

Evolution and Inheritance.

Evolution is the process of change to animal and plant species over long periods of time, or how plant species and animals have developed from generation to generation. Plants and animals produce offspring of the same kind. These offspring are similar but not exactly the same as their parents.

Key facts

- All living things have offspring of the same kind; features in the offspring are inherited from the parents.
- Plants and animals have characteristics that make them suited (adapted) to their environments.
- If the environment changes rapidly, some variations of a species may not suit the new environment and will die.
- If an environment changes slowly, animals and plants with variations that are best suited survive in greater numbers to reproduce and pass their characteristics on to their young.
- Over a long period of time, these inherited characteristics become more dominant within the population.
- Over a very long period of time, these characteristics may be so different to how they were originally that a new species is created. This is evolution.
- Fossils give us evidence of what lived on Earth millions of years ago and provide evidence to support the theory of Evolution.

Mary Anning

Mary Anning was an English fossil collector, dealer and palaeontologist who became known around the world for important finds she made in Jurassic marine fossil beds in the cliffs along the English Channel. When she was just 12, they discovered the skull of a mysterious creature poking out from a cliff. They thought it might be a crocodile, but what she had discovered was actually an ancient reptile called an ichthyosaur (which means 'fish lizard'). Today, Mary is remembered as one of the greatest fossil hunters to have ever lived.



Key Vocabulary

Adapted	If something is adapted to a particular situation or purpose, it is especially suitable for it.
Ancestor	Your ancestors are the people from whom you are descended.
Characteristic	The characteristics of a person or thing are the qualities or features that belong to them and make them recognisable.
Common	If something is common to two or more people or groups, it is done, possessed, or used by them all.
Evolution	Evolution is a process of gradual change that takes place over many generations, during which species of animals, plants, or insects slowly change some of their physical characteristics.
Extinction	The extinction of a species of animal or plant is the death of all its remaining living members.
Fossils	A fossil is the hard remains of a prehistoric animal or plant that are found inside a rock.
Generation	A generation is all the people in a group or country who are of a similar age, especially when they are considered as having the same experiences or attitudes.
Habitat	The habitat of an animal or plant is the natural environment in which it normally lives or grows.
Mutations	If an animal or plant mutates, or something mutates it, it develops different characteristics as the result of a change in its genes.
Natural selection	Natural selection is a process by which species of animals and plants that are best adapted to their environment survive and reproduce, while those that are less well adapted die out.
Offspring	You can refer to a person's children or to an animal's young as their offspring.
Palaeontologist	A palaeontologist is a scientist who studies fossils.
Population	A population is the number of living things that live together in the same place.
Variation	A variation on something is the same thing presented in a slightly different form.

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Prior Learning

Year 2

- notice that animals, including humans, have offspring which grow into adults

Year 3 Plants:

identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers

- explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant

Year 3 Rocks:

describe in simple terms how fossils are formed when things that have lived are trapped within rock

Year 4 Living things and their habitats:

recognise that environments can change and that this can sometimes pose dangers to living things.

Year 4 Animals including humans

construct and interpret a variety of food chains, identifying producers, predators and prey

Year 5 Living things and their habitats:

describe the life process of reproduction in some plants and animals

Year 5 Animals including humans:

describe the changes as humans develop to old age

Following on:

KS3

- heredity as the process by which genetic information is transmitted from one generation to the next
- a simple model of chromosomes, genes and DNA in heredity, including the part played by Watson, Crick, Wilkins and Franklin in the development of the DNA model differences between species
- the variation between individuals within a species being continuous or discontinuous, to include measurement and graphical representation of variation
- the variation between species and between individuals of the same species means some organisms compete more successfully, which can drive natural selection
- changes in the environment may leave individuals within a species, and some entire species, less well adapted to compete successfully and reproduce, which in turn may lead to extinction
- the importance of maintaining biodiversity and the use of gene banks to preserve hereditary material.

Working Scientifically

Pupils might work scientifically by: observing and raising questions about local animals and how they are adapted to their environment; comparing how some living things are adapted to survive in extreme conditions, for example, cactuses, penguins and camels. They might analyse the advantages and disadvantages of specific adaptations, such as being on two feet rather than four, having a long or a short beak, having gills or lungs, tendrils on climbing plants, brightly coloured and scented flowers.