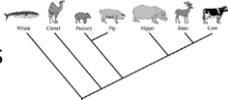


## Key points to learn

1. Darwin's Theory of evolution through natural selection	All living things evolved from simple life forms over 3 billion years ago	
	1. Different phenotypes in species 2. Some phenotypes are better suited to environment 3. Individuals with better suited phenotypes survive and breed 4. Successful phenotypes are passed on to next generation	Mutation of gene
		Better at surviving
		Breed
		Pass on genes
Theory is now widely accepted		
2. Evidence for evolution	1. From looking at fossils 2. Antibiotic resistance in bacteria 3. Understanding of genetics	
3. Fossils	Remains of organisms from millions of years ago found in rocks.	
	Formed by: 1. Conditions needed for decay were not present 2. Parts of organism replaced by minerals as they decayed 3. Preserved traces eg footprints,	
4. Why so few fossils?	Many life forms had soft bodies. Geological activity destroyed some	
5. Extinct	No more surviving individuals of a species	
6. Evolutionary trees	Used to show how we think organisms are related 	

## Key points to learn

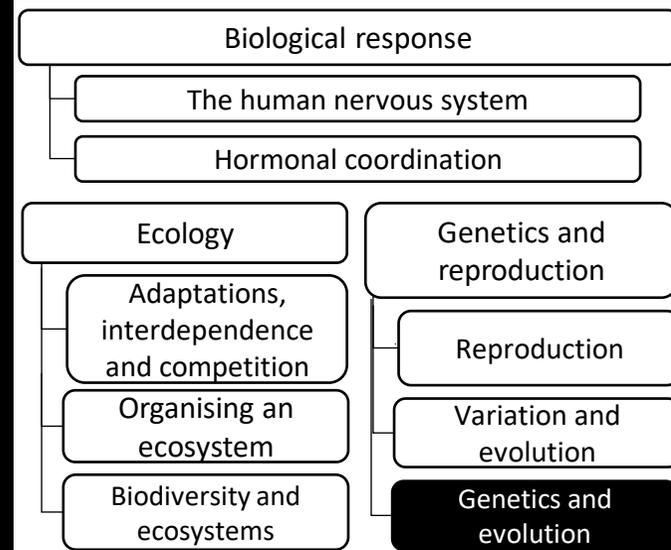
7. Extinction	Permanent loss of all members of a species. Can be caused by: 1. Changes in environment eg climate 2. New predators 3. New diseases 4. New competition eg for food
8. Bacterial evolution	Can evolve quickly as they reproduce at such a fast rate
9. Resistant bacteria	Some bacteria have a mutation that makes them resistant to anti-biotics. This means we cannot kill them
	MRSA is resistant to antibiotics
10. Reducing development of resistant bacteria	1. Humans to not use antibiotics as often 2. Patients should always complete their courses of antibiotics so all bacteria are killed 3. Reduce use of antibiotics in agriculture
11. Developing new antibiotics	Is expensive and slow. It is unlikely to be done quick enough to cope with resistant bacteria
12. Classification	Putting living things into similar groups
13. Linnaean system	Carl Linnaeus's classification system <u>K</u> ingdom; <u>P</u> hylum; <u>C</u> lass; <u>O</u> rders; <u>F</u> amily; <u>G</u> enus; <u>S</u> pecies
	<u>K</u> eeping <u>P</u> recious <u>C</u> reatures <u>O</u> rganised <u>F</u> or <u>G</u> umpy <u>S</u> cientists
14. Three Domain system	Classification developed by Carl Woese. • Archaea – primitive bacteria • Bacteria – true bacteria • Eukaryota – everything else living

## Trilogy B14: Genetics and evolution

Part of: Inheritance, variation and evolution

### Knowledge Organiser

### Big picture (Biology Paper 2)



### Background

Understanding where we come from may be far more useful than satisfying our curiosity. It might help us fight the emergence of antibiotic resistant bacteria - described as one of the greatest current threats to humanity. So what is evolution all about?

