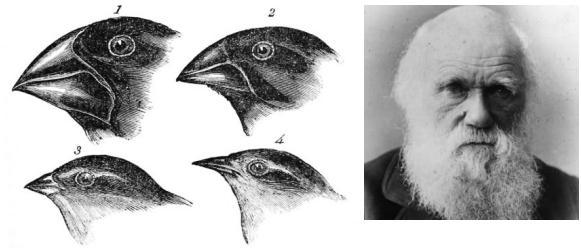




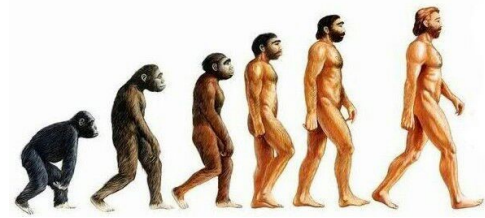
What should I already know?

- 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 ? | <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. |

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?



| | | |
|--|----------------|--------------|
| Question 1: A gradual change that takes place over many generations is called: | Start of unit: | End of unit: |
| inheritance | | |
| mutations | | |
| evolution | | |
| reproduction | | |

| | | |
|---|----------------|--------------|
| Question 6: When we have the same characteristic as our parents or ancestors, we _____ that characteristic. | Start of unit: | End of unit: |
| have inherited | | |
| have mutated to get | | |
| have adapted to | | |
| have maladapted to | | |

| | | |
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| Question 2: Evolution occurs when there is competition to survive. This is called... | Start of unit: | End of unit: |
| reproduction | | |
| natural selection | | |
| variation | | |
| biodiverse | | |

| | | |
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| Question 7: Explain how a cactus has adapted to suit its natural environment. | Start of unit: | End of unit: |
| | | |

| | | |
|---|----------------|--------------|
| Question 3: Evidence of evolution comes from...(tick two) | Start of unit: | End of unit: |
| fossils | | |
| living things | | |
| museums | | |
| food chains | | |

| | | |
|---|----------------|--------------|
| Question 4: Animals adapt to survive in their environments. Write down an example of an animal that has adapted and the reason it can survive in its environment. For example, polar bears have a layer of blubber under their fur to keep them warm in the Arctic. | Start of unit: | End of unit: |
| | | |

| | | |
|--|----------------|--------------|
| Question 8: Comparisons of some species may reveal common ancestors. Can you give an example of two species that may have a common ancestor? | Start of unit: | End of unit: |
| | | |

| | | |
|--|----------------|--------------|
| Question 9: The dodo was unable to adapt to its environment to survive. This means that the dodo is now... | Start of unit: | End of unit: |
| extinct | | |
| endangered | | |
| alive | | |
| flying | | |

| | | |
|--|----------------|--------------|
| Question 5: Charles Darwin... | Start of unit: | End of unit: |
| found the first fossil | | |
| was made famous by his theory of evolution | | |
| found remains of the dodo | | |

| | | |
|--|----------------|--------------|
| Question 10: When a characteristic is not inherited from a parent or ancestor, this is called...(tick two) | Start of unit: | End of unit: |
| an adaptation | | |
| a mutation | | |
| a generation | | |
| variation | | |