

**What should I already know?**

- Animals and plants live in habitats suited to them.
- Environments can change, which can pose dangers to living things.
- Animals, including humans, have offspring which grow into adults.
- Offspring usually resemble their parents but are not identical.
- Humans go through life stages: baby → child → adolescent → adult → old age.

**What I will know by the end of the unit?**

**What is evolution?**

Evolution is the process by which living things change over many generations, so that they are better adapted to survive in their environment.

- Evolution happens over a long time as species change to survive (natural selection).
- Small differences (variation) can help some individuals survive better.
- Offspring inherit features from their parents.
- Differences can come from inheritance or mutations.
- These changes explain why animals and plants are suited to their habitats.

**How Do We Know About Evolution?**

- Fossils show how animals and plants looked a long time ago.

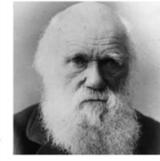


- Comparing animals today shows similarities and differences between species.
- Inherited traits show patterns passed down from parents to offspring.
- Observing changes over time in living things helps scientists see evolution in action.
- Scientific research (like DNA studies) provides evidence for how species are related.

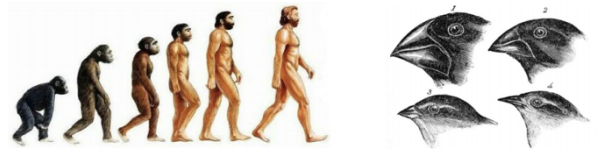
**What is adaptation?**

- All species have adaptations that help them to survive in the environment they live in.
- Selection pressures are conditions in an environment that might make it harder for living things to survive and reproduce there.
- Living things that are well adapted are more likely to survive and reproduce. For example, animals with thick, white fur are more likely to survive in polar regions.

**Who is Charles Darwin?**



- Charles Darwin is an evolutionary scientist, who studied different animals and plant species.
- This allowed him to see how adaptations took place.
- His work on finches was some of his most significant.



**Key Vocabulary**

Adaptation	the process by which a species becomes better suited to its environment
Characteristic	an identifiable feature of an organism
Environment	the place in which they live
Evolution	the gradual change in organisms over time, which can result in the creation of new species
Extinction	the death of all living members of a particular species
fossil	the preserved remains or impression of a prehistoric living thing embedded in rock
inheritance	the process by which characteristics are passed down to offspring from their parent
Mutation	characteristics that are not inherited from the parents
Natural selection	the process by which organisms with the most suitable adaptations are more likely to survive and reproduce. This can lead to evolution
Selection pressure	an environmental factor that influences how likely an organism is to survive and reproduce.
Variation	the differences between organisms of the same species.

<p><b>Working Scientifically</b></p>	<p>Questions can help us find out about the world and can be answered using a range of scientific enquiries, including fair tests, research and observation. Ask and answer deeper and broader scientific questions about the local and wider world that build on and extend their own and others' experiences and knowledge.</p>		
<p><b>Animals including humans and evolution</b></p>	<p>Scientists compare fossilised remains from the past to living species that exist today to hypothesise how living things have evolved over time. Humans and apes share a common ancestry and evidence for this comes from fossil discoveries and genetic comparison. Explain that living things have changed over time, using specific examples and evidence.</p> <p>Animals that sexually reproduce generate new offspring of the same kind by combining the genetic material of two individuals. Each offspring inherits two of every gene, one from the female parent and one from the male parent. Identify that living things produce offspring of the same kind, although the offspring are not identical to either parent.</p> <p>Animals and plants can be bred to produce offspring with specific and desired characteristics. This is called selective breeding. Examples include cows that produce large quantities of milk or crops that are disease resistant. Describe how animals and plants can be bred to produce offspring with specific and desired characteristics (selective breeding).</p> <p>An adaptation is a physical or behavioural trait that allows a living thing to survive and fill an ecological niche. Adaptations evolve by natural selection. Favourable traits help an organism survive and pass on their genes to subsequent generations. Identify how animals and plants are adapted to suit their environment, such as giraffes having long necks for feeding, and that adaptations may lead to evolution.</p>		
<p><b>Possible Activities</b></p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; background-color: #e0f0e0;"><b>Investigate!</b></td> </tr> <tr> <td> <ul style="list-style-type: none"> <li>● Research the work of Charles Darwin and Alfred Russel Wallace.</li> <li>● Create a fact file of an animal or plant identifying how it has <b>adapted</b> to its <b>environment</b> and how it has <b>evolved</b> to <b>survive</b>.</li> <li>● Create a new planet and describe the <b>environmental</b> features. What animals and plants can live there? How have they <b>adapted</b> to survive?</li> </ul> </td> </tr> </table>	<b>Investigate!</b>	<ul style="list-style-type: none"> <li>● Research the work of Charles Darwin and Alfred Russel Wallace.</li> <li>● Create a fact file of an animal or plant identifying how it has <b>adapted</b> to its <b>environment</b> and how it has <b>evolved</b> to <b>survive</b>.</li> <li>● Create a new planet and describe the <b>environmental</b> features. What animals and plants can live there? How have they <b>adapted</b> to survive?</li> </ul>
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