Beech Hill Primary School Knowledge Organiser

Topic:	Year group	Term
Adaptations	6	Summer

Background knowledge

Children learn about animal adaptations. They should understand that adaptations are characteristics which improve the chances of survival in a habitat. They explore specific adaptations of various animals and how these adaptations allow them to survive in their habitats.

Children explore how plants are adapted to survive in their habitats. They have already dissected and learnt about the functions of plant parts in Year 3.

Children learn about evolution. They learn that evolution is a process where descendants develop different characteristics from their ancestors, creating new species. Children should understand that evolution allows organisms to survive and adapt to their environments.
In Year 6, children do not need to understand or use the terms "genes" and "chromosomes".

Children learn about Charles Darwin and his contributions towards the understanding of the process of evolution. Building on their knowledge of evolution from the previous step, they learn that different species of animals have evolved from a shared or common ancestor.

Children should understand that natural selection can lead to variation in characteristics within a species. This may lead to certain characteristics being more advantageous for survival and reproduction. An example of this is the peppered moth, where variations in colouration contributed to the moth's ability to survive in its habitat.

Children build on their previous knowledge of Charles Darwin and evolution to explore who he was, what he did and why his work was important. In addition, they specifically learn about Darwin's observations on the Galapagos Islands and his work on finches.

<u>Common misconceptions</u>

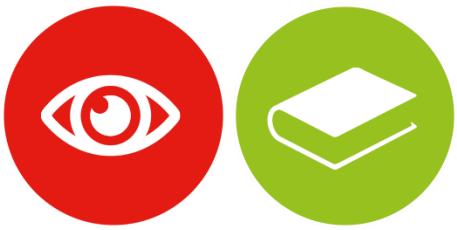
- Children may think that animal adaptations such as camouflage occur because the animal has "chosen" to camouflage itself. State to them that the animal cannot "choose" this.

- Children may think that animals are able to adapt within their own lifetime.

- Children may believe that a camel's hump stores water. The hump contains fat, which can break down to release energy and water.
- Children may think that cacti just have "spikes" and not leaves. Explain to them that cacti have spines or needles, which are a type of leaf, designed to reduce water loss.
- Children may think that evolution is a quick process.
- Children might think that humans used to be monkeys. Humans did not evolve directly from modern monkeys, but both humans and monkeys share a common ancestor.
- Children may believe that humans were around at the same time as the dinosaurs. Clarify to them that was not the case.
- Children may think that plants and animals choose to adapt to their environments or habitats by natural selection. Highlight to them that the plants and animals do not choose to adapt.
- Children may think that the finches were the same species as they looked similar. Clarify that the finches were not the same species, but had a common ancestor.

What should I already know?
<u>Year 2</u> I can describe how living thing are suited to their habitat. I can describe how different habitats meet living things needs and how the organisms depend on each other.

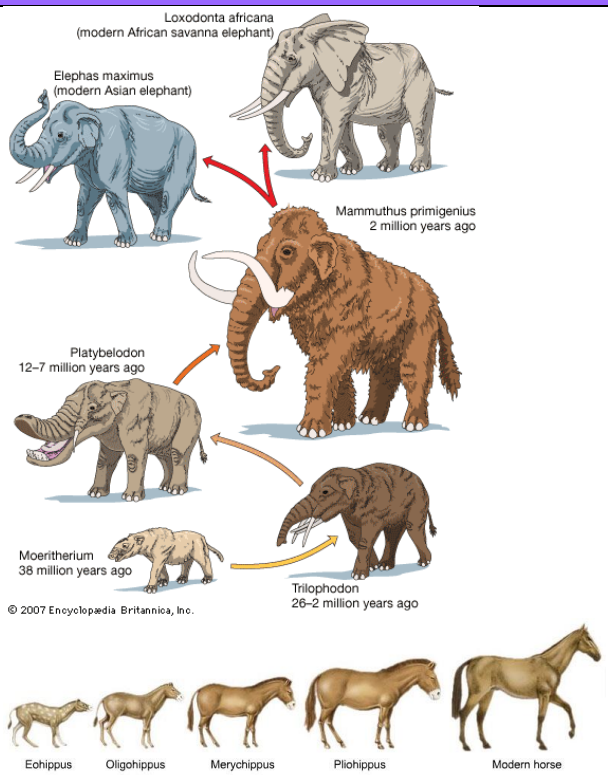
National Curriculum Objectives / Key Skills	The Journey
Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. <u>Working scientifically</u> Recognise which secondary sources will be most useful to research their ideas and begin	1. Animal adaptations 2. Plant adaptations 3. Evolution 4. Charles Darwin 5. Natural selection 6. Darwin's finches

to separate opinion from fact (non-statutory). Identifying scientific evidence that has been used to support or refute ideas or arguments. Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time (non-statutory). Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations. <u>Scientific enquiry</u> 	

Outcomes
Working towards: I can research how fossils are used to find out about how organisms have evolved and about life in the past. I can explain some way in which animals and plants are suited to their environments. I can research the work of Charles Darwin. With support, I can state what is meant by evolution. I can decide how to gather information to answer the question about how bird's beaks are adapted and record it. Expected: I can explain how animals and plants are suited to their environments. I can devise my own organism explaining how it is adapted to the environment it is in. I know about the

work of Charles Darwin and can explain how he developed their ideas on evolution. I can state what is meant by evolution. I can decide how to gather information to answer the question about how bird's beaks are adapted and record it clearly.

Exceeding: I can confidently explain how animals and plants are suited to their environments. I can devise my own organism explaining how it is adapted to the environment it is in with clear reference to the environment it inhabits. I know about the work of Charles Darwin and can explain how he developed their ideas on evolution. I can confidently state what is meant by evolution giving examples. I can decide how to gather information to answer the question about how bird's beaks are adapted and record it clearly stating what it shows.

Key Vocabulary	Timeline / Diagrams
Characteristics – the feature of an organism, used to identify individuals or a group Adaptations – characteristics which improve the chances of survival in a habitat Evolution – the process where descendants develop different characteristics from their ancestors, eventually creating new species Common ancestor – an ancestor shared by two or more descendant species Species – a group of organisms that can reproduce with each other to create offspring Theory – an explanation which is supported by the available evidence Natural selection – the process where organisms which are better adapted to their habitat are more likely to survive and reproduce Galapagos islands – a collection of islands near South America that Charles Darwin visited in 1835 Finch – a type of bird	

Key people / places

STEM job; evolutionary biologist
Famous scientists ; Charles Darwin and Alfred Wallace

Assessment questions / outcomes
How did the animal evolve? What evidence is there? Look at the parents and the offspring. What features have they inherited? Write 3 ways in which the plant and animal is adapted to its environment. Explain to a friend how your plant or animal is adapted to its environment. What did we find out about the shape of birds beaks?