Evolution

Adaptations

Organisms are adapted to the environments that they live in. Adaptations can be:



- **behavioural**, how an organism acts or behaves. For example, a monkey will use a tool to gather food.



- **structural**, physical characteristics, usually on the outside. For example, a cactus has spines to prevent it from being eaten.



- **physiological**, internal characteristics. For example, skunks and stinging nettles produce toxins to keep other organisms away.

Variation

All individuals in a species show variation.

This can be caused by:

- **inherited characteristics** from parents (such as eye colour),
- by the **environment** (such as scars),
- or by **both** (such as height).

Evolution by natural selection

Organisms change over time by the process of **natural selection**:

There is **variation** between individuals in a species. This might be inherited or environmental or both.

→ Those that are better **adapted** to the **environment** have an **advantage** and are more likely to survive.

→ Those that survive are more likely to **reproduce**.

→ Those that reproduce can pass on the **advantageous inherited** characteristic to their **offspring**.

Over a very long time and many generations, organisms **evolve** (change) by natural selection.

Scientists have lots of evidence that proves the theory of evolution by natural selection. For example, the **fossil record** shows the evolution of horses clearly.