

Science— Evolution

Key Vocabulary

adaptation	A trait or characteristic that changes to increase the living thing's chances of surviving and reproducing.
characteristics	The distinguishing features or qualities that are specific to a species.
environment	An environment contains many different habitats and includes areas where there are both living and non-living things.
evolution	Adaptation over a long time.
environment	An environment contains many different habitats and includes areas where there are both living and non-living things.
natural selection	The process where organisms that are better adapted to their environment tend to survive and produce offspring.
fossils	The remains or imprint of a prehistoric plant or animal embedded in rock and preserved,
habitat	The specific area or place in which particular animals and plants live.
inheritance	When characteristics are passed on to offspring from its parents.
offspring	The young animal or plant that is produced by the reproduction of that species.
variation	The differences between individuals within a species.

Key Facts

Evolution is the gradual process by which different kinds of living organism have developed from earlier forms over millions of years. Scientists have proof that living things are continuously evolving—even today!

Fossils are preserved remains, or partial remains, of ancient animals and plants. Fossils inform scientists how plants and animals used to look millions of years ago. This is proof that living things have evolved over time.

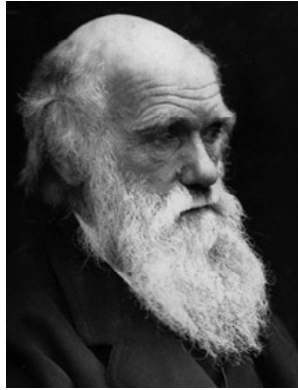
Animals and plants produce offspring that are similar but not identical to them. Offspring often look like their parents because characteristics are passed on.

Some traits and characteristics are inherited. Eye colour is an example of an inherited trait, but so are things like hair colour, the shape of your ears and whether or not you can smell certain flowers.

Some traits are called adaptive traits. These are characteristics influenced by the environment. These adaptations can develop as a result of many things, such as food and climate changes.

Natural selection is part of evolution. Fossils of giraffes from millions of years ago show that they had shorter necks. They have gradually evolved longer necks. This works because the giraffes with the longer necks can reach more food and therefore survive and produce offspring. The offspring in turn have the longer necks. Over time all giraffes have longer necks.

Charles Darwin 1809-1882

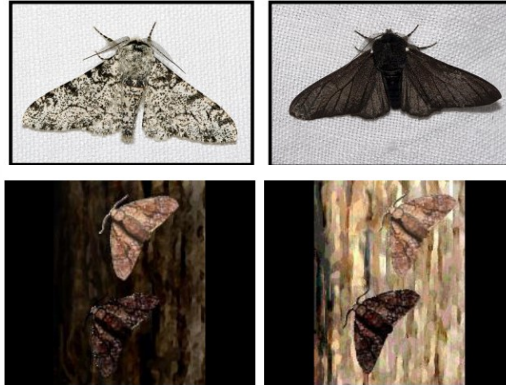


Charles Darwin is most famous for his work on natural selection, the idea that all species of life have evolved over time from common ancestors. This process involves favourable traits becoming more common in successive generations of living things while at the same time unfavourable traits become less common.

He carried out detailed research which included a five year voyage on the HMS Beagle where he visited the Galapagos islands. In 1859 he published a book 'On the Origin of Species'.

Example of natural selection

Peppered moth



The peppered moth is one of the best known examples of evolution by natural selection, Darwin's great discovery, and is often referred to as 'Darwin's moth'.

Where birch trees had turned black with soot and pollution, more of the black moths were present as they camouflaged better. Where birch trees were covered in lichen, there were more white moths.

This proves natural selection because the moths that camouflage better survive and have offspring of the same colour. The ones that do not camouflage are eaten by predators and do not breed.

Examples of adaptation



A jerboa mouse lives in the desert. It can burrow to escape extreme heat and cold. It has large ears to keep it cool and hear predators.

Fish have gills, swim bladders and fins. Gills allow **fish** to breathe underwater, swim bladders help with buoyancy and fins allow the **fish** to move.



Polar bears live in the arctic. They have white fur to help them camouflage in the snow. They have thick fur and a layer of fat to keep them warm.



Fossils

Plant fossil



Ammonite fossil



Plesiosaur fossil



Tier 2

Vocabulary

adapt

To change to fit a new situation.

environment

The surroundings or conditions in which a person, animal, or plant lives.