland and use it to answer the questions.



hedgehog



caterpillar



snail



thrush



sparrow



fox

Snails and caterpillars eat leaves.

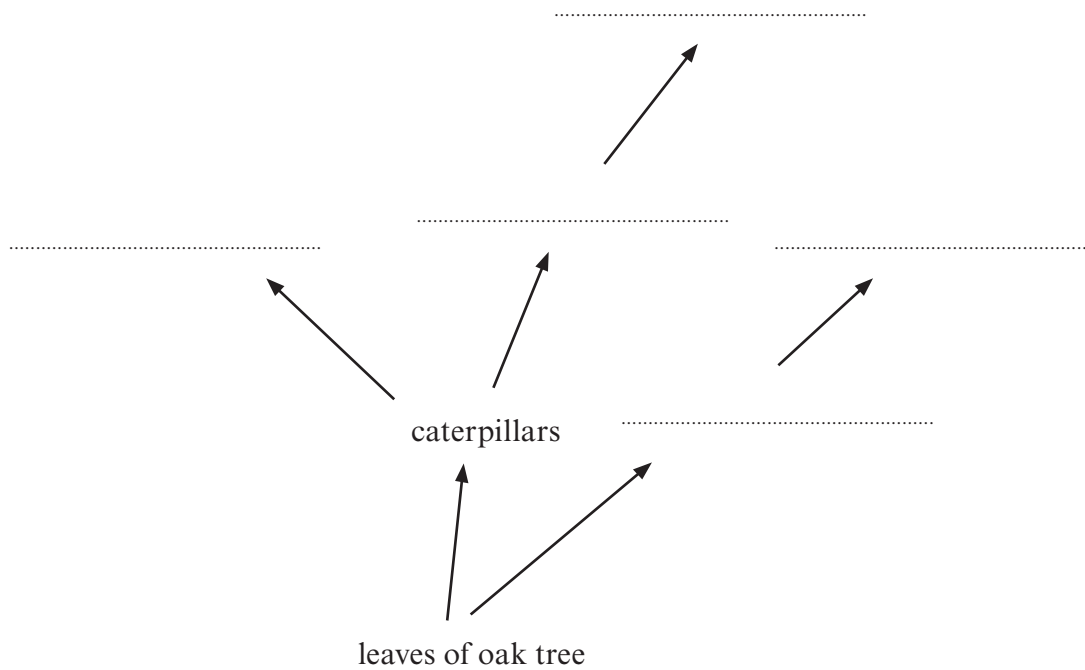
Caterpillars are eaten by sparrows and hedgehogs.

Thrushes eat snails.

Foxes eat hedgehogs.

(a) Complete the food web below using only the information above.

[4]



(b) From the food web above name

(i) the producer;

[1]

.....

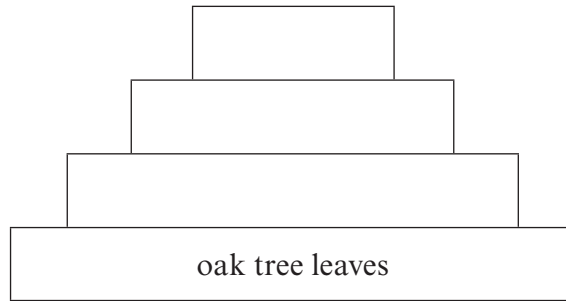
(ii) **one** herbivore.

[1]

.....

(iii) Using the food web opposite complete the pyramid of numbers below.

[1] Examiner only



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4. (a) Complete the sentences below using some of the words in the list:

[3]

aerobic, energy, enzymes, diffusion

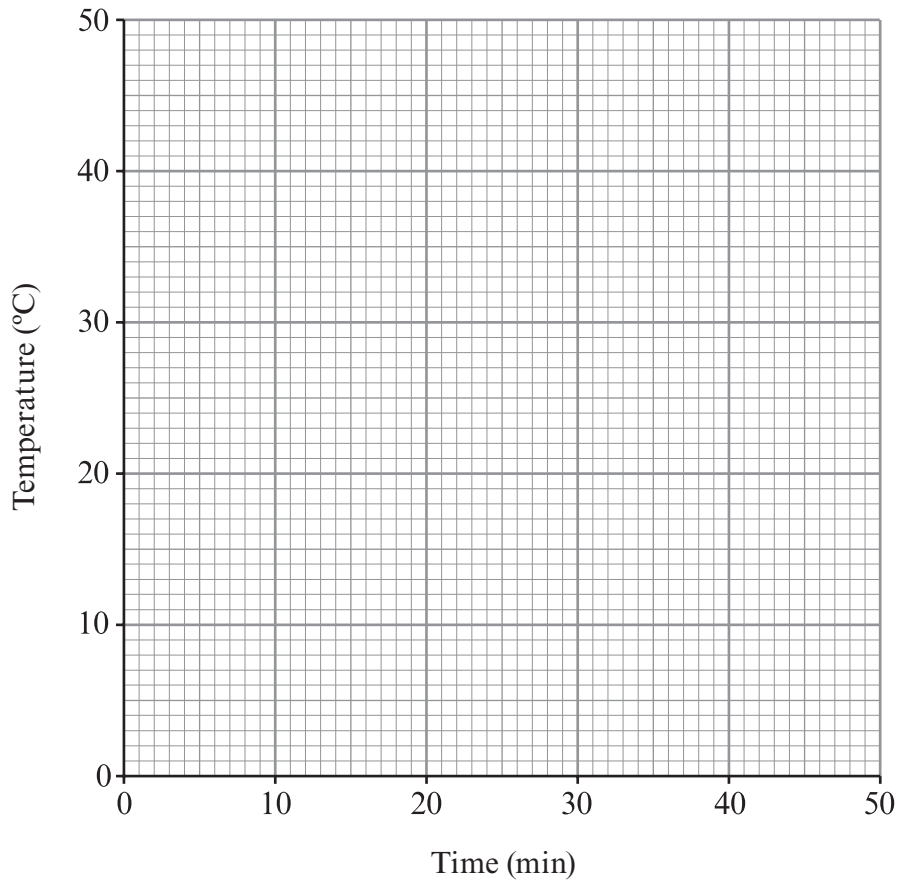
During respiration chemical reactions occur which release .....  
and which are controlled by ..... . When oxygen is available we  
say that respiration is .....

(b) Jordan competes in a race during which his skin temperature is measured every 10 minutes. The results are shown in the table below.

Time (min)	Skin Temperature (°C)
0 (start)	30
10	32
20	38
30	44
40	40

(i) Plot the results on the graph. Join the points with a ruler.

[3]





- (ii) The temperature after 10 minutes is 32°C.  
**From your graph**, what is the temperature after 25 minutes? [1]

.....

- (iii) Work out the temperature increase between 10 and 25 minutes. [1]

Answer ..... °C

- (iv) What process causes the temperature to increase? [1]

.....

- (v) How could this investigation be made more reliable? [1]

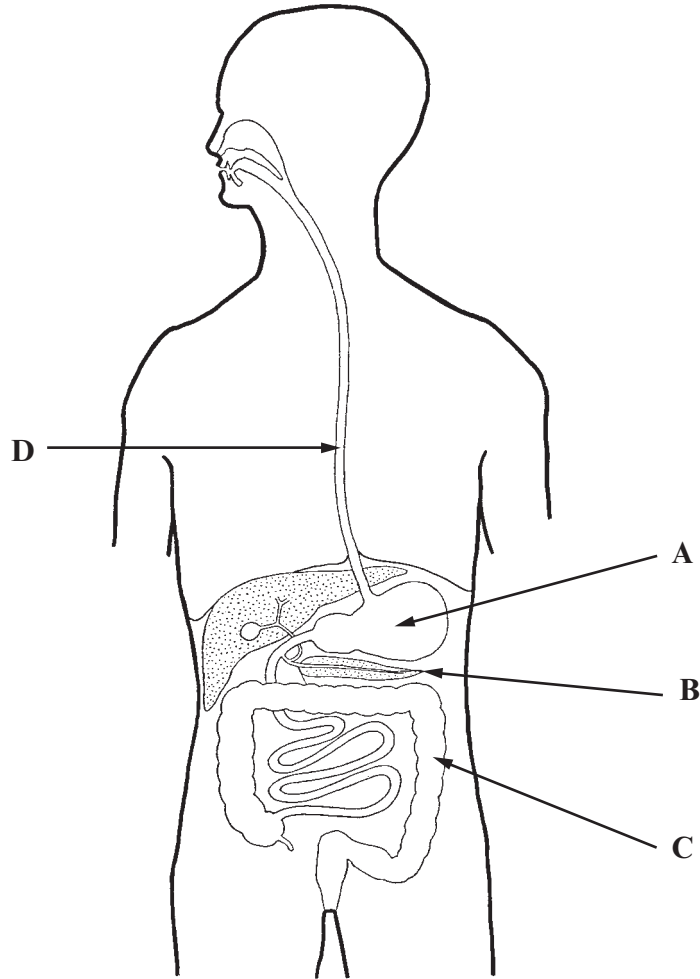
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- (c) Fill in the gaps in the equation by naming two waste products of respiration. [2]

glucose + oxygen  $\longrightarrow$  ..... + .....

12

5. The diagram shows the human digestive system.

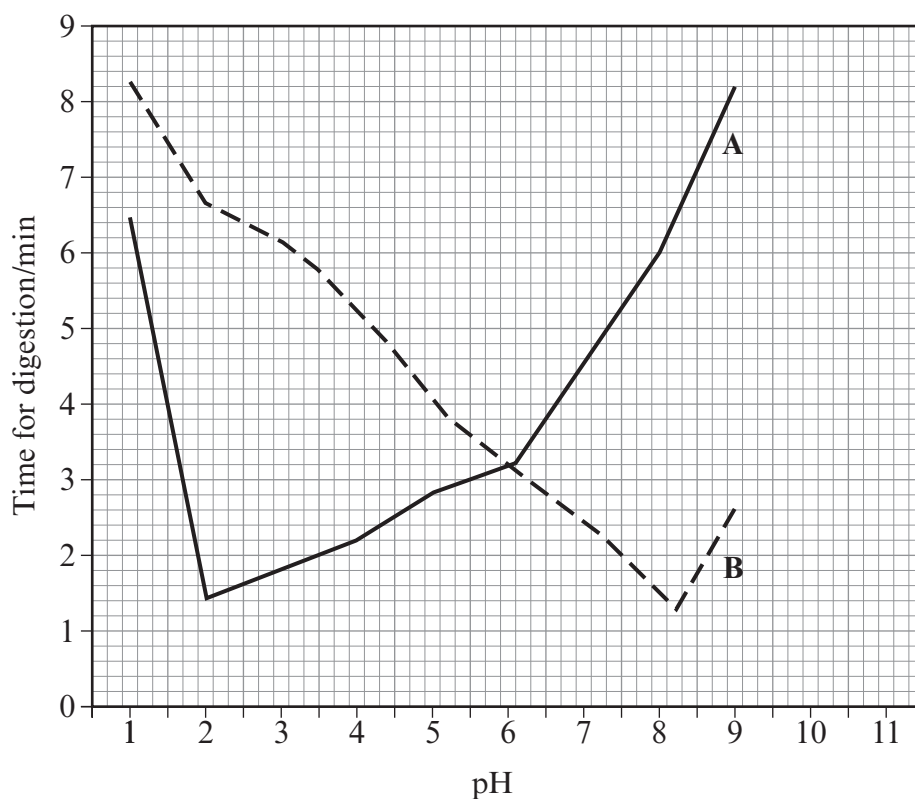


(a) Name the structures labelled **A** to **D**.

[4]

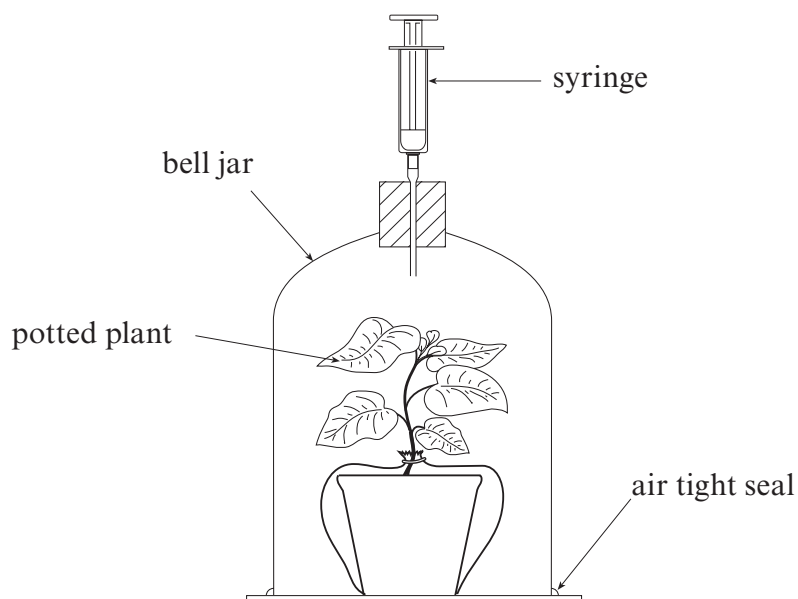
- A .....
- B .....
- C .....
- D .....

- (b) The graph below shows the result of an investigation into the effect of pH on the action of two digestive enzymes labelled **A** and **B**.



- (i) From the graph, state the time taken for the enzyme **B** to complete its digestion at pH 4.5. [1]
- .....
- (ii) At what pH is the rate of reaction the same for both enzymes? [1]
- .....
- (iii) From the graph, describe the effect of pH on the action of enzyme **A**. [2]
- .....
- .....
- .....

6. The apparatus below was set up as shown and exposed to bright sunlight for 6 hours.



Before and after the exposure to light, samples of air in the bell jar were collected using the syringe.

The samples of air were analysed for carbon dioxide and oxygen content.

(a) Complete the table below to show whether the percentage of gas in the sample had changed using the words **increased** or **decreased**. [2]

Gas	% of gas before exposure to light	After 6 hours of exposure to bright sunlight
Carbon dioxide	0.03	
Oxygen	21	

(b) Explain your answer to (a). [4]

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.....

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.....

(c) Suggest what could be done to the apparatus to reverse the exchange of gases. [1]

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**END OF PAPER**