



General Certificate of Secondary Education
2017–2018

Centre Number

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Candidate Number

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Science: Single Award

Unit 1 (Biology)

Foundation Tier

MV18

[GSS11]

TUESDAY 15 MAY 2018, AFTERNOON

Time

1 hour, plus your additional time allowance.

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 on blank pages.

Complete in black ink only.

Answer **all nine** questions.

Information for Candidates

The total mark for this paper is 60.

Figures in brackets printed at the end of each question indicate the marks awarded to each question or part question.

Quality of written communication will be assessed in Question 9.

- (b) (i) Complete the Punnett square below showing the cross between a cat with no tail (Tt) and a cat with a tail. [2 marks]

	T	
	Tt	
t		

- (ii) From your Punnett square, what is the chance of the kittens also having no tail?

Circle the correct answer. [1 mark]

100%

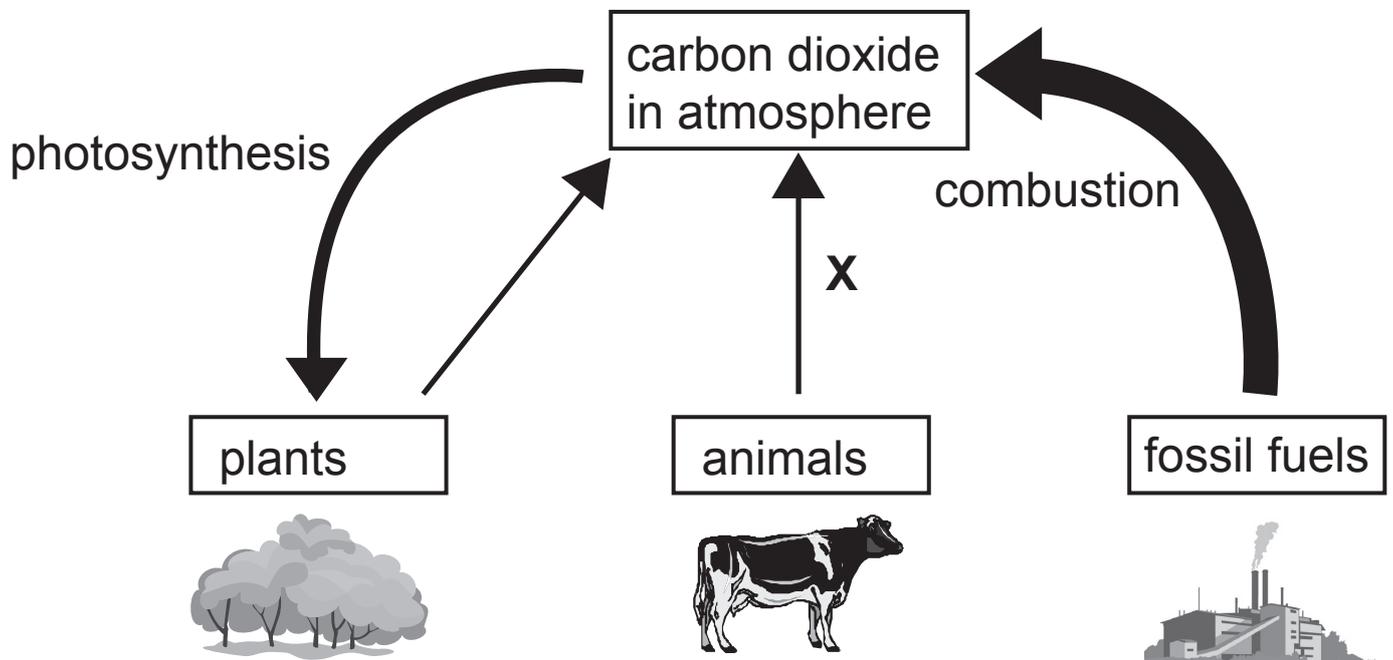
75%

50%

25%

- (c) Using the information given, explain fully why breeders do **not** usually cross two Manx cats with no tail (Tt). [2 marks]

- 6 The diagram below shows how carbon dioxide enters and leaves the atmosphere. The arrows show the movement of carbon dioxide. The thicker the arrow the more carbon dioxide.



- (a) Name the process labelled **X** on the diagram. [1 mark]

- (b) Using the diagram, explain why the amount of carbon dioxide in the atmosphere is increasing. [2 marks]

(c) The increasing amount of carbon dioxide in the atmosphere is leading to global warming.

(i) Explain what is meant by the term **global warming**.
[1 mark]

(ii) Give **one** effect of global warming. [1 mark]

(d) When the Earth was first formed approximately 4.5 billion years ago, its atmosphere contained more carbon dioxide and less oxygen than today.

However when green plants evolved the composition of the atmosphere began to change.

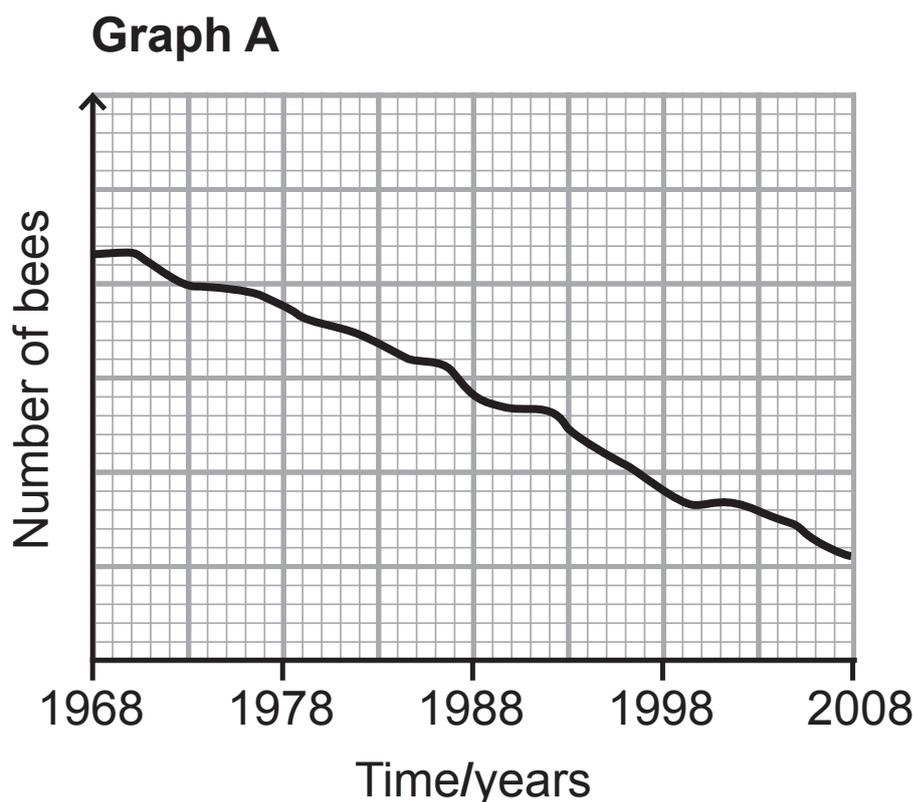
(i) What process takes place in green plants that helped change the amount of carbon dioxide and oxygen in the atmosphere and promoted the evolution of animals? [1 mark]

(ii) In what way have the levels of carbon dioxide and oxygen in the atmosphere changed from the time green plants first evolved? [2 marks]

7 Bees are important in the life cycle of plants. When a bee lands on a flower to feed on nectar, the pollen will stick to its body and the bee can carry the pollen to another flower. The pollen helps plants to produce seeds which will grow into new plants. This ensures good biodiversity.

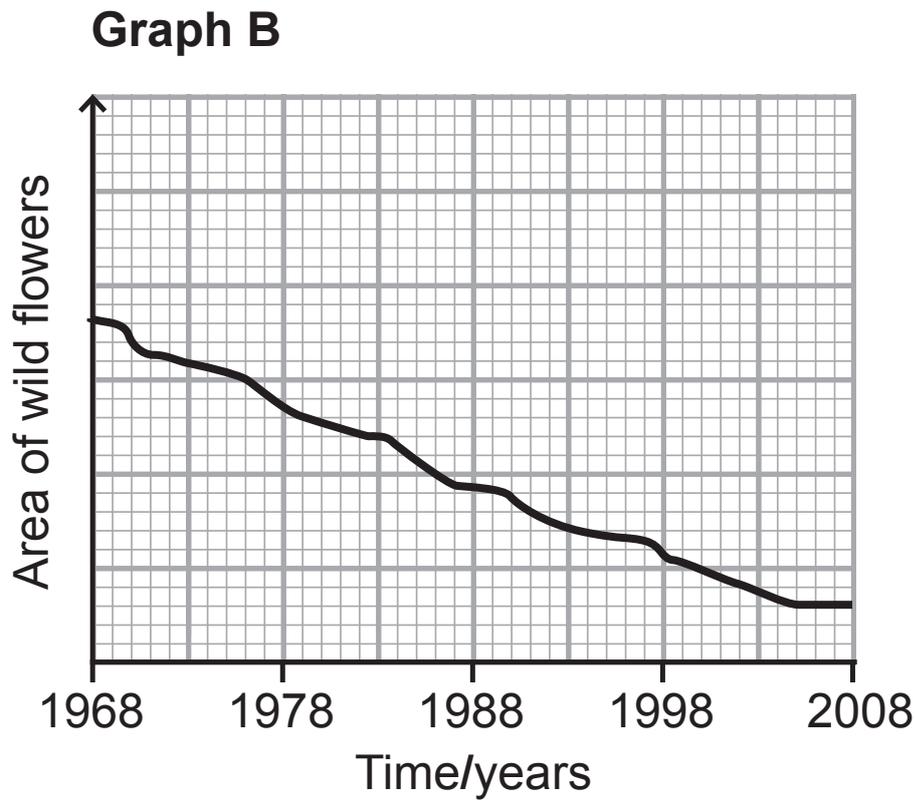
(a) What is meant by the term **biodiversity**? [1 mark]

Graph A shows how the number of bees in Ireland has changed over a 40-year period.



(b) Describe the trend shown in this graph. [1 mark]

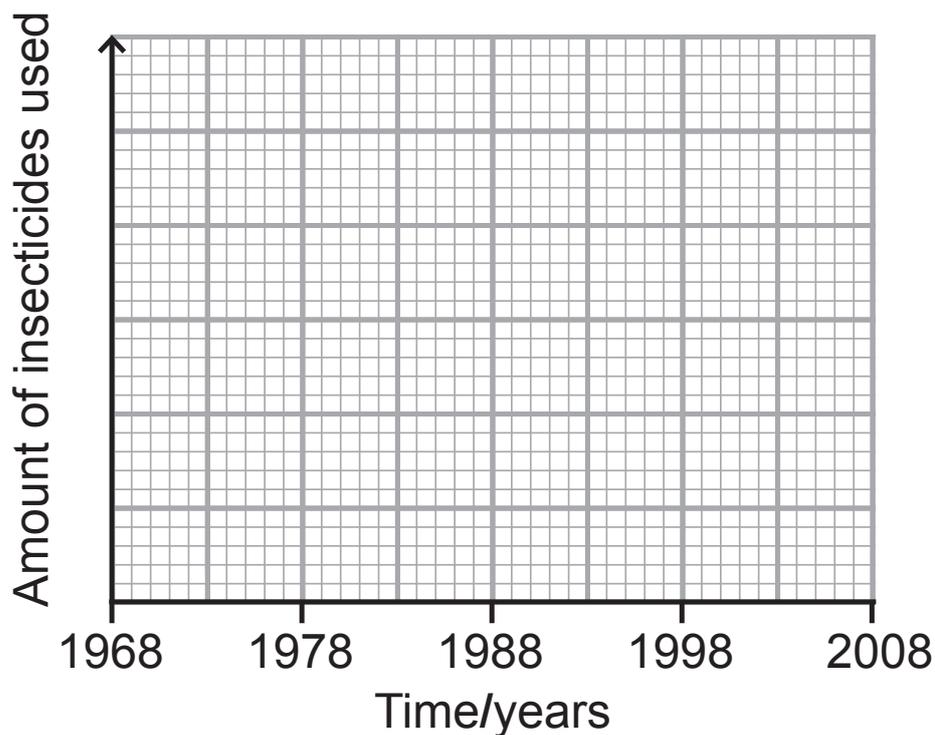
Graph **B** shows the area of wild flowers in Ireland over the same period.



(c) Use information from the graphs (**A** and **B**) to explain fully the trend in the number of bees in Ireland.
[2 marks]

(d) Another reason for the trend shown in Graph A is the use of insecticides on plants. Insecticides will kill bees.

Use this information to draw a line on the grid below to show how the amount of insecticide used may have changed during the same 40-year period. [1 mark]



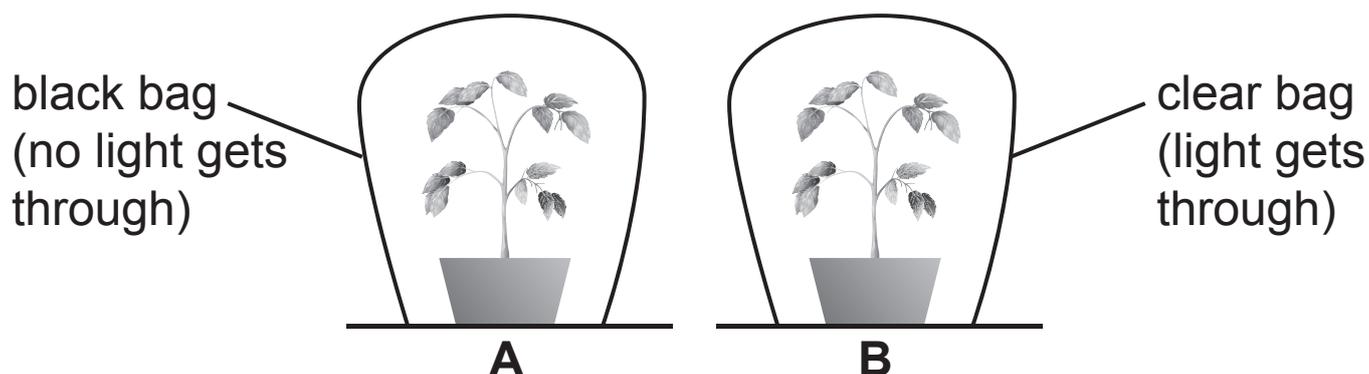
(e) Suggest **two** actions that could help increase the number of bees. [2 marks]

1. _____

2. _____

8 Photosynthesis is the process by which green plants use sunlight to make food which is stored as starch.

(a) The diagram below shows how an experiment to investigate if light is needed for photosynthesis could be set up.



Before the investigation was set up, both plant **A** and plant **B** were de-starched.

(i) Describe how the plants could have been de-starched. [1 mark]

(ii) What does de-starching do to the plants in this experiment? [1 mark]

(iii) Give **two** factors needed to make the investigation a fair test. [2 marks]

1. _____

2. _____

(b) One leaf was taken from plant **A** and another from plant **B**. Both leaves were tested for the presence of starch using iodine.

Describe and explain the results you would expect for leaf **B**. [2 marks]

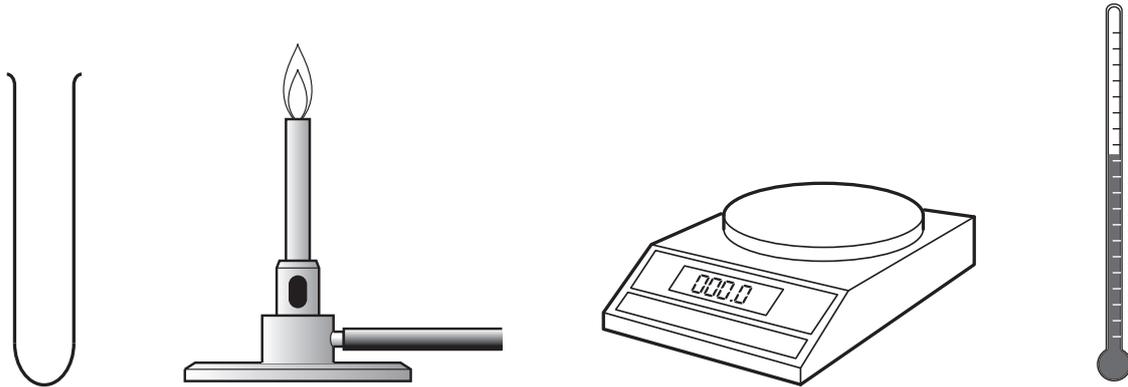
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(Questions continue overleaf)

9 Mary wants to find out whether pasta or potato has more energy.

Describe an experiment to compare the amount of energy in these foods. [6 marks]

Some of the equipment Mary could use is shown below.



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

THIS IS THE END OF THE QUESTION PAPER

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Question Number	Marks
1	
2	
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Total Marks	

Examiner Number

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