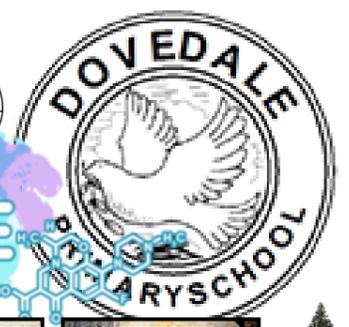


# Year 6 - Evolution



## SCIENCE

Key vocabulary	
<b>Living things</b>	Any <b>organism</b> that shows the characteristics of <b>being alive</b>
<b>Fossils</b>	The shape of a bone, a shell, or a plant or animal that has been preserved in rock for a very long period
<b>Offspring</b>	The young of an animal, or a person's children
<b>Variation</b>	A change or slight difference in a level, amount, or quantity.
<b>Non Identical</b>	Do not look exactly the same because they developed from two separate eggs:
<b>Characteristics</b>	the qualities or features that belong to them and make them recognizable.
<b>Adapt</b>	Change to make it suitable for a new purpose or situation.
<b>Breeding</b>	the mating and production of offspring by animals
<b>Evolution</b>	the process by which different kinds of living organism are believed to have developed from earlier forms during the history of the earth .
<b>Adaptation</b>	act of changing something or changing your behaviour to make it suitable for a new purpose or situation.
<b>Inheritance</b>	Particular characteristics or qualities which your family or ancestors had and which you are born with.
<b>Trace Fossil</b>	A footprint, trail, burrow, or other trace of an animal rather than of the animal itself.
<b>Body Fossil</b>	They are formed from the remains of dead animals and plants.
<b>Reproduction</b>	The production of offspring

## Fossils

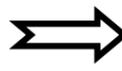
Fossils are formed when an **animal** is **quickly buried** after its **death** (e.g. by sinking in mud). The **soft parts** of the animal **rot** away leaving the **hard parts** (the teeth and skeleton).

Over thousands of years, the skeleton leaves a **permanent imprint** in the **rock** that has formed around it

Fossils of **simple organisms** are found in the **oldest rocks**, whereas fossils of **complex organisms** are found in the **newest rocks**. This supports the theory that **simple organisms** evolved into **complex organisms** (*theory of evolution*)

We can learn a lot from studying fossils:

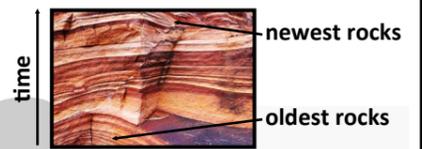
- about **extinct animals** (*dinosaurs, sabre-toothed tigers, mammoths* etc)
- what an animal **looked like**
- what an animal **ate**
- **where it lived** and **how it died**.



Not all fossils are formed this way. Some animals can get **trapped** and preserved inside **tree sap** (mostly *insects*), **peat bogs**, **tar pits** or **ice**.



Fossils provide us with **evidence** of **organisms** that lived a **long time ago** and how **organisms** have **changed** over **long periods of time**



Fossils aren't just of dead animals. Fossils of **plants**, **footprints** and even **animal droppings** have been discovered

Fossils have enabled **scientists** that **study fossils** (*palaeontologists*) to learn about **dinosaurs** and other **extinct animals**. Without fossils, we **wouldn't know** that they ever existed



## Evolution

Repeated **adaptation** in a species, over a **long time**, can lead to a **big change**; the species will **evolve**

All **living things** have certain **characteristics** (*traits*). **Some** of these characteristics are **inherited** from the **parent(s)** and **some** of them are **acquired** (*things that have been learned*)

### inherited

A tiger has **fur**, **sharp teeth**, a **tail**, **black stripes** and **claws**. All of these **traits** were **inherited** from his **parents**

### acquired

A tiger can **hunt**, **climb**, **swim** and **pounce**. Although some of these **traits** are **instinctive**, they are mostly **acquired** by **watching other tigers** (parents), by **playing** with **siblings** and from **experience**



### inherited

Humans **inherit** a lot of **characteristics** from their **parents**. These can include: **hair** and **eye colour**, **dimples**, **freckles**, **skin colour** and **height**. Humans **can't** inherit traits that their **parents** have **acquired**



## Variation

Humans all look **different**. This is because of something called **variation**, where humans **inherit** different **genes** from their **parents**. It is why we look **different** to our **brothers** or **sisters**, and why humans have **different skin colour**, **different heights** and **different features**

Humans **aren't** born being able to **speak** or **understand a language**, this skill is **learned**. Other learned traits include: **reading**, **writing**, **swimming**, **playing sport**, **singing**, **dancing** and lots more.

If a parent has a **scar** or is a **great cook** or has **one leg**, their child will **not** be born with these **traits**.



### acquired

This **variation** is especially evident in **dogs**. It is thought that all dogs share a **common ancestor** thousands of years ago. Today, the **variation** between **breeds** is **immense**

This has happened because of thousands of years of **cross-breeding**, as well as **environmental factors** (*adaptation*). In addition, humans have been **breeding dogs** to perform certain tasks (*hunting, guarding, herding* etc) for hundreds of years. This is known as **selective-breeding**



Labrador

Poodle

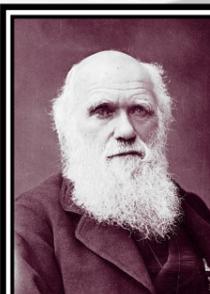
Labradoodle

## Adaptation

**Variation** in offspring **over time**, can lead to **adaptation**. This is when a species develops particular **physical characteristics** to suit its **habitat** (or to **adapt** to *environmental* changes)



An **adaptation** in **giraffes** is their **long necks**. One theory is that giraffes with longer necks could **reach food** that other animals could not. These giraffes became **stronger** and found it **easier** to **survive** droughts. The **longer neck** giraffes then passed their **genes** on to their **offspring** (babies), the **shorter necked** giraffes did **not survive**



**Charles Darwin** was an **English naturalist** who studied **variation** in plants and animals. His **theory of evolution** is based on the principal of **natural selection** – only the **fittest survives** to **pass on** their **genes**



Penguins

- webbed feet
- can swim
- streamlined



Cacti

- sharp spines
- large roots
- store water



Camels

- store fat
- wide feet
- thick lips