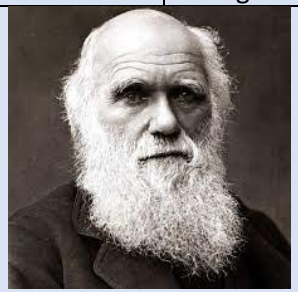
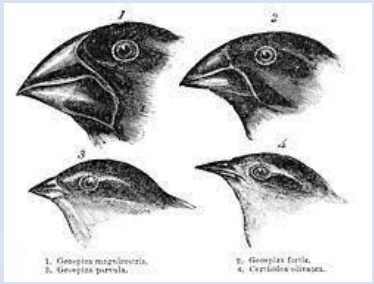
Year 4/5 Science: Humans and Animals Over Time

Key vocabulary

characteristic	the qualities or features of an organism that make them recognisable
environment	where an organism lives and things which influence them in this place
organism	any animal, plant or other living thing
offspring	a person's children or an animal's young
variation	the different characteristics between living things in a species
species	A group of living things with very similar characteristics. They can produce offspring together to make more living things of the same type.
reproduce	to have offspring (babies)
natural selection	A characteristic (for example the beak of a Galapagos finch) that improves the success of a living thing in its environment and makes it more likely to survive and reproduce. Its offspring will then also have this characteristic and be more likely to survive and reproduce when they are adults.
adaptation	Adaptation is how living things are specialised to suit their environment. Once a characteristic becomes more common in a population the species is said to have adapted.
evolution	the process by which living things can gradually change over time





Finch beaks observed by Charles Darwin whilst he was on the Galapagos Islands helped him to develop his theory of evolution.

Key ideas and processes

The theory of evolution

Charles Darwin was born in England in 1809 and died in 1882. He was a scientist who travelled on a boat called "The Beagle" to the Galapagos Islands in the Pacific Ocean. Darwin noticed that the finches there had adapted to each individual island environment. He wrote a book called, "On the Origin of Species" where he explained his theory of evolution. This theory is now widely accepted as scientific fact.

How evolution works

Not all individuals of a species are exactly the same. There is variation between them.
The individuals of a species who are best adapted to their environment are most likely to survive.
These successful individuals are more likely to reproduce and pass their useful adaptations onto their offspring.
Individuals that are poorly adapted are less likely to survive.
Over a very long time, the characteristics that help a species to survive become more common and, gradually, that species changes.
Given enough time, these small changes can add up to the extent that a new species can evolve.

Fossilisation Process (revision from Year 2/3)

An animal dies and its skeleton settles on the sea floor.
The dead animal is buried by sediment .
The sediment around the skeleton thickens and begins to turn to stone.
The skeleton dissolves and a mould is formed.
Minerals crystallise inside the mould and a cast is formed.
The fossil becomes visible on the Earth's surface.
New learning: Fossils help scientists to understand how living things evolved over time.

Timeline

Cenozoic Era
begin approx.66 million years ago until present
Cenozoic means "recent life"
Modern humans first appear (homo sapiens)
Extinction of larger predators allows smaller mammals to thrive

Mesozoic Era
approx.250 million years ago
Age of the dinosaurs

Paleozoic* Era
began approx. 541 million years ago
Age of marine animals
*also spelled Palaeozoic

Proterozoic Era
began approx. 2.5 billion years ago with single celled creatures like bacteria