

Year 6, Summer 1: Evolution & Inheritance.

How have living things changed since life on Earth began?

Charles Darwin:
 Born in Shrewsbury in 1809, he spent a lifetime fascinated by natural history. In his book, *On the Origin of the Species*, he provided evidence for evolution & some suggestions about how this worked based on a series of observations from his expedition to the Galapagos Islands.



Key Vocabulary

adaptation		A change that improves the chance of survival and reproduction.
characteristics		The qualities or features that make a living thing recognisable.
extinct		Where there are no living members of a species.
fossil record:		When fossils are analysed & arranged in time order to show change
evolution		Change that takes place over many generations, during which living things change some of their physical characteristics.
genes		The set of instructions that determines the characteristics inherited.
inherit inheritance		The characteristics a living thing is born with because their parents also had them.
natural selection:		The process where organisms that are best suited to their environment survive and pass on their genes in increasing number to successive generations.
Sexual reproduction::		When a male gamete fuses with a female gamete to produce offspring that is similar but not identical.
Variation:		Differences (in characteristics) that arise naturally in a population of living organisms.

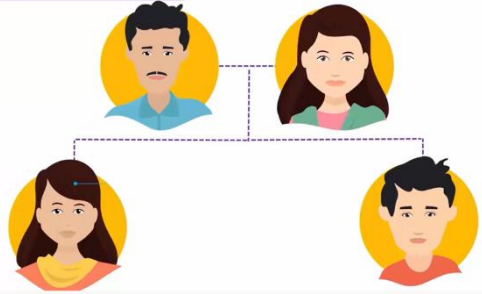
Fossilisation:
 The fossil record tells us how long life has existed on Earth and how different plants & animals are related to each other.
 By studying fossils, scientists can learn about living things that are now extinct & also determine what different environments they lived in.
 The likelihood of fossilisation depends on many factors: the type of animal; where they die; how quickly their bodies are covered with sediment.



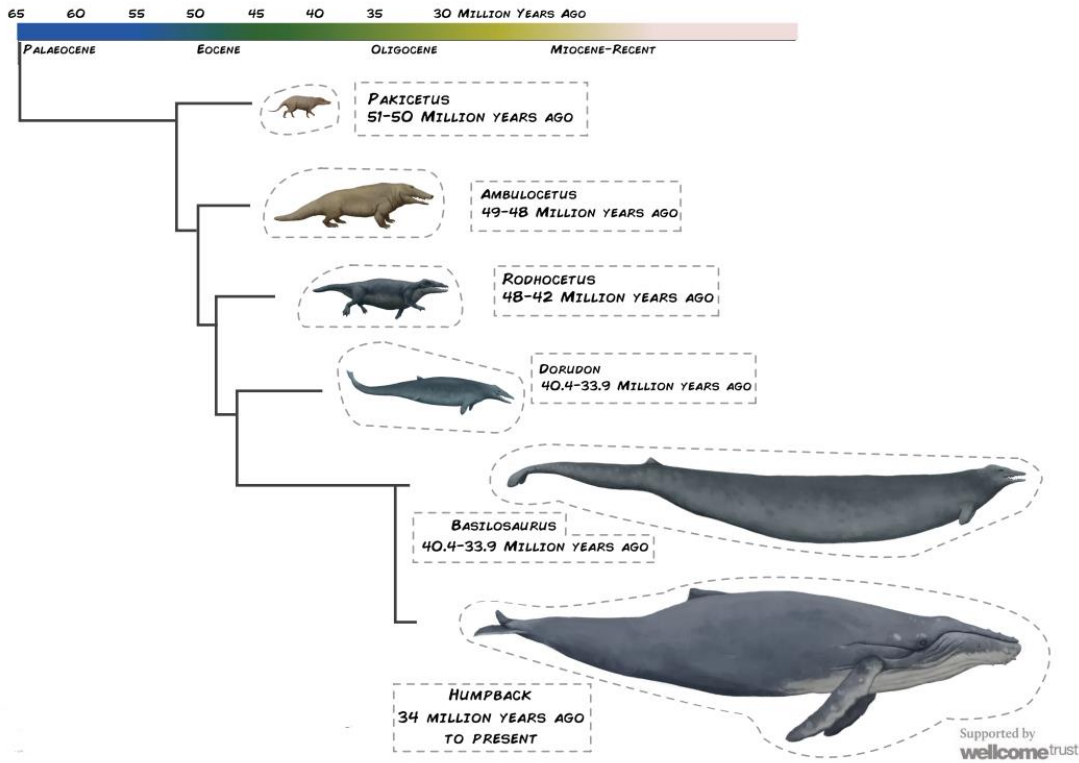
Working Scientifically:

	How and why did the whale evolve from a land-living animal to an ocean dweller? How do we know about living things that are now extinct?
	How does natural selection work in practice?

Hereditary Characteristics



Inheritance:
 When parents have offspring, they pass on traits such as hair texture & colour; eye colour, nose shape, ear shape, height etc. Their offspring look like them but are not identical as some characteristics are passed down from one parent & some from the other.



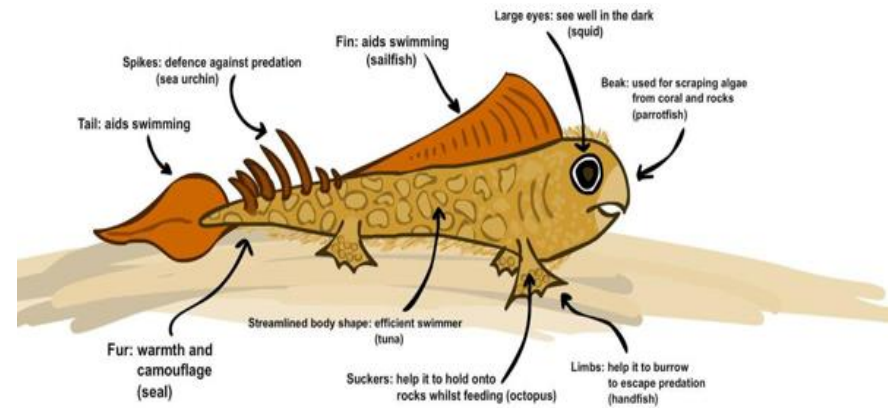
Evolution:

Evolution (such as seen with the whale) is the gradual process by which different kinds of living organism have developed from earlier forms in response to changes in their environment & the adaptations needed to survive these.

Adaptations:

Adaptations are **physical or behavioural characteristics of an animal** that help it to survive in its environment. Living things are adapted to their habitats. This means that they have special features that help them to survive. It's not just animals that are adapted to their environment, plants are too. The animals and plants in one habitat are suited to live there and may not be able to survive in other habitats. When a habitat changes, the animals and plants that live there are affected.

Potential adaptations for a marine animal:



Natural Selection: Natural selection was the term used by Darwin to describe how animal species continue and survive. It is when organisms that are best suited to their environment survive and pass on their genetic traits. The fittest, most adapted organisms survive and multiply while the least adapted die out.

Sometimes, a mistake - **mutation** - occurs during reproduction that makes survival more likely.



Which one of these moths is most likely to survive long enough to reproduce?

Would this be different if a new factory was built and pollution killed all the lichen on the trees?