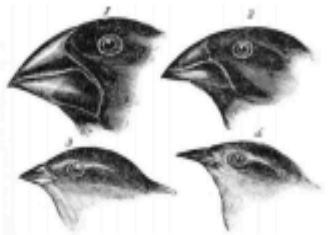
Caroline Haslett Primary Science Topic: Evolution and Inheritance Y6

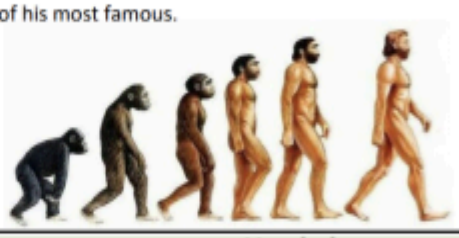
What should I already know?

- 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**?	• **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**?	• 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**?	• **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**.

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?

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

Caroline Haslett Primary School Science Topic: Evolution and Inheritance Year 6

Working scientifically	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.
Animals including humans and evolution	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. 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. 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). 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.