

-Science Knowledge Organiser

Topic: Evolution and inheritance

Year: 6

Strand: Biology

What should I already know?

Which things are living and which are not.

Identifying animals (e.g. amphibians, reptiles, birds, fish, mammals, invertebrates) and plants using classification keys

Animals that are carnivores, herbivores and omnivores.

Animals have **offspring** which grow into adults.

The basic needs of animals for **survival** (water, food, air)

Some animals have skeletons for support, protection and movement.

Food chains, food webs and the role of predators and prey.

Features of habitats and the animals and plants that exist there (**biodiversity**).

Examples of different **biomes**

The life cycle of some animals and plants

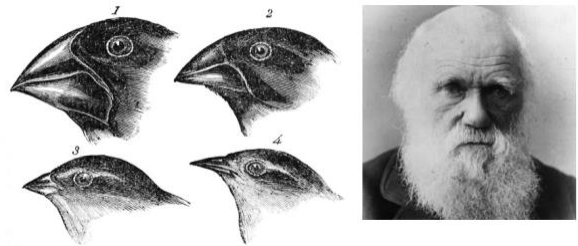
Sometimes **environments** can change and this has an effect on the plants and animals that exist there

Living things **breed** to produce **offspring** which grow into adults. This is called **reproduction**.

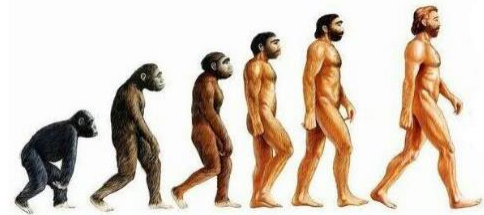
The role of Mary Anning in **palaeontology** and the discovery of **fossils**.

The features of some rocks and the role they play in the formation of **fossils**

Diagram



Charles Darwin, an evolutionary scientist, studied different animal and plant **species**, which allowed him to see how **adaptations** could come about. His work on the finches was some of his most famous.



What will I know by the end of the unit?

What is evolution ?	Evolution is a process of change that takes place over many generations, during which species of animals, plants, or insects slowly change some of their physical characteristics. This is because offspring are not identical to their parents. It occurs when there is competition to survive. This is called natural selection. Difference within a species (for example between parents and offspring) can be caused by inheritance and mutations. Inheritance is when characteristics are passed on from generation to the next. Mutations in characteristics are not inherited from the parents and appear as new characteristics.
How do we know about evolution ?	Evidence of evolution comes from fossils - when these are compared to living creatures from today, palaeontologists can compare similarities and differences. Other evidence comes from living things - comparisons of some species may reveal common ancestors.
What is adaptation ?	Adaptation is when animals and plants have evolved so that they have adapted to survive in their environments. For example, polar bears have a thick layer of blubber under their fur to survive the cold, harsh environment of the Arctic while giraffes have long necks to reach the leaves on trees. Some environments provide challenges yet some animals and plants have adapted to survive there Sometimes adaptations can be disadvantageous. One example of this can be the dodo, which became extinct as it lost its ability to fly through evolution. Flying was unnecessary for the dodo as it had lived for so many years without predators, until its native island became inhabited. When adaptations are more harmful than helpful, these are called maladaptations.

Vocabulary

adaptation	a change in structure or function that improves the chance of survival for an animal or plant within a given environment
ancestor	an early type of animal or plant from which a later, usually dissimilar, type has evolved
biodiversity	a wide variety of plant and animal species living in their natural environment
biome	a large naturally occurring community of animals and plants occupying a major habitat
breeding	the process of producing plants or animals by reproduction
characteristics	the qualities or features that belong to them and make them recognisable
environment	all the circumstances, people, things, and events around them that influence their life
evolution	a process of change that takes place over many generations , during which species of animals, plants, or insects slowly change some of their physical characteristics
extinct	no longer has any living members, either in the world or in a particular place
fossil	the hard remains of a prehistoric animal or plant that are found inside a rock
generation	the act or process of bringing into being; through reproduction , especially of offspring
inherit	If you inherit a characteristic you are born with it, because your parents or ancestors also had it.
maladaptation	the failure to adapt properly to a new situation or environment
mutation	characteristics that are not inherited from the parents or ancestors and appear as new characteristics .
natural selection	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	a person's children or an animal's young
palaeontology	the study of fossils as a guide to the history of life on Earth
reproduction	when an animal or plant produces one or more individuals similar to itself
species	a class of plants or animals whose members have the same main characteristics and are able to breed with each other
survive	continue to exist
theory	a formal idea or set of ideas that is intended to explain something
variation	a change or slight difference

Investigate!

Research the work of Charles Darwin and Alfred Russel Wallace.

Create a fact file of an animal or plant identifying how it has **adapted** to its **environment** and how it has **evolved** to **survive**.

Create a new planet and describe the **environmental** features. What animals and plants can live there? How have they **adapted** to survive?