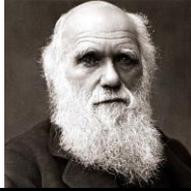


## Working Scientifically Skills



WHO?

Charles Darwin



Year 2  
Animals inc.  
Humans

Chemistry



### Vocabulary

<b>offspring</b>	The young animal or plant that is produced by the reproduction of that species.	<b>characteristics</b>	The distinguishing features or qualities that are species to a species.
<b>inheritance</b>	This is when characteristics are passed on to offspring from their parents.	<b>adaptation</b>	An adaptation is a trait (or characteristics) changing to increase a living thing's chances of surviving and reproducing.
<b>evolution</b>	Adaptation over a very long time.	<b>natural selection</b>	The process where organisms that are better adapted to their environment tend to survive and produce more offspring.
<b>adaptive traits</b>	Genetic features that help a living thing to survive.	<b>inherited traits</b>	These are traits you get from your parents. Within a family, you will often see similar traits e.g. curly hair.

### WHAT?

**Evolution** is the process by which **different** living **organisms** are believed to have **developed** from **earlier** forms during the history of the **Earth**. We **inherit** some **physical characteristics** from our **parents**: hair colour, eye colour, skin colour, handedness, We **acquire** some **characteristics** over time: music taste, sport preference, holiday choice. **Variation** is any difference between **organisms** caused by **genetic differences** or **environmental factors**.



**Living** things **change** over time and **fossils** provide us with **information** – they can teach us **where life** and **humans** came from, **show** us how the **Earth** and our **environment** have **changed** through **geological** time. By studying the **fossil** record, we can tell how **long** life has existed on Earth and how different plants and animals are related to each other. Some **fossils** are examples of **living** that were once **alive**.

There are many **steps** involved in the process of **fossilisation** – **death** (must occur if the process is to begin), **decomposition** (soft tissue decomposes, if not eaten by scavengers), **transportation**, **weathering** and **burial**, **fossilisation**, **erosion** and **discovery**.

When the animal **dies**, the soft parts of its body **decompose** leaving the hard parts, like the skeleton, behind. This becomes **buried** by small **particles** of **rock** called **sediment**. As more layers of sediment **build up** on top, the sediment around the skeleton begins to **compact** and turn to **rock**. The bones then start to be **dissolved** by water seeping through the rock. **Minerals** in the water **replace** the **bone**, leaving a **rock replica** of the original bone called a **fossil**.



**Darwin** was an **English scientist** who studied **nature**. He is known for his theory of **evolution** by **natural selection**. The living things that have the **most helpful traits** for their **environment** tend to **survive**. These living things then **pass** along their helpful **traits** to their **young**. Animals **change** (or **evolve**) over **hundreds** of **years**. An **adaptation** is the **process** of **changing** to better **suit** a **situation**. **Small inherited** changes in **physical** characteristics over time (colour, size, shape of limbs) lead to **variation** in species.



**Animals** and **plants** exist and live in **different environments** – they live in areas with very specific **climate** conditions, such as **temperature** and **rainfall patterns**, that enable them to **thrive**.

**Animals** and **plants** are adapted to suit their **environment** in different ways and this may lead to **evolution** – webbed feet, sharp claws, whiskers, sharp teeth, wings, spotted fur, scales, shape of a bird's beak, colour of the fur, thickness/thinness of fur, shape of nose/ears. **Variation** in **offspring** over time can make animals and plants more or less able to **survive** in **particular environments**.



**Genetic engineering** is the **deliberate modification** of the characteristics of an **organism** by **manipulating** its **genetic material**.

The **positives** of genetic engineering – more **nutritious** food, **tastier** food, **less disease**, **less use** of **pesticides**, increased **supply** of food with **reduced cost** and **longer shelf life**.

The **negatives** of genetic engineering – **nutritional value** of foods can be **less**, **pathogen adapt** to the new genetic profiles, **negative side effects** that are unexpected, amount of diversity developed can be **less favourable**.

