

# Year 4 Subject Knowledge Organiser - Evolution and Inheritance

What I should already know  
 Living things can be grouped in different ways.  
 Animals and plants have adaptations to help them survive in their habitats.  
 Offspring often look like their parents but are not exactly the same.  
 Fossils provide evidence of living things from the past.

What I will have learnt by the end of the unit  
 How animals and plants have evolved over time.  
 How fossils help us understand past life forms.  
 Why some characteristics are inherited and others are influenced by the environment.  
 The importance of adaptation and survival in different habitats.

Key Concepts  
 Biology  
 Chemistry  
 Physics  
 Scientific enquiry  
 Science for the future  
 Vocabulary

What I will have learnt at the end of the key stage  
 The process of natural selection and evolution.  
 The role of genes in inheritance.  
 How different species have adapted to their environments.  
 The impact of human activity on species survival.  
 How scientific discoveries shape our understanding of life.

Fossils are the preserved remains, or partial remains, of ancient animals and plants. Fossils let scientists know how plants and animals used to look millions of years ago. This is proof that living things have evolved over time.



<p><b>Adaptive Traits</b>                  Characteristics that are influenced by the environment the living things live in. These adaptations can develop as a result of many things, such as food and climate.</p>		<p><b>Inherited Traits</b>                  Eye colour is an example of an inherited trait, but so are things like hair colour, the shape of your earlobes and whether or not you can smell certain flowers.</p>	
<p><b>Variation</b>                  In the same way that there is variation between parents and their offspring, you can see variation within any species, even plants.</p>		<p><b>Natural Selection</b>                  Fossils of giraffes from millions of years ago show that they used to have shorter necks. They have gradually evolved through natural selection to have longer necks so that they can reach the top leaves on taller trees.</p>	

Key skills I will learn/use  
**Notice-** I will be able to ask relevant questions and using different types of scientific enquiries to answer them  
**Observe-** I will be able to set up simple practical enquiries, comparative and fair tests  
**Record-** I will be able to gather, record, classify and present data in a variety of ways to help in answering questions. I will be able to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables  
**Report-** I will be able to report findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions I will be able to using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions  
**Identify-** I will be able to identify differences, similarities or changes related to simple scientific ideas and processes  
**Evidence-** I will be able to use straightforward scientific evidence to answer questions or to support their findings.

**Opportunities for teaching diversity, equality (including protected characteristics and expanding cultural capital)**

- Learning about different scientists and their contributions to evolution.
- Understanding how indigenous cultures use knowledge of adaptation in survival.
- Exploring how evolution is reflected in myths, legends, and stories from around the world.
- Investigating endangered species and conservation efforts.
- Visiting natural history museums or fossil sites.

**Skills I may use for other subjects**

- Science - Understanding life cycles, habitats, and how organisms are classified.
- Geography - Learning about different environments and how they affect living things.
- History - Exploring how scientific discoveries have changed our understanding of the past.
- Maths - Interpreting data, such as changes in species over time.

Living Things	Habitat	Adaptive Traits
polar bear	arctic	Its white fur enables it to camouflage in the snow.
camel	desert	It has wide feet to make it easier to walk in the sand.
cactus	desert	It stores water in its stem.
toucan	rainforest	Its narrow tongue allows it to eat small fruit and insects.

# Year 4 Subject Knowledge Organiser - Evolution and Inheritance

## Key Vocabulary

Evolution - The process of change in living things over time.

Inheritance - Passing on characteristics from parents to offspring.

Adaptation - A trait that helps an organism survive.

Natural Selection - The survival of the best-adapted organisms.

Fossil - Preserved remains of ancient life.

Extinction - When a species no longer exists.

Habitat - The environment where a living thing lives.

Species - A group of living things that can reproduce.

Characteristics - Features of an organism, inherited or influenced by the environment.

Environment - The surroundings in which an organism lives.

## Key Knowledge

- Evolution is the process by which living things change over time.
- Inheritance is when characteristics are passed from parents to offspring.
- Adaptations help animals and plants survive in their environment.
- Natural selection is when only the best-adapted organisms survive and reproduce.
- Fossils give clues about organisms that lived millions of years ago.
- Charles Darwin developed the theory of evolution through natural selection.

Evolution means change over time. It is the reason we have so many species on Earth.

Inheritance is when something is passed on to the next generation. Offspring are not identical to their parents and some characteristics are inherited (passed on from parents to offspring).

Adaptation is the action of a living thing changing to suit the environment. If a species is well adapted it will survive and pass on successful genes to offspring.

## Recall and Remember questions

What is evolution?

How do offspring inherit characteristics from their parents?

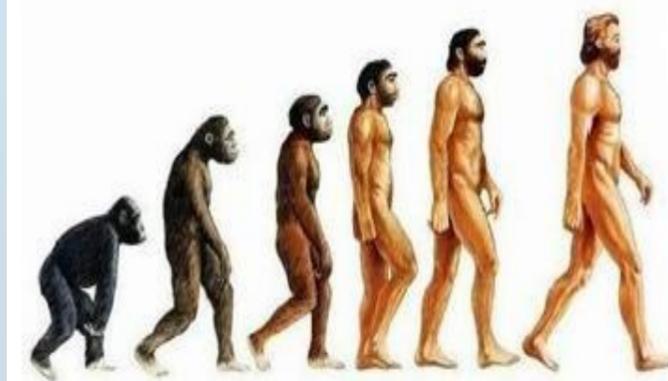
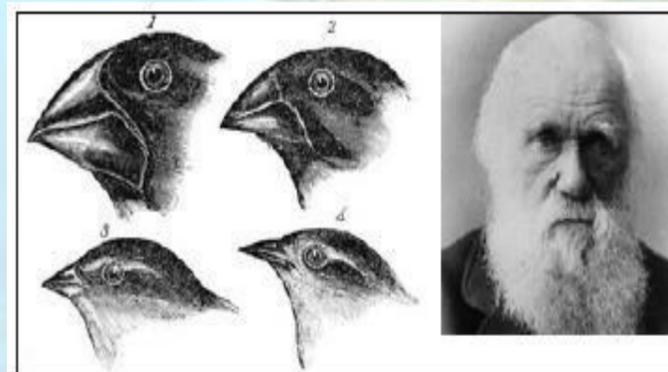
What is adaptation? Can you give an example?

Who was Charles Darwin, and what was his theory?

How do fossils help us learn about the past?

Why do some animals become extinct?

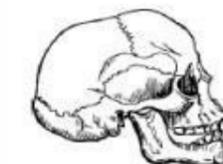
What is the difference between inherited and acquired traits?



## FOSSILS



Fossils are the remains of living things which inhabited the world millions of years ago. They are formed in sedimentary rock (sand, mud and pebbles squashed under layer, after layer over time) and plants/animals get trapped in these layers, revealing their shape.



HUMAN SKULL



CHIMPANZE SKULL

When palaeontologists compare fossils to animals from today, they can see similarities and identify relationships between them. Since evolution of a species happens over such long periods of time, evidence is usually taken from fossils.