

# 6.3.4 Evidence for evolution

## AQA GCSE Biology (Higher) Question and answer notes

For more resources, visit [www.mooramo.com](http://www.mooramo.com)

### 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.

### **How widely accepted is the theory of evolution by natural selection by biologists today? Why?**

Today, the vast majority of biologists accept the theory of evolution by natural selection. This is because a very large amount of evidence has been found for the theory since Darwin and Wallace first proposed it.

### **What are the main types of evidence for the theory of evolution by natural selection?**

The main types of evidence for the theory of evolution by natural selection are as follows:

- The fossil record
- The evolution of antibiotic resistance in bacteria
- Our knowledge of genes

### **What are fossils?**

Fossils are the remains of organisms from millions of years ago found in rocks.

### **How does the fossil record provide evidence for the theory of evolution by natural selection?**

The rocks that contain fossils are made up of layers, with each layer containing different types of fossils. The deeper the layer, the longer ago it formed. By comparing the fossils from different layers, it can be seen that organisms have changed over time. This is evidence for evolution.

### **How does the evolution of antibiotic resistance in bacteria provide evidence for the theory of evolution by natural selection?**

Since antibiotics (drugs that kill bacteria) were first introduced, some types of bacteria have become resistant to the antibiotics. This is an example of evolution. Because bacteria evolve very quickly, we have been able to observe this evolution taking place in real time.

### **How does our knowledge of genes provide evidence for the theory of evolution by natural selection?**

It has now been proven that characteristics are passed onto offspring in genes. This shows that there is a mechanism by which natural selection can take place. Therefore, it provides evidence for the theory of evolution by natural selection.