

Tuesday 31 January 2012 – Morning

GCSE ENVIRONMENTAL AND LAND-BASED SCIENCE

B493/03 Management of the Natural Environment (Foundation Tier)

Candidates answer on the Question Paper.
A calculator may be used for this paper.

Duration: 45 minutes

OCR supplied materials:
None

Other materials required:

- Pencil
- Ruler (cm/mm)



Candidate forename		Candidate surname	
--------------------	--	-------------------	--

Centre number						Candidate number				
---------------	--	--	--	--	--	------------------	--	--	--	--

MODIFIED LANGUAGE

INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Do **not** write in the bar codes.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this paper is **36**.
- This document consists of **20** pages. Any blank pages are indicated.

For Examiner's Use	
TOTAL	

Answer **all** the questions.

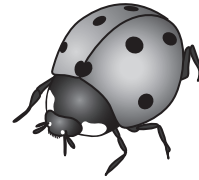
1 The diagrams show some animals.



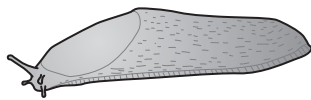
butterfly



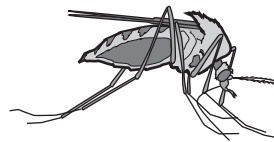
woodlouse



ladybird



slug



mosquito

Two of the animals live in soil.

Put a **ring** around each of the **two** animals that live in soil.

[2]

2 Rocks can be weathered by:

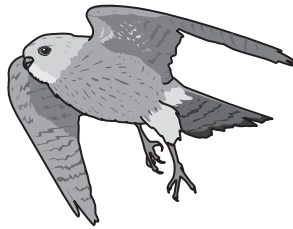
- A acid rain
- B freezing and thawing
- C heat from the sun
- D the growth of plants

Which one of **A**, **B**, **C** or **D** is **chemical weathering**? [1]

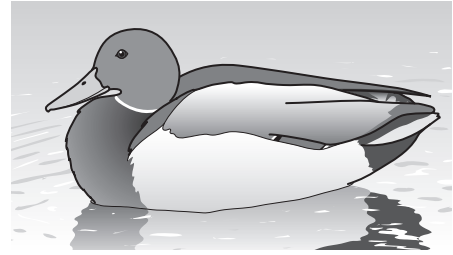
3 The drawings show three birds, **A**, **B** and **C**, that are adapted to the ecosystem in which they live.



A



B



C

Write the letter **A**, **B** or **C** in the space below the information that best describes the bird.

It flies high in the sky looking for small animals to eat.

.....

It swims on ponds or lakes and feeds on water snails and plants.

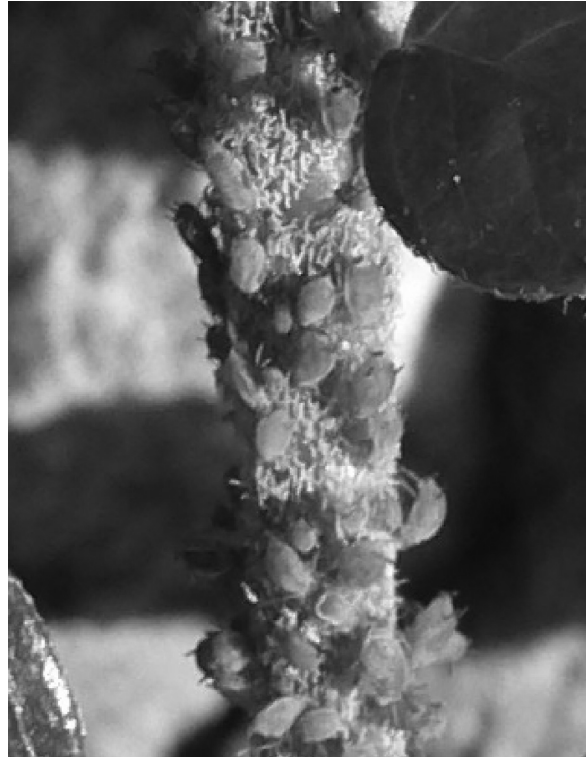
.....

It stands in water and catches small fish.

.....

[2]

4 The photograph shows some aphids (greenfly) feeding on a plant stem.



Which of the words in the boxes below best describe the aphids and the plant stem?

Draw **one** line from **aphids** to the word that describes them.

Draw **one** line from **plant stem** to the word that describes it.

aphids

plant stem

carnivore

herbivore

predator

producer

[2]

5 The photograph shows some organically grown food.



Which **one** of the following best describes an organically grown food?

- A food grown in greenhouses
- B food grown with artificial fertiliser
- C food grown without artificial pesticides
- D food grown without the use of soil

Answer **A, B, C** or **D** [1]

6 Soil is made up of different components that include:

clay

gravel

humus

sand

silt

From the list, give the name of the:

(a) component with the smallest particles [1]

(b) organic component [1]

7 The photograph shows a power station.



(a) Suggest what type of pollution you can **see** being made by the power station in the photograph.

..... [1]

(b) Name **one** other type of pollution that may be caused by the power station.

..... [1]

8 The photograph shows a crop of oilseed rape that has finished flowering.

There are many red poppies in the crop.



Poppies are weeds.

They compete with the crop for light.

Name **two** other things that weeds and crops compete for.

1

2 [2]

9 Intensive plant production systems sometimes use polythene.

The photograph shows a field with strips of **clear** polythene covering the crop.



(a) Suggest how the polythene strips help the plants to grow.

.....
..... [1]

(b) Suggest why there must be gaps between the polythene strips.

.....
..... [1]

10 The photographs show two different habitats.

The type of soil is different in each habitat.



limestone valley



sand dune

The soil in the limestone valley allows more plants to grow.

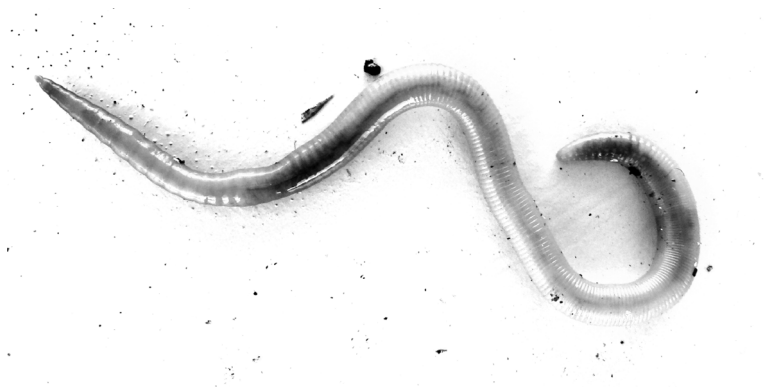
Suggest why.

.....

.....

..... [2]

11 The photograph shows an earthworm.



Earthworms help to improve soil.

They drag leaves into the soil, which improves its humus content.

Describe and explain **one** other way that earthworms improve soil.

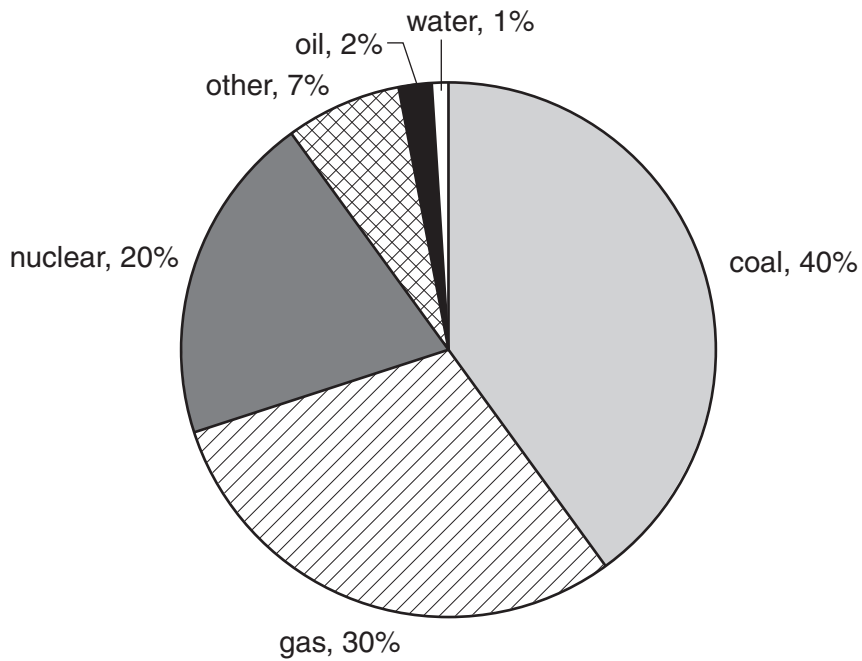
.....

.....

..... [2]

12 Electricity is generated from a number of different sources.

The pie chart shows the percentage of each source used to generate electricity in the UK.



(a) What percentage of the energy is generated from fossil fuels?

..... [1]

(b) Suggest why the amount of energy generated from coal will change in the next twenty years.

.....
..... [1]

(c) 7% of the electricity generated in the UK is from 'other' energy sources.

Name **two** of these sources.

.....
..... [1]

13 In 2006 in England there were approximately:

- 9000 conservation areas
- 1300 historic parks and gardens
- 370 000 listed buildings
- 18 300 scheduled ancient monuments
- 15 World Heritage sites

Use the information to answer the questions.

(a) How many historic parks and gardens were there in 2006?

..... [1]

(b) What is the total number of listed buildings and scheduled ancient monuments in 2006?

..... [1]

14 In the UK, the red kite is a rare, protected bird.

In 1996, one pair of these birds began breeding in Rockingham Forest. The population of red kites has continued to grow.

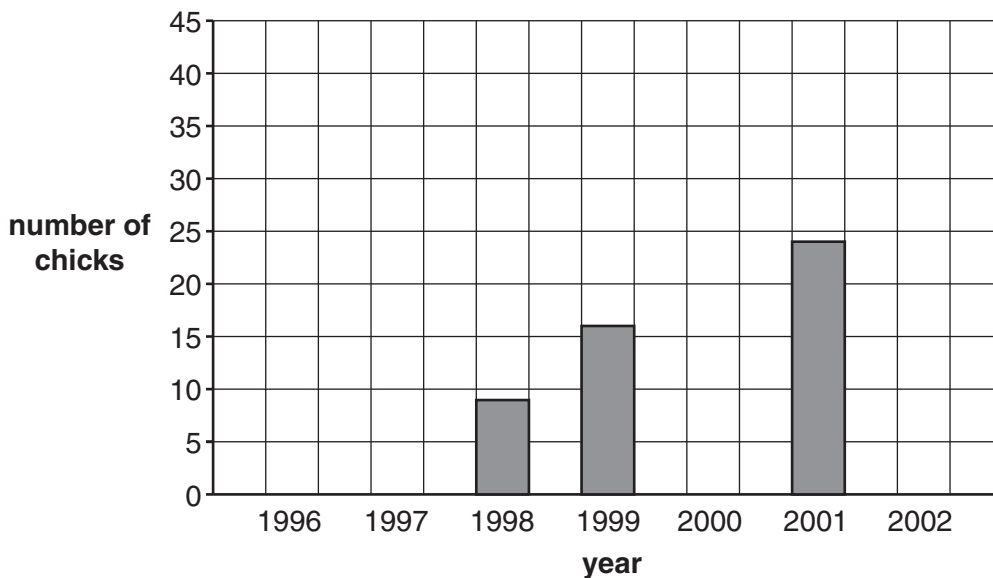
The table below shows the number of breeding pairs and the number of chicks from 1996 to 2002 in Rockingham Forest.

year	breeding pairs	number of chicks
1996	1	2
1997	4	8
1998	4	9
1999	?	16
2000	13	25
2001	12	24
2002	22	44

(a) In which year did the number of breeding pairs go down?

..... [1]

(b) Complete the bar chart using the data in the table above.



[1]

(c) Estimate the number of breeding pairs in 1999.

..... [1]

15 The photograph shows horses pulling a small machine.



On most farms, horses have been replaced by large, powerful machines.

Suggest **three** reasons why large powerful machines are used.

.....

.....

.....

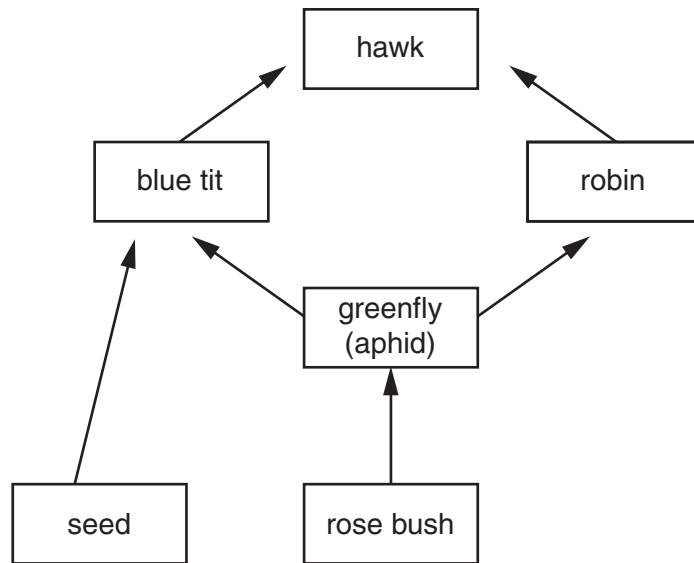
.....

.....

.....

..... [3]

16 The diagram shows part of a food web.



If all the robins died, the number of blue tits would change.

Using **only** the information in the food web, explain why:

- the number of blue tits may go up **and**
- the number of blue tits may go down.

.....

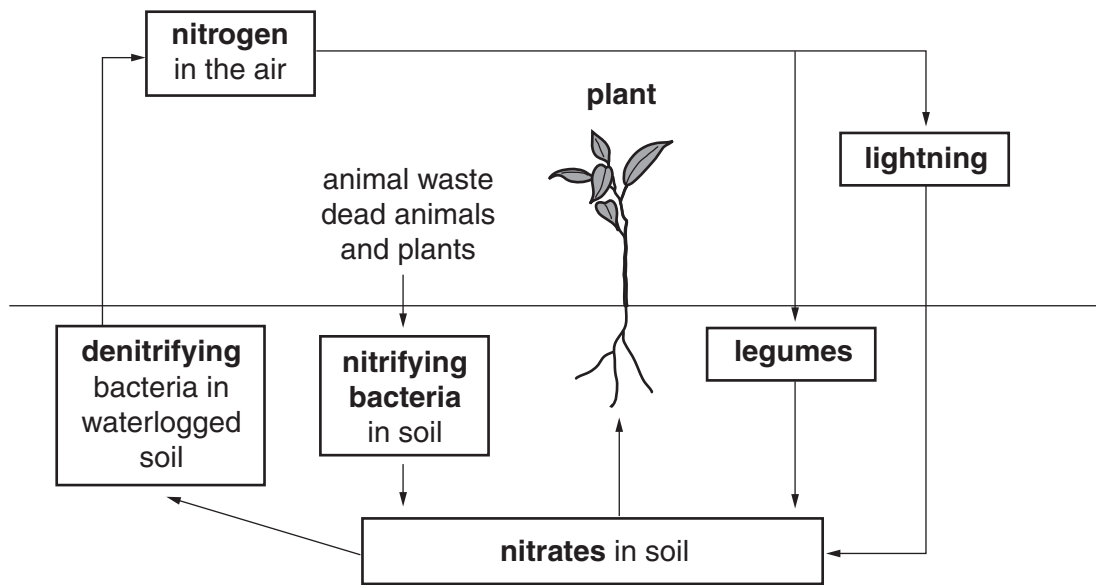
.....

.....

..... [2]

17 Plants need nitrates to grow properly.

The diagram shows part of the nitrogen cycle.



Describe **three** ways in which nitrates become available to plants.

Use information from the diagram to help your answer.

.....

.....

.....

.....

.....

.....

..... [3]

END OF QUESTION PAPER

PLEASE DO NOT WRITE ON THIS PAGE

PLEASE DO NOT WRITE ON THIS PAGE



Copyright Information

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website (www.ocr.org.uk) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact the Copyright Team, First Floor, 9 Hills Road, Cambridge CB2 1GE.

OCR is part of the Cambridge Assessment Group; Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.