

# OCR Gateway GCSE Biology A

## Paper 2: Community-Level Systems, Similarities and Differences, Life on Earth (B4–B6)

Foundation Tier — Combined Science · Time: 1 hour 15 minutes · Total: 70 marks

Foundation Tier — Combined Science

<b>Name:</b>	
<b>Centre number:</b>	<b>Candidate number:</b>

- Answer **ALL** questions.
- Use black ink or black ball-point pen.
- Write your answers in the spaces provided.
- The marks for questions are shown in brackets.
- Total marks: 70

### Question 1

**(a)** What does the arrow in a food chain represent?

[1 mark]

Tick **ONE** box.

- A. The organism that is eaten
- B. The direction in which energy is transferred
- C. The direction in which the predator hunts
- D. The flow of water in an ecosystem

**(b)** Which of the following is a biotic factor?

[1 mark]

Tick **ONE** box.

- A. Temperature
- B. Light intensity
- C. pH of soil
- D. Predation

**(c)** Dominant alleles are:

[1 mark]

Tick **ONE** box.

- A. Always harmful
- B. Expressed only when two copies are present
- C. Expressed when only one copy is present
- D. Always more common in a population

**(d)** Which organisms are responsible for decomposition in an ecosystem?

[1 mark]

Tick **ONE** box.

- A. Producers
- B. Primary consumers
- C. Bacteria and fungi
- D. Secondary consumers

Total for Question 1

**Question 2**

*Figure 1 shows a food web from a grassland ecosystem.*



**(a)** Using Figure 1, write a food chain with four organisms. Use correct arrow notation.

[2 marks]

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**(b)** Explain why less energy is available at each higher level in a food chain.

[3 marks]

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**(c)** If the population of rabbits in Figure 1 is greatly reduced by disease, predict and explain the effects on TWO other organisms in the food web.

[2 marks]

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**Question 3**

*The carbon cycle shows how carbon moves between the atmosphere and living organisms.*

**(a)** State THREE processes that release CO<sub>2</sub> into the atmosphere.

[3 marks]

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**(b)** State the name of the ONE process that removes CO<sub>2</sub> from the atmosphere and name the organisms that carry out this process.

[2 marks]

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**(c)** Explain why burning fossil fuels increases atmospheric CO<sub>2</sub> more than burning wood from a managed forest.

[2 marks]

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Total for Question 3

**Question 4**

*Cystic fibrosis is an inherited condition caused by a recessive allele (f).*

**(a)** Define the term "recessive allele."

[1 mark]

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**(b)** Both parents of a child are carriers of cystic fibrosis (Ff). Draw a Punnett square to show the possible genotypes of their children. Calculate the probability of having an affected child.

[3 marks]

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(c) Explain why a carrier of cystic fibrosis does not show symptoms of the disease.

[2 marks]

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Total for Question 4

### Question 5

*Human activities are threatening biodiversity worldwide.*

(a) State what is meant by "biodiversity."

[2 marks]

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(b) Describe FOUR ways in which deforestation affects the environment.

[4 marks]

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(c) Describe TWO methods used to conserve biodiversity. Give ONE advantage of each.

[3 marks]

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Total for Question 5

### Question 6

(a) Describe how natural selection leads to changes in a population over time. Use the example of antibiotic resistance in bacteria.

[5 marks]

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**(b)** Give THREE pieces of evidence that scientists use to support the theory of evolution.

[3 marks]

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Total for Question 6

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**END OF QUESTIONS - Total marks: 41**