Golden Knowledge (everyone must know and be able to explain this information)

- Living things have changed over time.
- Fossils provide information about living things that lived on the Earth millions of years ago.
- Living things produce babies of the same kind. Usually they are not identical to their parents.
- Animals and plants adapt to suit their environment in different ways.

Evolution and Inheritance

How do we know that living things have changed over time?

We know that living things have changed over time because scientists have found clues in rocks and soil.

These clues are called **fossils**, which are the remains or traces of plants and animals that lived a long, long time ago. By studying fossils, scientists can see that animals and plants today look different from those in the past. This shows that living things have slowly changed over millions of years.

How do fossils provide information about living things that inhabited the Earth millions of years ago?

Fossils act like a time machine! When plants or animals die, sometimes their remains get buried in mud, sand, or other materials. Over millions of years, these remains turn into rock and become fossils.

Scientists find these fossils and study them to understand what these ancient plants and animals looked like, how they lived, and how they are related to the living things we see today.

How do offspring differ from their parents?

Offspring, or babies, are usually a mix of their parents. This means they **inherit** features from both their mom and dad, like eye colour, hair type, or height. But they are not exact copies!

Some differences can happen because of tiny changes in their genes, which are like instructions that tell their body how to grow and develop. These small differences are what make everyone unique and lead to **variation.**

How do animals and plants adapt to suit their environment in different ways?

Animals and plants **adapt** to their environment by developing features that help them survive better.

For example:
A polar bear has thick fur and a layer of fat to keep warm in the icy Arctic.
Cacti have thick stems to store water, helping them survive in hot, dry deserts.

These **adaptations** are like special tools that make it easier for them to live in their specific environments.

How can adaptation lead to evolution?

When animals and plants adapt to their environment over a long time, these changes can add up. If a certain **adaptation** helps a species survive better, those with the helpful trait are more likely to live and have babies. Over many generations, these traits become more common, and the **species** can slowly evolve, or change into a new form.

This process is called **evolution**. So, adaptation is like the first step in a long journey of change!

Vocabulary

adaptation – a feature that helps living things survive in its environment. change over millions of years.	**fossil** – the remains or impression of a plant or animals from the past, preserved in rock.	**offspring** – the young of an animal of plant.
evolution – the process by which living things	**inheritance** – the passing of characteristics form parents to offspring.	**species** – a group of similar living things that can breed together.
extinct – when a species no longer exists.	**natural selection** – the process where animals and plants best suited to their environment survive and reproduce.	**variation** – differences between individuals of the same species.