AQA GCSE Combined Science - Trilogy | 8464

SPECIFICATION POINT 4.6.3.3

Extinction

Past-paper questions

Tier	**Higher**
Question groups	**3**
Available paper years	**2020–2025**

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.

4.6.3.3 Extinction

Question 01

November 2020 | 8464/B/2H | Original Q6

0 6 Scientists believe that the first life on Earth was primitive anaerobic bacteria which first appeared billions of years ago.

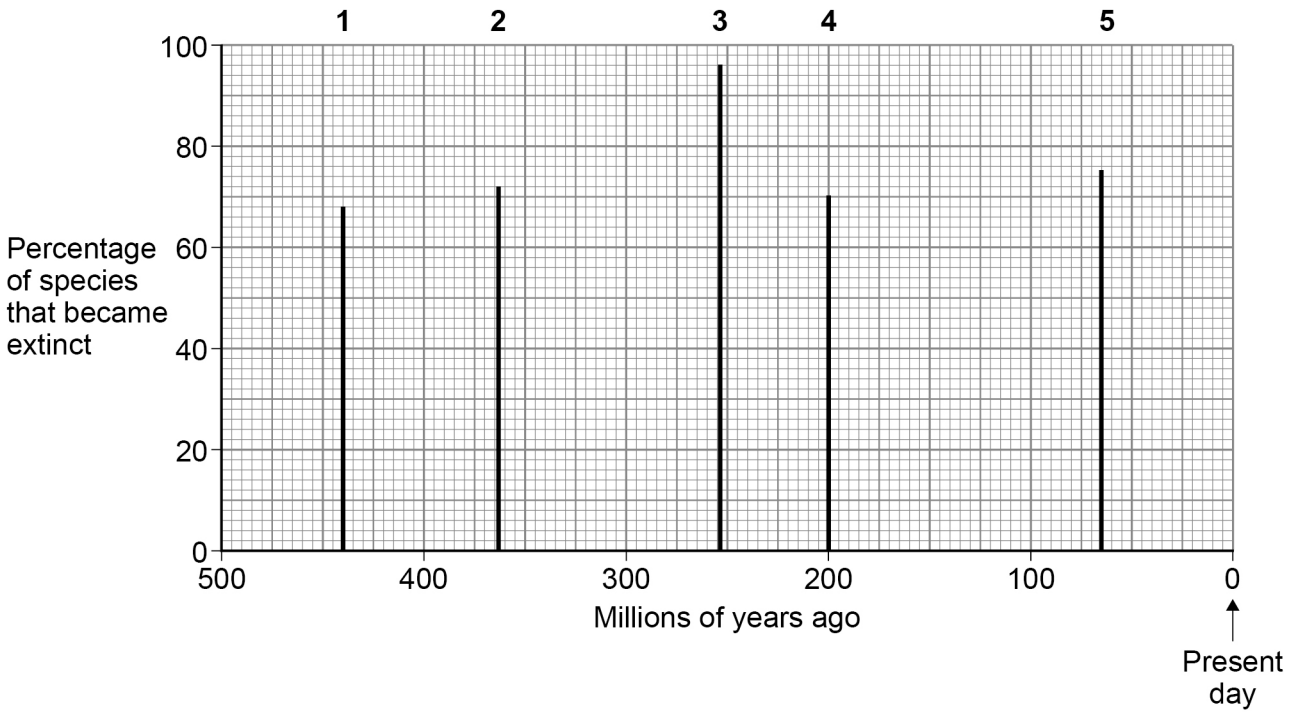
0 6 . 1 Which domain of the three-domain classification system do these primitive anaerobic bacteria belong to?

[1 mark]

Scientists have identified five periods of mass extinction since the fossil record began.

Figure 6 shows the timeline of the five mass extinction events.

Figure 6



0 6 . 2 Ammonites were organisms that first appeared in the oceans 415 million years ago.

Ammonites disappeared in the 5th mass extinction.

Draw a horizontal line on **Figure 6** to show the time period that ammonites existed on Earth.

Label the line 'ammonites'.

[1 mark]

4.6.3.3 Extinction

Question 01 · continued

0 6 . 3 Another type of organism that existed in the oceans was called trilobites.

Trilobites existed from 544 million years ago until 278 million years ago.

How many more years did ammonites exist than trilobites?

[2 marks]

_____ years

0 6 . 4 There was an increase in the percentage of species which became extinct in the third mass extinction compared to the first mass extinction.

Calculate the percentage increase.

[3 marks]

Percentage increase = _____ %

7

4.6.3.3 Extinction

Question 02

0 2 It is estimated that 99.9% of all species that have ever existed are now extinct.

0 2 . 1 Why is the percentage of species that are extinct only an estimate?

[1 mark]

Tick (✓) **one** box.

All individuals of one species have the same genes. ☐

Extinction is always caused by humans. ☐

Humans have not found evidence of every species. ☐

0 2 . 2 What evidence is used to study species that have become extinct?

[1 mark]

4.6.3.3 Extinction

Question 02 · continued

0 2 . 3 A bacterium called *Clostridioides difficile* (*C. difficile*) can infect the human digestive system.

C. difficile can multiply and produce toxins. The toxins cause diarrhoea.

Doctors are concerned that new strains of *C. difficile* may evolve. Antibiotics may **not** be able to kill these new strains.

Explain how the evolution of antibiotic resistant *C. difficile* can be slowed down.

[6 marks]

8

4.6.3.3 Extinction

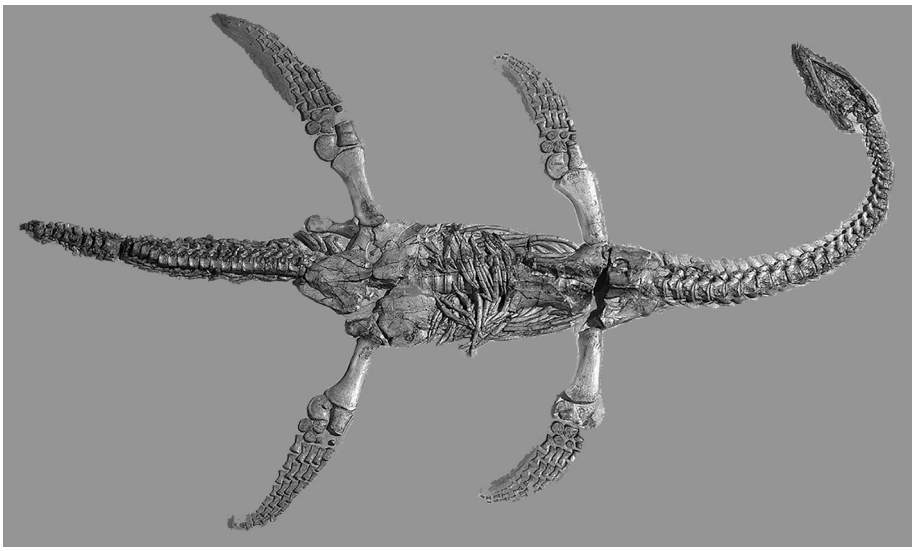
Question 03

June 2025 | 8464/B/2H | Original Q5

0 5 Plesiosaurs are extinct reptiles that lived in the ocean.

Figure 5 shows a fossil of a plesiosaur.

Figure 5



0 5 . 1 Plesiosaurs may have moved rapidly upwards to hold their heads above the water surface to search for prey.

What **type** of adaptation was the rapid upwards movement?

[1 mark]

0 5 . 2 Give **two biotic** factors that may have caused the extinction of plesiosaurs.

[2 marks]

1

2

4.6.3.3 Extinction

Question 03 · continued

0 5 . 3 Describe how the plesiosaur fossil in **Figure 5** could have been formed.

[3 marks]

0 5 . 4 Scientists use fossils to study evolution.

Suggest **two** reasons why scientists **cannot** study the mutations involved in the evolution of plesiosaurs.

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

[2 marks]

1

2

4.6.3.3 Extinction

0 5 . 5 **Table 1** shows part of the classification of a plesiosaur.

Complete **Table 1**.

[2 marks]

Table 1

Classification group	Name
Domain	
Kingdom	Animalia
	Chordata
Class	Reptilia
	Plesiosaur
	Cryptoclididae
Genus	Cryptoclidus
Species	eurymerus

0 5 . 6 Give the binomial name of the plesiosaur in **Table 1**.

[1 mark]

_____

11