AQA GCSE Biology | 8461

SPECIFICATION POINT 4.7.1.1

Communities

Past-paper questions

Tier	**Foundation**
Question groups	**10**
Available paper years	**2008–2025**

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.

4.7.1.1 Communities

Question 01

November 2008 | BLY1BP | Original Q6 | Legacy

QUESTION SIX

Students investigated competition between cress seedlings.

- Five dishes of different widths were filled with soil to the same depth.
- Six cress seeds were planted, evenly spread out, in each dish.
- The dishes were kept in the same place in a laboratory and the seedlings were watered with the same amount of nutrient solution each day.

The height of each cress seedling was measured after ten days. The results are shown in the table.

Width of dish in cm	Height of cress seedlings in cm						Mean height of cress seedlings in cm
5	7.8	7.3	7.6	7.2	8.0	7.7	7.6
10	7.0	7.0	7.1	6.9	6.9	7.1	7.0
15	6.5	6.7	6.9	6.7	6.6	6.7	6.7
20	6.6	6.3	6.6	6.4	6.5	6.4	6.4
25	6.1	5.9	6.0	6.3	6.1	6.2	6.1

6A Why was the same number of cress seeds planted in each dish?

1 so that the results would be accurate

2 in order to calculate a mean

3 to make the experiment a fair test

4 so that the seeds would not be overcrowded

4.7.1.1 Communities

Question 01 · continued

6B In which dish was there the greatest range of seedling heights?

1 5 cm dish

2 10 cm dish

3 15 cm dish

4 20 cm dish

6C Which pattern is supported by the data in the table?

1 The wider the dish, the taller the cress plants.

2 The narrower the dish, the greater the mass of the cress plants.

3 The narrower the dish, the shorter the cress plants.

4 The narrower the dish, the taller the cress plants.

6D The main reason for the differences in the mean heights of the seedlings was competition for . . .

1 light.

2 nutrients.

3 space.

4 water.

4.7.1.1 Communities

Question 02

June 2009 | BLY1F | Original Q6 | Legacy

6 Swallows and swifts migrate between Britain and South Africa every year.

6 (a) **Photograph 1** shows a swallow.

Photograph 1



Swallows can fly very quickly.

Use information from the photograph to give **one** way in which the swallow is adapted for flying very quickly.

.....

.....

(1 mark)

6 (b) **Photograph 2** shows swifts.

Photograph 2



Swallows and swifts both feed on flying insects.
They both spend the summer in Britain and then migrate to South Africa in the autumn.

Suggest **one** reason why swallows and swifts do not stay in Britain in the winter.

.....

.....

(1 mark)

4.7.1.1 Communities

Question 02 · continued

for mark

6 (c) The table gives data about swallows and swifts.

	Swallows	Swifts
Arrival date in Britain	April	Early May
Leaving date from Britain	October	Early August
Food	Flying insects	Flying insects
Height at which the birds feed	Near ground level	Up to 350m above ground level
Times at which birds feed	Mainly when it is light	Almost 24 hours per day

6 (c) (i) There is very little competition between swallows and swifts for food.

Use information from the table to suggest **two** reasons for this.

1 .....

.....

2 .....

.....

(2 marks)

(Extra space) .....

6 (c) (ii) Swallows and swifts do compete for some factors.

Suggest **one** of these factors.

.....

.....

(1 mark)

5

4.7.1.1 Communities

Question 03

March 2011 | BLY1AP | Original Q7 | Legacy

QUESTION SEVEN

Read this account of a students investigation.

I first tested three drinks, **X**, **Y** and **water**, on two friends, Pete and Raj, to find out which drink was best to use when jogging.

- I tested their reactions using a reaction timer.
- They jogged for 30 minutes, during which they drank 1 dm^3 of drink **X**.
- I then tested their reactions again in the same way.

After they had rested, they did the complete test again:

- with drink **Y**
- then with **water**
- then with **no drink**.

7A How could the student have improved his investigation?

1 by getting the two friends to jog for 1 hour

2 by testing ten friends

3 by using five different drinks

4 by asking the two friends to drink 2 dm^3 of each drink

The student's results are shown in the table.

	Reaction time in seconds				
	Before jogging	**Drink X**	**Drink Y**	**Water**	**No drink**
Pete	1.2	1.3	0.9	1.3	1.6
Raj	1.4	1.5	1.1	1.4	1.7

7B For drink **X**, what is the difference between the reaction times before jogging and after jogging?

1 0.1 seconds

2 0.2 seconds

3 0.3 seconds

4 0.4 seconds

4.7.1.1 Communities

7C Using these results, which is the best advice for people running in a competitive race?

1 do not drink at all

2 use drink **X**

3 use drink **Y**

4 drink only **water**

7D Sports drinks should contain ions to replace those lost mainly by . . .

1 breathing.

2 eating.

3 sweating.

4 urinating.

Turn over for the next question

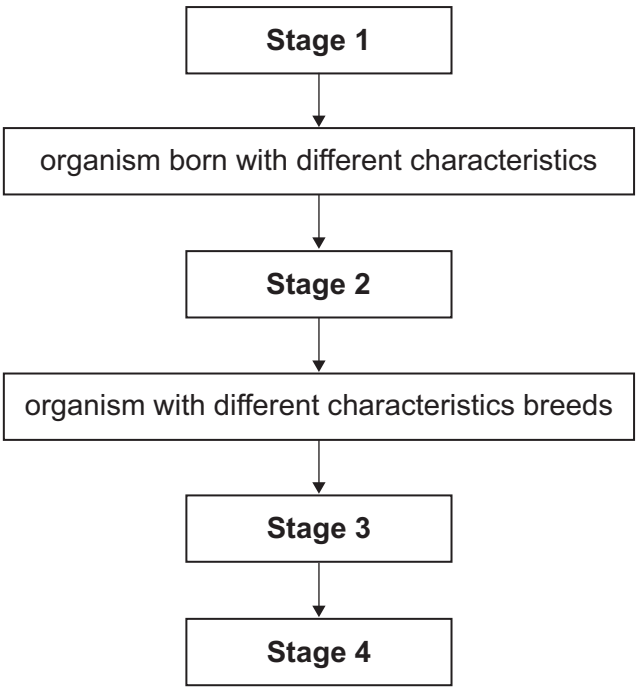
4.7.1.1 Communities

Question 04

March 2011 | BLY1BP | Original Q4 | Legacy

QUESTION FOUR

The diagram shows a flow chart for evolution.



Match stages of evolution, **A**, **B**, **C** and **D**, with the stages **1**–**4** in the flow chart.

A the organism is now a better competitor

B the mutated gene is passed on to offspring

C a gene mutates

D a new species is produced

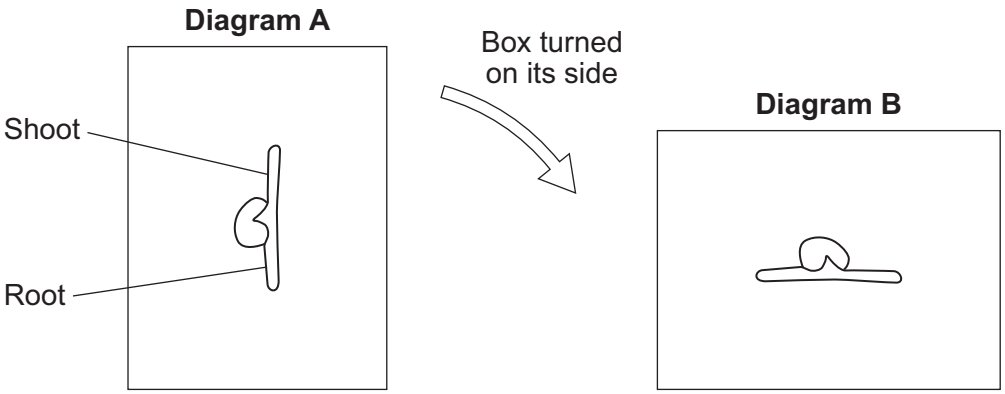
4.7.1.1 Communities

Question 05

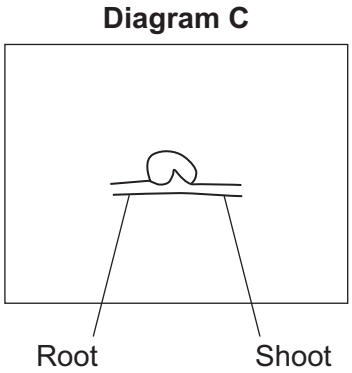
January 2012 | BL1FP | Original Q2 | Legacy

2 A student investigated growth responses in plants.

The student grew a bean seed in a box filled with moist soil, as shown in **Diagram A**. After the seed had started to grow, the box was turned onto its side and placed in a dark room, as shown in **Diagram B**.



2 (a) Complete **Diagram C** to show what the root and shoot will look like three days later.



(2 marks)

2 (b) Draw a ring around the correct answer to complete the sentence.

The results of the investigation show that the root is sensitive to

light.

moisture.

gravity.

(1 mark)

4.7.1.1 Communities

Question 05 · continued

2 (c) A hormone in the plant causes the growth responses.

What is the name of this hormone?

Tick (✓) **one** box.

Auxin ☐

Statin ☐

Steroid ☐

(1 mark)

2 (d) Gardeners can use some plant hormones as weed killers.

2 (d) (i) Give **one different** use of plant hormones by gardeners.

.....

.....

(1 mark)

2 (d) (ii) Selective weed killers only kill some plants in a garden.

Killing weeds in a garden reduces competition between plants.

Give **three** factors that plants compete for.

1 .....

2 .....

3 .....

(3 marks)

8

4.7.1.1 Communities

Question 06

June 2014 | BL1FP | Original Q9 | Legacy

9 **In this question you will be assessed on using good English, organising information clearly and using specialist terms where appropriate.**

Animals and plants have features (adaptations) that allow them to survive in the conditions in which they normally live.

Describe how animals and plants are adapted to survive in dry conditions such as deserts.

For each adaptation that you give, describe how the adaptation helps the animal or plant to survive in dry conditions.

To obtain full marks you should refer to **both** animals and plants.

[6 marks]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Extra space .....

.....

.....

.....

.....

.....

.....

6

4.7.1.1 Communities

Question 07

0 7 Living organisms can be classified into groups.

Trilobites are animals that lived in the sea 400 to 500 million years ago.

Table 3 gives the classification of two species of trilobite.

Table 3

Classification group	Trilobite A	Trilobite B
	Animalia	*Animalia*
Phylum	*Arthropoda*	*Arthropoda*
Class	*Trilobita*	*Trilobita*
Order	*Ptychopariida*	*Ptychopariida*
Family	*Alokistocaridae*	*Marjumiidae*
	Elrathia	*Modocia*
Species	*kingii*	*typicalis*

0 7 . 1 Complete **Table 3**.

[2 marks]

Choose answers from the box.

Community	**Genus**	**Kingdom**	**Mammal**	**Population**

4.7.1.1 Communities

Question 07 · continued

0 7 . 2 Which scientist invented the classification system given in **Table 3**?

[1 mark]

Tick (✓) **one** box.

Darwin ☐

Lamarck ☐

Linnaeus ☐

Mendel ☐

0 7 . 3 What is the binomial name of trilobite **A**?

Use information from **Table 3**.

[1 mark]

Tick (✓) **one** box.

Arthropoda kingii ☐

Elrathia kingii ☐

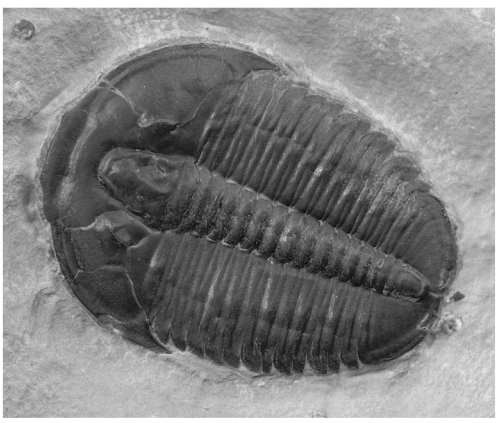
Trilobita kingii ☐

Question 7 continues on the next page

Figure 10 shows fossils of the two species of trilobite.

Figure 10

Trilobite A



Trilobite B

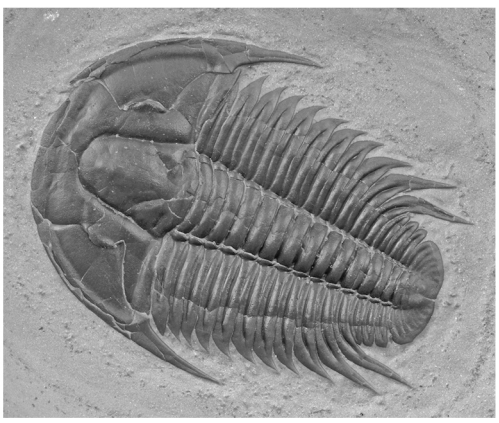
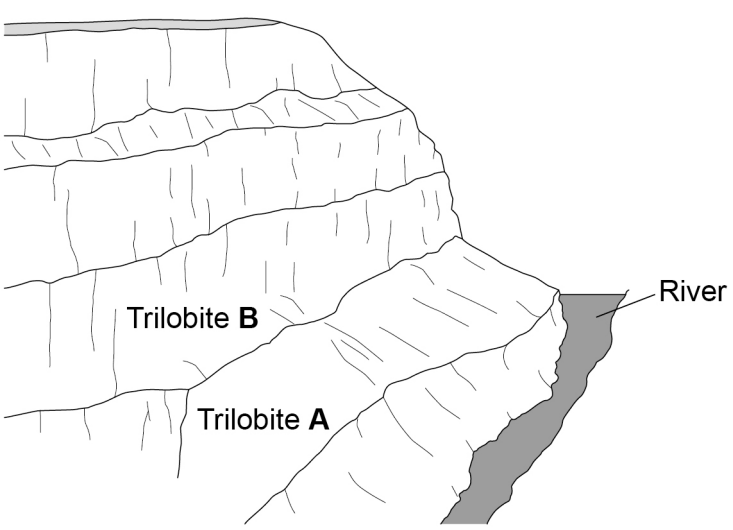


Figure 11 shows:

- layers of rock in a cliff
- where the trilobite fossils were found.

Figure 11



4.7.1.1 Communities

Question 07 · continued

A scientist made the hypothesis:

'Trilobite **B** may have evolved from trilobite **A**.'

0 7 . 4 What **two** pieces of evidence from **Figure 10** and **Figure 11** support the scientist's hypothesis?

[2 marks]

Tick (✓) **two** boxes.

Trilobite **A** and trilobite **B** were in the same type of rock. ☐

Trilobite **A** was found in older rocks than trilobite **B**. ☐

Trilobite **B** has a smaller mass than trilobite **A**. ☐

Trilobite **B** is a different colour from trilobite **A**. ☐

Trilobite **B** is more complex than trilobite **A**. ☐

0 7 . 5 Trilobites are animals that lived in the sea.

Complete the sentences about how the fossils of trilobites **A** and **B** were formed.

Choose answers from the box.

[3 marks]

acids	**bones**	**hard parts**	**minerals**
rocks	**sediments**	**soft parts**	

The animal dies and falls to the sea bed.

The animal is buried in _____.

The _____ of the animal decay.

The remains which do **not** decay are replaced by _____.

4.7.1.1 Communities

Question 07 · continued

0 7 . 6 Trilobites **A** and **B** are now extinct.

Give **three** possible causes of extinction.

[3 marks]

1 _____

_____

2 _____

_____

3 _____

_____

0 7 . 7 Suggest **one** reason why scientists **cannot** be sure what caused the trilobites to become extinct.

[1 mark]

_____

_____

13

4.7.1.1 Communities

Question 08

0 7 Many different species can live together in the same habitat.

0 7 . 1 What name is given to all of the organisms living in the same habitat?

[1 mark]

Tick (✓) **one** box.

- A community ☐
- A food chain ☐
- A population ☐
- An ecosystem ☐

Question 7 continues on the next page

4.7.1.1 Communities

Question 08 · continued

Figure 12 shows four species of bird from the same habitat in the UK.

Figure 12



Brambling (*Fringilla montifringilla*)



Bullfinch (*Pyrrhula pyrrhula*)



Chaffinch (*Fringilla coelebs*)



Goldfinch (*Carduelis carduelis*)

4.7.1.1 Communities

Question 08 · continued

0 7 . 2 Which species of bird in **Figure 12** do scientists think are most closely related?

[1 mark]

Tick (✓) **one** box.

- Brambling and chaffinch ☐
- Brambling and goldfinch ☐
- Bullfinch and chaffinch ☐
- Bullfinch and goldfinch ☐

0 7 . 3 Scientists think the brambling and the bullfinch belong to different species.

What evidence is used by scientists to classify the brambling and the bullfinch as different species?

[1 mark]

Tick (✓) **one** box.

- The brambling and the bullfinch are different sizes. ☐
- The brambling and the bullfinch cannot breed together to give fertile offspring. ☐
- The brambling and the bullfinch live in different parts of the habitat. ☐
- The brambling eats mainly seeds and the bullfinch eats mainly insects. ☐

Question 7 continues on the next page

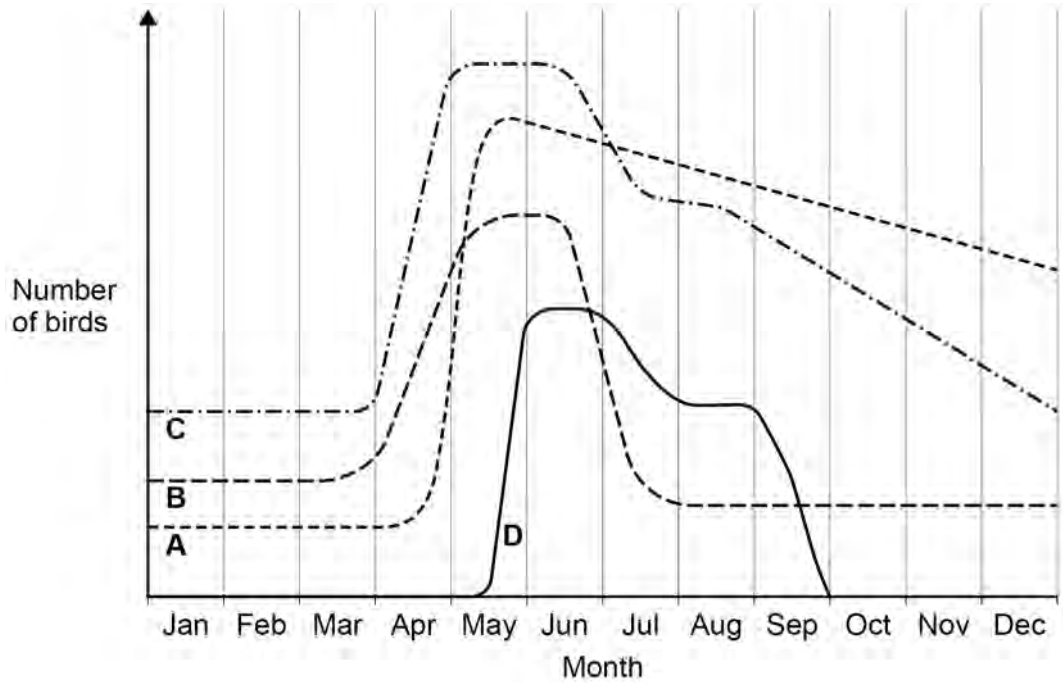
4.7.1.1 Communities

Question 08 · continued

Four other species of bird (**A**, **B**, **C** and **D**) live in a habitat in the UK.

Figure 13 shows how the numbers of each species of bird varied during one year.

Figure 13



Use information from **Figure 13** to answer Questions **07.4** to **07.6**

0 7 . 4 Describe what happens to the number of birds of species **A** during the year.

[3 marks]

4.7.1.1 Communities

Question 08 · continued

0 7 . 5 In June and July, a disease affected the populations of some of the species.

Which species had the **lowest** resistance to the disease?

[1 mark]

Tick (✓) **one** box.

A ☐ **B** ☐ **C** ☐ **D** ☐

0 7 . 6 One species migrates between the UK and other countries.

Which species migrates between the UK and other countries?

Give a reason for your answer.

[1 mark]

Species _____

Reason _____

_____

_____

8

4.7.1.1 Communities

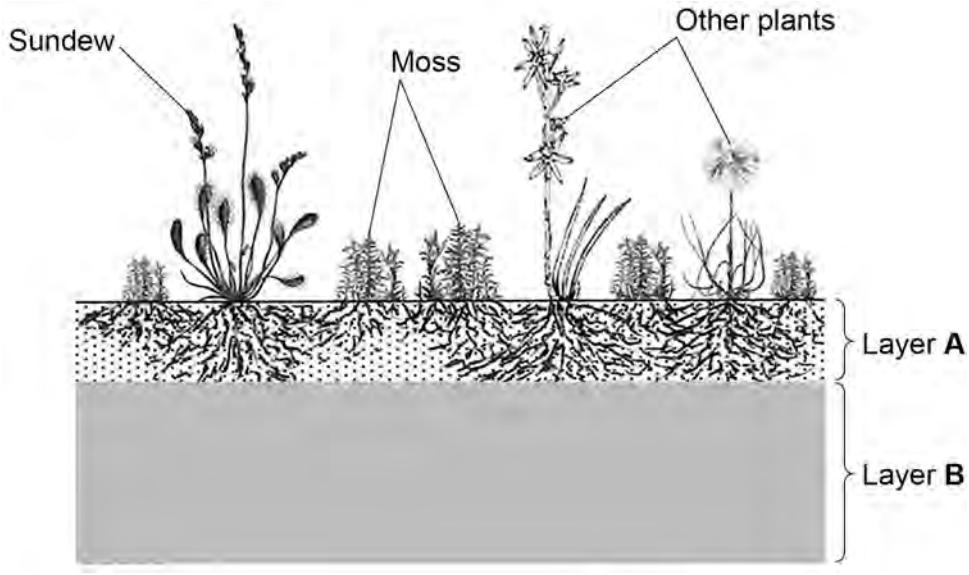
Question 09

June 2024 | 8461/2F | Original Q10

1 0 Peat bogs are estimated to contain twice as much carbon as all the world's forests.

Figure 13 shows a section through part of a peat bog.

Figure 13



Layer **A** contains a lot of air.

Layer **B**:

- contains the dead remains of plants
- has a low pH
- contains very little oxygen
- contains carbon dioxide and methane.

4.7.1.1 Communities

Question 09 · continued

1 0 . 1 Explain why most of the dead remains of plants in layer **B** do **not** decay.

[3 marks]

1 0 . 2 The peat bog in **Figure 13** is a stable community.

The moss produces biomass at a rate of 340 g/m^2/year.

What is the approximate biomass of the moss that becomes biomass in primary consumers?

[1 mark]

Tick (✓) **one** box.

- 0.34 g/m^2/year ☐
- 3.4 g/m^2/year ☐
- 34 g/m^2/year ☐
- 340 g/m^2/year ☐

Question 10 continues on the next page

4.7.1.1 Communities

Question 09 · continued

The sundew plant shown in **Figure 13** on page 38 has leaves with sticky hairs that trap and digest insects.

Digestion of the insects releases phosphates and simple compounds of nitrogen that are used by the sundew plant.

1 0 . 3 What substance can the sundew plant make using the **phosphates**?

[1 mark]

Tick (✓) **one** box.

- Cellulose ☐
- DNA ☐
- Glycerol ☐
- Starch ☐

1 0 . 4 What substance can the sundew plant make using the **nitrogen**?

[1 mark]

Tick (✓) **one** box.

- Fatty acid ☐
- Glucose ☐
- Lactic acid ☐
- Protein ☐

4.7.1.1 Communities

Question 09 · continued

1 0 . 5 Humans have destroyed large areas of peat bog to collect peat.

The peat provides fuel and provides compost for gardeners to use.

The peat comes from layer **B** in **Figure 13** on page 38.

Layer **B**:

- contains the dead remains of plants
- has a low pH
- contains very little oxygen
- contains carbon dioxide and methane.

Figure 14 shows the removal of peat from a peat bog.

Figure 14



Explain how the destruction of peat bogs and the use of peat affects the temperature of the Earth's atmosphere.

[4 marks]

10

4.7.1.1 Communities

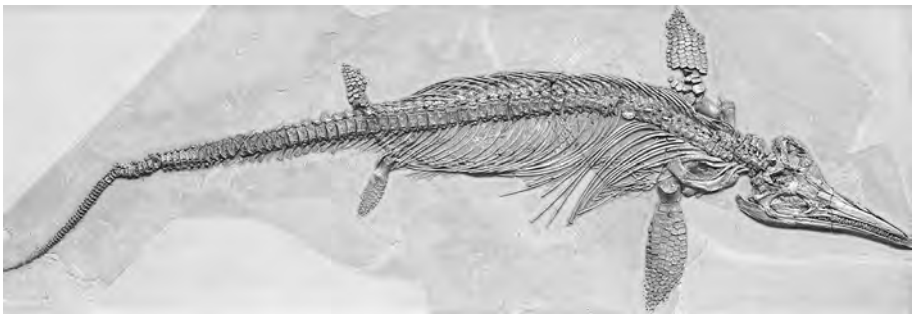
Question 10

June 2025 | 8461/2F | Original Q8

0 8 Ichthyosaurs are reptiles that lived in the sea millions of years ago.

Figure 13 shows the fossilised remains of an ichthyosaur.

Figure 13



0 8 . 1 Suggest how the fossil in **Figure 13** was formed after the ichthyosaur died.

[2 marks]

0 8 . 2 The length of the image of the ichthyosaur in **Figure 13** is 120 mm.

The real length of the ichthyosaur was 17 times longer than the image in **Figure 13**.

Calculate the real length of the ichthyosaur.

Give your answer in metres.

[3 marks]

Real length of ichthyosaur = _____ metres

Question 10 · continued

0 8 . 3 **Table 5** gives the classification of the ichthyosaur in **Figure 13**.

Table 5

Classification group	Name
Kingdom	Animalia
	Chordata
Class	Reptilia
Order	Ichthyosauria
	Ichthyosauridae
Genus	Ichthyosaurus
Species	intermedius

Complete **Table 5**.

[2 marks]

Choose answers from the box.

Community	Family	Mammal	Phylum	Population

0 8 . 4 Ichthyosaurs were predators.

Ichthyosaurs are now extinct.

Scientists think that extinction of the ichthyosaurs was caused by increased competition with other predators for food.

Suggest **two other** possible causes of extinction of the ichthyosaurs.

[2 marks]

1 _____

_____

2 _____

_____

9