

Write your name here	
Surname	Other names
Edexcel Principal Learning	Centre Number
	Candidate Number
Environmental and Land-Based Studies	
Level 1	
Unit 1: The Natural Environment	
Thursday 14 January 2010 – Afternoon Time: 1 hour	Paper Reference ES101/01
You do not need any other materials.	Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*

Information

- The total mark for this paper is 40.
- The marks for **each** question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

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1 Mr Senta owns a farm. Most of it is arable but there is one small area of lowland meadow, which he has left as a wildlife reserve. It contains a pond as shown in Figure 1. This pond is an example of a freshwater aquatic habitat.



Figure 1

(a) Identify **three** different plants that could be found in a freshwater aquatic habitat.

(3)

- 1
- 2
- 3

(b) State **three** features that you might use to identify plants.

(3)

- 1
- 2
- 3

(c) The lowland meadow is an example of a lowland terrestrial habitat.

State **two** physical features of a lowland terrestrial habitat.

(2)

- 1
- 2



(d) Listed below are some of the animals found in the lowland meadow. Some belong to the lowland terrestrial habitat and some to the aquatic habitat.

Fox Pike Rabbit Frog Newt Mouse

Complete the table by writing the name of each animal in the correct column.

The first two have been done for you.

(2)

Terrestrial habitat	Aquatic habitat
fox	pike

(Total for Question 1 = 10 marks)



2 Mr Senta is considering a change of use for part of the lowland meadow. He has asked a survey company to assess the possible environmental impact this change may have.

Stephanie, one of the company's employees, has carried out the survey.

Table 1 shows the number of species of animals she found in the pond, and at different distances away from the pond.

Area	Area 1	Area 2	Area 3	Area 4
Sampling point	In the pond	1 metre from the pond	10 metres from the pond	50 metres from the pond
Number of species	21	23	18	17

Table 1

Using the information in Table 1:

(a) (i) State which area has the most species.

(1)

(ii) Why do you think there are more species found nearer the pond than further away?

(3)

(b) Stephanie found that in summer she recorded 25 bird species in the meadow but only 8 species in the winter.

Suggest **one** reason for the difference in the number of species between summer and winter.

(2)



(c) Mr Senta is considering growing only barley in part of the lowland meadow area.

The meadow has a variety of flowering plants and contains large numbers of insects.

Stephanie has suggested that the change would result in a decrease in the number of bird species.

Give **two** reasons why the number of bird species might decrease.

(4)

1

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2

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(d) A public footpath crosses this meadow. Stephanie's survey found the soil structure on the footpath was altered and there were fewer plants there than in other parts of the meadow.

Explain why there were fewer species of plant on the footpath than in the rest of the meadow.

(3)

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(Total for Question 2 = 13 marks)



3 Stephanie took some photos of the footpath with a digital camera. This is one way of using Information Technology (IT) to collect data.

(a) (i) State **one** other IT survey technique that Stephanie could use to collect information about plants and animals in this survey.

(1)

(ii) Describe how this technique could be used in this survey.

(2)

(b) Describe **one other** method that Stephanie could use to gather information about plants and animals in this survey.

(2)

(c) At each survey site, Stephanie picked up a ball of soil and rolled it in her hands.

Suggest why she did this as part of the soil survey.

(1)



(d) Also Stephanie took wind measurements in her survey.

(i) Name the piece of equipment that would be used to measure wind speed. (1)

(ii) Describe how this piece of equipment measures wind speed. (2)

(e) Stephanie also used a weather vane to measure the wind direction. She put the weather vane in the corner of the field one metre off the ground, next to a tall hedge.

Suggest why this is the wrong position for her weather vane. (2)

(Total for Question 3 = 11 marks)



4 As a result of this survey, Mr Senta chose not to grow barley. However the soil and weather surveys will help him decide what to grow.

(a) Explain how **one** soil characteristic could be important as he makes the decision about what he should grow.

(2)

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(b) Explain how measuring the weather would help him decide what he should grow.

(4)

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(Total for Question 4 = 6 marks)

TOTAL FOR PAPER = 40 MARKS

