

Science Knowledge Organiser

Evolution and inheritance

Yr 6

Main Foci: Biology

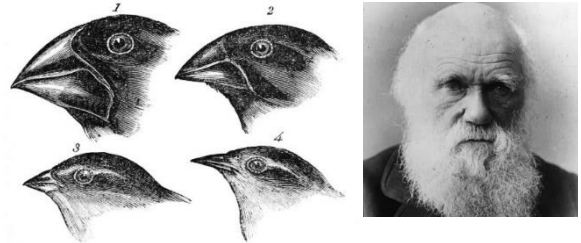
What should I already know?

- 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**

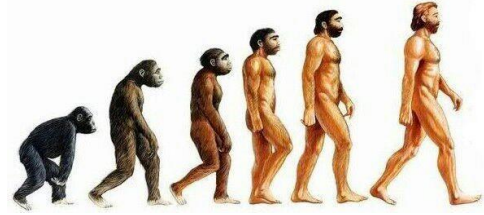
What will I know by the end of the unit?

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| What is evolution ? | <ul style="list-style-type: none"> • 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 ? | <ul style="list-style-type: none"> • 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 ? | <ul style="list-style-type: none"> • 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. |

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.



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 |

