

6.3.2 Speciation

AQA GCSE Biology (Higher) Question and answer notes

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How to use these notes

These notes cover everything you need to know for this part of the specification. They have been written in question-answer format to make them easier for you to study from.

In order to study successfully, I recommend you do the following for each question and answer:

- Read it carefully and make sure you **understand** it.
- **Memorise** the answer.
- **Practice** applying your understanding to past exam questions.

A good way to memorise information is to use **retrieval practice**. This is when you practise retrieving information from your memory. You could do this by making a flashcard for each question with the question on one side and the answer on the other. Or you could use a flashcard app. Alternatively, use a sheet of paper to cover up the answer so you can only see the question. Try to answer the question and then check how you did.

You should practise retrieving each answer from your memory until you can do it perfectly. Even once you can retrieve the answer perfectly, your ability to retrieve it will probably fade as time passes without practising. Therefore you will need to keep going back to the questions that you have previously mastered and practising them again. However, each time you re-learn the answer, the memory will be stronger and will last longer than the time before.

What is speciation?

Speciation is the formation of new species.

What are the main steps in speciation?

The main steps in speciation are the following:

- A population of organisms gets split into two populations that live in different locations.
- Each of the two populations evolves by natural selection to be well adapted to its local environment.
- Eventually, the two populations evolve to be so different to each other that they can no longer interbreed to produce fertile offspring. At this point they are two different species.

Which scientist independently proposed the theory of evolution by natural selection at a similar time to Charles Darwin?

Alfred Russel Wallace independently proposed the theory of evolution by natural selection at a similar time to Charles Darwin

What were Alfred Russel Wallace's contributions to the study of evolution?

Alfred Russel Wallace's contributions to the study of evolution were the following:

- He published joint writings about evolution with Charles Darwin in 1858. This prompted Darwin to publish *On the Origin of Species* the following year.
- He worked worldwide to gather evidence for evolutionary theory.
- He studied how warning colouration evolves in animals.
- He developed a theory of speciation.

What has caused the theory of speciation to develop since Alfred Russel Wallace's time?

Alfred Russel Wallace did a lot of pioneering work on speciation. However, since his time a lot more evidence has been gathered. This has caused the theory of speciation to develop.