

GCSE Biology Learning Checklist

Unit 6: Inheritance, variation and evolution

Sub-unit: Genetics and Evolution

I can...		After Lesson	After Revision
1	Explain Charles Darwin's theory of Evolution		
2	Explain why the publishing of 'On the Origin of Species' caused controversy and why it was only gradually accepted		
3	Describe Jean-Baptiste Lamarck's theory of acquired characteristics		
4	Recall that Alfred Russel Wallace independently proposed the theory of evolution by natural selection and then published joint writings with Darwin in 1858 which prompted Darwin to publish On the Origin of Species (1859) the following year.		
5	Recall that Wallace worked worldwide gathering evidence for evolutionary theory. He is best known for his work on warning colouration in animals and his theory of speciation.		
6	List the steps which give rise to new species (speciation).		
7	Describe the breeding experiments that Gregor Mendel carried out on plants and state his observations		
8	State that 'units', now called genes, were located on chromosomes.		
9	Recall that in the mid-20th century the structure of DNA was determined and the mechanism of gene function worked out.		
10	Understand how scientific work by many scientists led to the gene theory being developed.		
11	Outline evidence to support Darwin's theory of evolution		
12	Describe how resistance to antibiotics evolves in bacteria.		
12	Define the term 'fossil'		
13	Describe the different ways in which fossils may be formed		
14	Explain why the fossil record is incomplete		

15	Explain how fossils allow us to see how much or how little different organisms have changed as life developed on Earth.		
16	Explain how extinctions occur		
17	Recall that MRSA is resistant to antibiotics.		
18	State how we can reduce the rate of development of antibiotic resistant strains of bacteria		
19	Explain the Linnaean order of classification		
20	Describe binomial system of naming organisms		
21	Explain why the three domain system was developed by Carl Woese		
22	Use evolutionary trees to see how closely related 2 species are.		

Keywords:

Gregor Mendel

Jean-Baptiste Lamarck

Charles Darwin

On the Origin of Species

Evolution

Alfred Russel Wallace

Speciation

Species

Antibiotic resistance

MRSA

Geographical isolation

Reproductive isolation

Fossil

Extinction

Evolutionary tree

Classification

Carl Linnaeus

Binomial name

Domain

Archaea

Bacteria

Eukaryotes

Exam insights:

Remember the common theme in this chapter is that scientific ideas change over time. This is due to increased understanding due to discovery of DNA and the creation of electron microscopes.

The first step in natural selection is always mutation!

To reproduce successfully you must be able to create fertile offspring