AQA GCSE Combined Science - Trilogy | 8464

SPECIFICATION POINT 4.7.3.2

Waste management

Past-paper questions

Tier	**Higher**
Question groups	**4**
Available paper years	**2020–2024**

Using this booklet

1. Answer the questions in order and show your working.
2. Original question numbers and marks are retained.
3. Print at actual size (100%) for measuring questions.
4. Use the companion answer booklet to check your work.

Name: _____ **Date:** _____

Whole questions are retained for context, so some parts assess other specification points. Current and legacy sources are labelled. Continue on extra paper if needed.

4.7.3.2 Waste management

Question 01

November 2020 | 8464/B/2H | Original Q3

0 3 There is a need to grow enough food for all the people in the world.

Growing enough food affects habitats and biodiversity.

0 3 . 1 What is meant by the term biodiversity?

[1 mark]

Peat bogs are being destroyed because peat is used by humans.

Destroying peat bogs also reduces biodiversity.

0 3 . 2 Give **one** use of peat taken from peat bogs.

[1 mark]

0 3 . 3 Explain why the use of peat is harmful to the environment.

Do **not** refer to biodiversity in your answer.

[2 marks]

4.7.3.2 Waste management

Question 01 · continued

0 3 . 4 Intensive farming, where a single crop is grown on a large area of land year after year, is more cost effective for farmers.

It is efficient to use fertilisers and to burn the waste so the land is ready to use the next year.

Planting a single crop reduces biodiversity.

Suggest **two** ways that this type of farming can damage the environment.

Do **not** refer to biodiversity in your answer.

[2 marks]

1 _____

_____

2 _____

_____

0 3 . 5 Most of the world's production of antibiotics is used in farming.

Antibiotics are given to animals to prevent the spread of disease.

Explain how the widespread use of antibiotics in farming is a threat to human life.

[4 marks]

_____

_____

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Question 02

June 2022 | 8464/B/2H | Original Q2

0 2 Water pollution is a problem for humans and wildlife.

Explain how human activities are polluting rivers, lakes and seas.

[6 marks]

6

4.7.3.2 Waste management

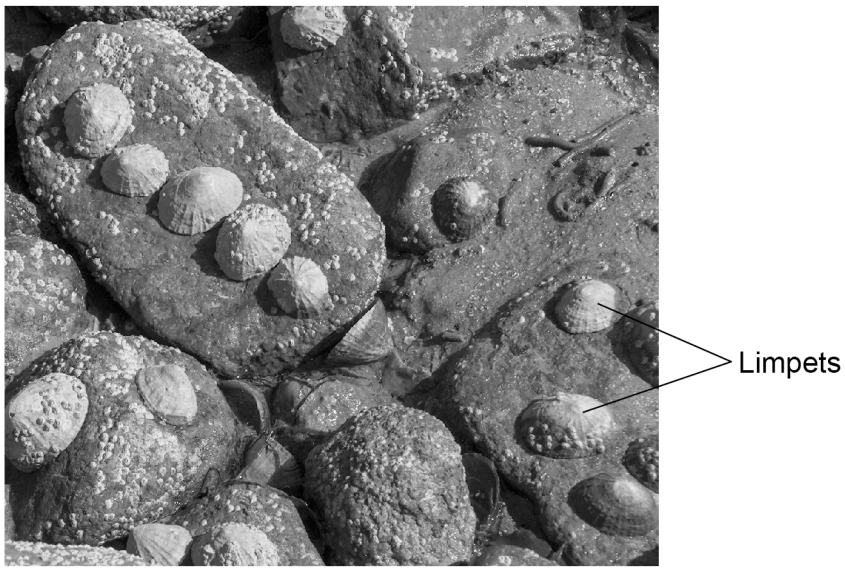
Question 03

0 1 Limpets are small animals with shells.

Limpets attach to rocks on sea shores.

Figure 1 shows limpets on rocks.

Figure 1



0 1 . 1 Limpets eat algae.

Limpets are prey for crabs.

Give the food chain for algae, crabs and limpets.

[1 mark]

Question 1 continues on the next page

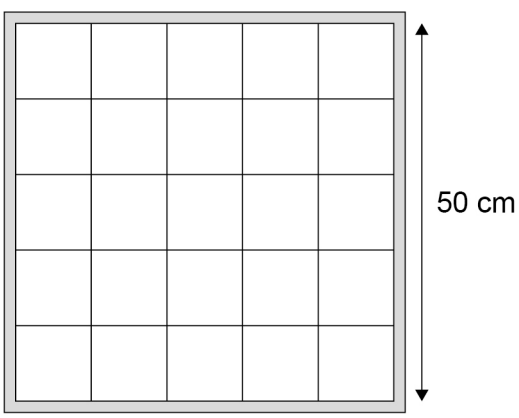
Question 03 · continued

Students estimated the population of limpets on a sea shore.

The students were given a square quadrat.

Figure 2 shows the quadrat.

Figure 2



0 1 . 2 Calculate the area of the quadrat in m^2.

[2 marks]

Area of quadrat = _____ m^2

Question 03 · continued

0 1 . 3 The total area of the sea shore was 1800 m^2.

The students sampled 2% of the total area of the sea shore.

Calculate the number of times the students needed to use the quadrat for the 2% sample.

Use your answer from Question **01.2**

[2 marks]

Number of times = _____

0 1 . 4 Explain why throwing a quadrat is **not** a random method to estimate population size.

Do **not** refer to safety in your answer.

[2 marks]

Question 1 continues on the next page

4.7.3.2 Waste management

Question 03 · continued

0 1 . 5 Describe **one** method the students could use to plan where the quadrat should be randomly placed each time.

[2 marks]

0 1 . 6 Suggest **one** hazard the students should be aware of when collecting data on the sea shore.

Do **not** refer to throwing quadrats in your answer.

[1 mark]

0 1 . 7 Populations of limpets are monitored to assess the impact of pollution in water.

Suggest **one** type of pollution in water that may affect the population of limpets.

[1 mark]

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4.7.3.2 Waste management

Question 04

0 5 Otters are mammals that live in river ecosystems.

Figure 5 shows an otter.

Figure 5



0 5 . 1 Define the term 'ecosystem'.

[1 mark]

4.7.3.2 Waste management

Question 04 · continued

0 5 . 2 Otters are an important species for the stability of the river community.

Describe **two** ways animal species may be important for the stability of a whole community.

[2 marks]

1 _____

_____

2 _____

_____

Question 5 continues on the next page

Question 04 · continued

Sewage was accidentally added to a river.

The sewage moved with the river water and affected:

- the number of bacteria in the water
- the concentration of dissolved oxygen in the water.

Samples of river water were analysed at different distances from where the sewage was added.

Table 2 shows the results.

Table 2

Distance from where sewage was added in km	Number of bacteria × 1000/mm^3	Concentration of dissolved oxygen in mg/dm^3
0.0	4	5.4
1.0	75	4.8
2.0	125	4.3
3.0	145	3.8
4.0	160	3.3
5.0	216	2.7

0 5 . 3 The number of bacteria at 5.0 km was greater than the number of bacteria where the sewage was added.

Calculate how many times greater.

[1 mark]

Number of times greater = _____

4.7.3.2 Waste management

Question 04 · continued

0 5 . 4 A student concluded:

'number of bacteria ∝ concentration of dissolved oxygen'

Explain why the student's conclusion is **not** correct.

Use **Table 2**.

[2 marks]

0 5 . 5 Otters:

- live in water and on the land
- eat mainly fish.

The concentration of dissolved oxygen has decreased in a river where otters live.

Explain how the decrease in the concentration of dissolved oxygen in the river water will affect the population of otters.

[3 marks]

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