

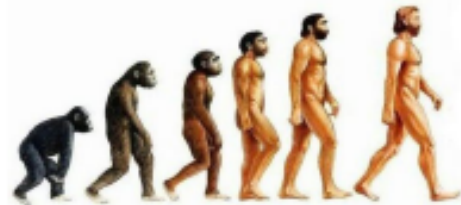
**What should I already know?**

- 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 <b>evolution</b> ?	<ul style="list-style-type: none"> <li>• <b>Evolution</b> is a process of change that takes place over many <b>generations</b>, during which <b>species</b> of animals, plants, or insects slowly change some of their physical <b>characteristics</b>. This is because <b>offspring</b> are not identical to their parents.</li> <li>• It occurs when there is competition to <b>survive</b>. This is called <b>natural selection</b>.</li> <li>• Difference within a <b>species</b> (for example between parents and <b>offspring</b>) can be caused by <b>inheritance</b> and <b>mutations</b>.</li> <li>• Inheritance is when <b>characteristics</b> are passed on from generation to the next.</li> <li>• <b>Mutations</b> in <b>characteristics</b> are not <b>inherited</b> from the parents and appear as <b>new characteristics</b>.</li> </ul>
How do we know about <b>evolution</b> ?	<ul style="list-style-type: none"> <li>• Evidence of <b>evolution</b> comes from <b>fossils</b> - when these are compared to living creatures from today, <b>palaeontologists</b> can compare similarities and differences.</li> <li>• Other evidence comes from living things - comparisons of some <b>species</b> may reveal common <b>ancestors</b>.</li> </ul>
What is <b>adaptation</b> ?	<ul style="list-style-type: none"> <li>• <b>Adaptation</b> is when animals and plants have <b>evolved</b> so that they have <b>adapted</b> to <b>survive</b> in their <b>environments</b>. For example, polar bears have a thick layer of blubber under their fur to <b>survive</b> the cold, harsh <b>environment</b> of the Arctic while giraffes have long necks to reach the leaves on trees.</li> <li>• Some <b>environments</b> provide challenges yet some animals and plants have <b>adapted</b> to <b>survive</b> there</li> <li>• Sometimes <b>adaptations</b> can be disadvantageous. One example of this can be the dodo, which became <b>extinct</b> as it lost its ability to fly through <b>evolution</b>. Flying was unnecessary for the dodo as it had lived for so many years without predators, until its native island became inhabited.</li> <li>• When <b>adaptations</b> are more harmful than helpful, these are called <b>maladaptations</b>.</li> </ul>

**Vocabulary**

adaptation	a change in structure or function that improves the chance of <b>survival</b> for an animal or plant within a given <b>environment</b>
ancestor	an early type of animal or plant from which a later, usually dissimilar, type has <b>evolved</b>
biodiversity	a wide variety of plant and animal <b>species</b> living in their natural <b>environment</b>
biome	a large naturally occurring community of animals and plants occupying a major habitat
breeding	the process of producing plants or animals by <b>reproduction</b>
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 <b>generations</b> , during which <b>species</b> of animals, plants, or insects slowly change some of their physical <b>characteristics</b>
extinct	no longer has any living members, either in the world or in a particular place
fossil	the hard remains of a <b>prehistoric</b> animal or plant that are found inside a rock
generation	the act or process of bringing into being; through <b>reproduction</b> , especially of <b>offspring</b>
inherit	If you inherit a <b>characteristic</b> you are born with it, because your parents or <b>ancestors</b> also had it.
maladaptation	the failure to <b>adapt</b> properly to a new situation or <b>environment</b>
mutation	<b>characteristics</b> that are not <b>inherited</b> from the parents or <b>ancestors</b> and appear as <b>new characteristics</b> .
natural selection	a process by which <b>species</b> of animals and plants that are best <b>adapted</b> to their <b>environment</b> <b>survive</b> and <b>reproduce</b> , while those that are less well <b>adapted</b> die out
offspring	a person's children or an animal's young
palaeontology	the study of <b>fossils</b> 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 <b>characteristics</b> and are able to <b>breed</b> with each other
survive	continue to exist
theory	a formal idea or set of ideas that is intended to <b>explain something</b>
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?