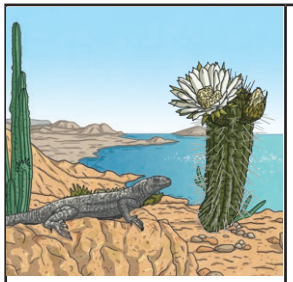
Key Vocabulary	
characteristic	A characteristic is an identifiable feature of an organism.
variation	Variation is the differences between organisms of the same species.
adaptation	Adaptation is the process by which a species becomes better suited to its environment.
fossil	A fossil is the preserved remains or impression of a prehistoric living thing embedded in rock.
inheritance	Inheritance is the process by which characteristics are passed down to offspring from their parent(s).
evolution	Evolution is the gradual change in organisms over time, which can result in the creation of new species.
natural selection	Natural selection is the process by which organisms with the most suitable adaptations are more likely to survive and reproduce. This can lead to evolution.
extinction	Extinction is the death of all living members of a particular species.
selection pressure	A selection pressure is an environmental factor that influences how likely an organism is to survive and reproduce.

Adaptation

All species have **adaptations** that help them to survive in the environment they live in. **Selection pressures** are conditions in an environment that might make it harder for living things to survive and reproduce there. Living things that are well adapted are more likely to survive and reproduce. For example, animals with thick, white fur are more likely to survive in polar regions. Here are some examples of **selection pressures**.

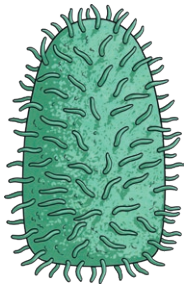


weather and climate

finding food

avoiding predation

attracting a mate



avoiding disease

competition for territory or shelter

Fossils

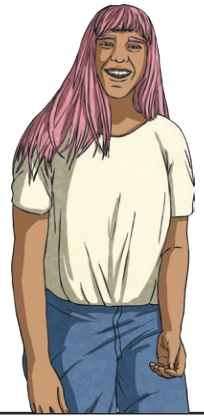
Living things that are alive now are very different from organisms that lived millions of years ago. We know about life in prehistoric times due to **fossils**.

Even incomplete **fossils** can give us clues about how species adapt over time and why they became **extinct**.

Inheritance

Parents pass certain traits onto their children. This process is known as **inheritance** and traits that can be **inherited** are known as hereditary traits. Some traits cannot be passed on because they have developed during the life of the individual. These are known as environmental traits.

Eye colour can be **inherited** from one or both parents. Dyed hair colour would not be **inherited**.



Parents and Offspring

Offspring often have similarities with their parents but are usually not exactly the same. Most animals **inherit** traits from two parents, though a small number have only one parent. Other traits are caused by the environment the organism is living in.

Natural Selection

Mutations occur naturally; these can be helpful, harmful or neutral to the organism. Organisms with **adaptations** that suit the **selection pressures** of the environment are more likely to survive and reproduce, potentially passing on these **adaptations** to their offspring. Over generations, these **adaptations** become more and more prevalent and less useful traits will die out.

Human Evolution

Humans have **evolved** over millions of years. There have been several species of hominins (modern and **extinct** human species) but only Homo sapiens exists today. Here are some examples of **extinct** hominin species.

Australopithecus afarensis became **extinct** about 3 million years ago. They shared a common ancestor with Homo species.

Homo neanderthalensis lived at the same time as early Homo sapiens. They walked upright, wore clothing made of animal skin and used tools such as spears and needles.

Homo longi was discovered when a **fossil** of a skull was found in China. They are believed to have lived more than 100,000 years ago. They had a large brain, similar to modern humans.