AQA GCSE Biology | 8461

SPECIFICATION POINT 4.6.3.2

Speciation (biology only)

Past-paper questions

Tier	**Foundation**
Question groups	**6**
Available paper years	**2009–2024**

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.

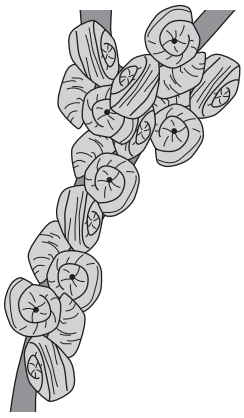
4.6.3.2 Speciation (biology only)

Question 01

June 2009 | BLY1BP | Original Q3 | Legacy

QUESTION THREE

Banded snails live in woodland and grassland.



Match words, **A**, **B**, **C** and **D**, with the numbers **1–4** in the sentences.

A evolution

B mutation

C selection

D variation

Banded snails have a wide range of different colours on their shells.

This wide range of colours is an example of . . . **1** . . . .

A change in a gene that gives a different colour is caused by . . . **2** . . . .

Birds only eat certain coloured snails. This is an example of . . . **3** . . . .

Over a long period of time, new species of snails develop. This is an example of . . . **4** . . . .

4.6.3.2 Speciation (biology only)

Question 02

March 2010 | BLY1BP | Original Q6 | Legacy

QUESTION SIX

Evolution may result in entirely new species over a period of time.

6A Simple life forms first evolved about . . .

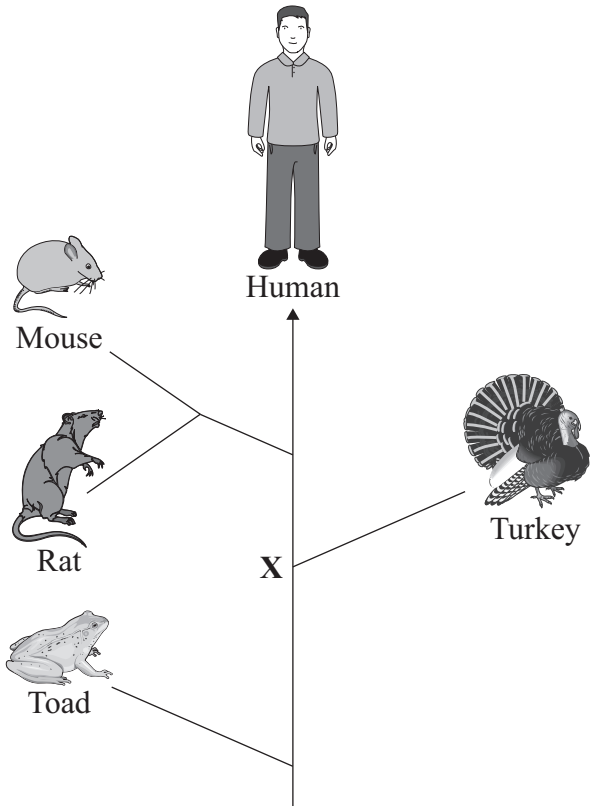
1 3 hundred years ago.

2 3 thousand years ago.

3 3 million years ago.

4 3 billion years ago.

The diagram shows an evolutionary tree.



4.6.3.2 Speciation (biology only)

Question 02 · continued March 2010 | BLY1BP | Original Q6 | Legacy

6B The differences between the rat and the mouse are due to differences in their . . .

1 genes.

2 environment.

3 survival.

4 food.

6C The point labelled **X** represents a common ancestor for . . .

1 turkey, human, mouse and rat.

2 toad, turkey, rat and mouse.

3 toad, human, rat and mouse.

4 turkey, toad, human and rat.

6D The two animals on this diagram that are most closely related are the . . .

1 mouse and rat.

2 turkey and toad.

3 human and mouse.

4 rat and turkey.

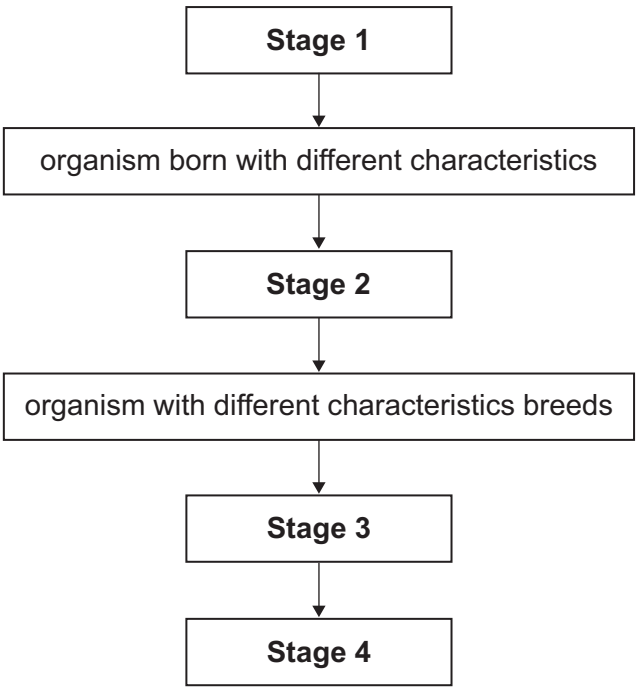
4.6.3.2 Speciation (biology only)

Question 03

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

4.6.3.2 Speciation (biology only)

Question 04

June 2011 | BLY1BP | Original Q8 | Legacy

QUESTION EIGHT

There are only a few unmapped and unexplored places on Earth. Scientists looking at satellite images on the internet have discovered a new giant forest area in Mozambique.

The scientists have made the first expedition to this giant forest area in Mozambique.

The scientists discovered several new species.

8A Only in the past 20 years have scientists been able to investigate the distribution of animals and plants by . . .

1 looking for fossil evidence.

2 going on an expedition.

3 searching the internet.

4 doing laboratory experiments.

8B The scientists say that the newly discovered giant forest has 'a very large biodiversity'.

Biodiversity is . . .

1 the total number of plant and animal species in an area.

2 the number of undiscovered plants and animals in the giant forest.

3 the number of plants and animals already known to scientists.

4 the number of plants and animals known to local villagers.

8C Why is it important to maintain a high level of biodiversity?

1 so that the forest is not cut down

2 so that many plant and animal specimens can be collected and stored

3 so that scientists may discover new plants to use as drugs and to use in different ways in the future

4 so that the locations of plants and animals can be recorded

4.6.3.2 Speciation (biology only)

8D Some people think that it was not ethical for scientists to go on the expedition to the giant forest because . . .

1 scientists may discover new species.

2 scientists may help to map the area.

3 scientists may put information about the area's food chains on the internet.

4 scientists may carry new diseases to the people in the area.

Turn over for the next question

4.6.3.2 Speciation (biology only)

Question 05

June 2013 | BL2FP | Original Q2 | Legacy

2 Evolution is the development of new species over time.
Evidence for evolution comes from *fossils*.

2 (a) (i) What is a *fossil*?

.....

.....

.....

.....

(2 marks)

2 (a) (ii) How can fossils give evidence for evolution?

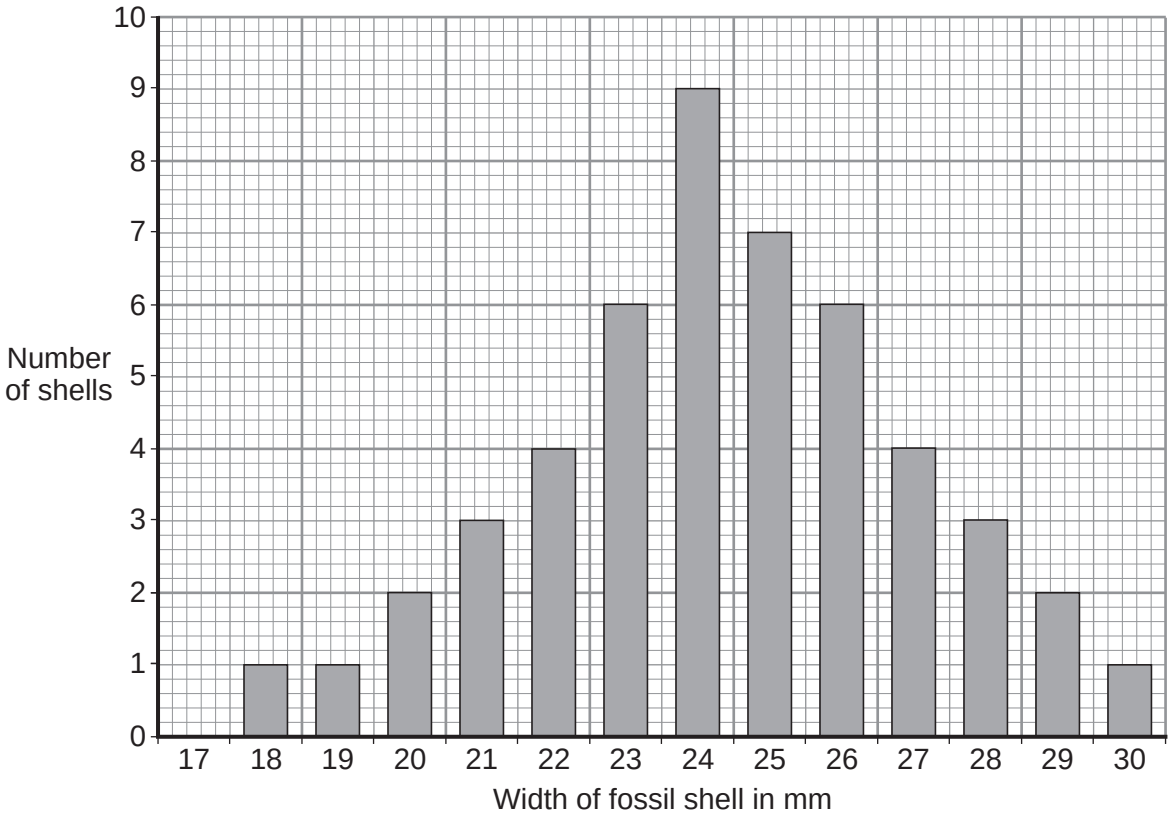
.....

.....

(1 mark)

2 (b) A species of snail lived 400 million years ago.
Scientists measured the width of 49 fossil shells of this snail.

The bar chart shows the scientists' results.



4.6.3.2 Speciation (biology only)

Question 05 · continued

2 (b) (i) What is the range of the values for the width of the fossil shells for this species?

From ..... to .....

(1 mark)

2 (b) (ii) The scientists **cannot** be sure that this is the full range of fossil shell widths for this species.

Why?

.....

.....

(1 mark)

2 (c) This species of snail became extinct 380 million years ago.

Give **one** possible reason why species become extinct.

.....

.....

(1 mark)

6

4.6.3.2 Speciation (biology only)

Question 06

June 2024 | 8461/2F | Original Q9

0 9 Evolution of new species occurs by mutation and natural selection.

0 9 . 1 What is a mutation?

[1 mark]

0 9 . 2 Describe the process of natural selection.

[3 marks]

0 9 . 3 Which scientists suggested the theory of evolution by natural selection?

[1 mark]

Tick (✓) **one** box.

- Alexander Fleming and Carl Woese ☐
- Alfred Wallace and Alexander Fleming ☐
- Alfred Wallace and Charles Darwin ☐
- Charles Darwin and Carl Woese ☐

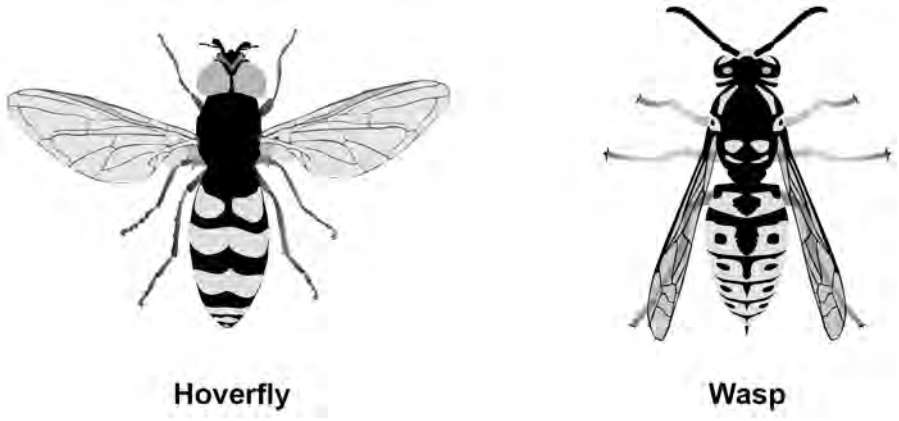
4.6.3.2 Speciation (biology only)

Question 06 · continued

0 9 . 4 The hoverfly and the wasp are insects with bright yellow and black markings.

Figure 12 shows a hoverfly and a wasp.

Figure 12



The wasp has a sting to defend itself against predators.

The hoverfly does **not** have a sting.

Hoverflies and wasps live in the same habitat.

Explain how having yellow and black markings helps the **hoverfly** survive.

[3 marks]

8