Science Knowledge Organiser

Topic: Evolution and Inheritance	Year: 6	Strand: Biology	Southwold Primary School

What should I already know?

- Which things are living and which are not.
- Identifying animals e.g. amphibians, reptiles, birds, fish, mammals, invertebrates and plants from images and through using classification keys.
- Animals can be carnivores, herbivores and omnivores (meat, plants eaters or eaters of both plants and animals)
- Animals have **offspring** which grow into adults.
- The basic needs of animals for **survival** (water, food and air).
- The importance of exercise, the right amount of different foods and hygiene.
- Some animals have skeletons for support, protection and movement.
- Food chains, food webs and the role of predators and prey.
- Examples of different habitats, **environments** and **biomes**.
- The life cycle of some animals and plants and the changes as humans develop to old age.
- Living things breed to produce **offspring** which grow into adults. This is called **reproduction.**
- The features of some rocks and the role they play in the formation of **fossils**.

What will I know by the end of this unit?

- **Evolution** is a process of change that takes place over many **generations,** during which **species** of animals, plants or insects slowly change some of their physical **characteristics.** This is why **offspring** are not identical to their parents.
- **Evolution** occurs when there is competition to **survive.** This is **natural selection**.
- Differences within a **species** e.g. between parents and **offspring** can be caused by **inheritance** and **mutations.**
- **Inheritance** is when **characteristics** are passed on from one **generation** to the next.
- **Mutations** in **characteristics** are not **inherited** from the parents and appear as new **characteristics**.
- Evidence of **evolution** comes from **fossils**– when they are compared to living creatures from today.
- **Adaptation** is when animals and plants have **evolved** so that they have **adapted** to **survive** their **environments.** An example is the polar bear. They have a thick layer of blubber under their fur to survive the cold. Giraffes have long necks to reach the leaves on high trees.
- Some **environments** provide challenges yet some animals and plants have **adapted** to **survive** there.

Vocabulary

adaptation	Change in structure or function that improves the **survival** for an animal or plant within a given **environment.**
ancestor(s)	An early type of animal or plant from which a later, usually dissimilar, type has **evolved.**
biodiversity	A wide variety of plant and animal **species** living in their natural.
breeding	The process of producing plants and animals by **reproduction**
characteristics	Qualities or **features** that belong to them and make them recognisable.
chromosomes	**Chromosomes** contain generic information needed for development.
environment	All the circumstances around living things them that affect them.
evolution	A process of change that takes place over many **generations**, during which **species** of animals, plants or insects slowly changes.
extinct	No longer has any living members either in the world or a place.
fossil	Hard remains of a prehistoric animal or plant , found inside a rock.
generation(s)	A group born and living at the same time.
genes	A unit of DNA that controls the development of one or more traits and is how genetic information is passed from parent to **offspring.**

Fossils

Fossils are the preserved remains of partial remains of ancient animals and plants.

By investigating **fossils** scientists can find out how plants and animals used to look millions of years ago. This is proof that living things have **evolved** over time.

Charles Darwin and Alfred Wallace

Charles Darwin, an **evolutionary** scientist, studied different animals and plant **species,** which allowed him to see how **adaptations** could come about. His work on the finches was some of his most famous work.

Alfred Russel Wallace was a British naturalist, explorer, geographer, biologist and illustrator. He is best known for the theory of **evolution** through **natural selection**; his work on the subject was jointly published with some of Charles Darwin's in 1858.

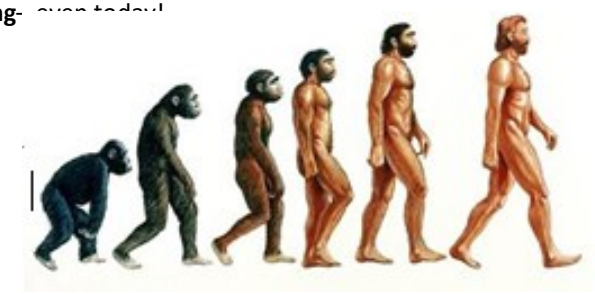
Charles Darwin

Alfred Russel Wallace

Evolution

The study of finches by **Charles Darwin** showed how the beaks of these birds, who lived on different parts of the Galapagos Islands, had adapted their to make it more possible to find food.

Evolution is the gradual process by which different kinds of living **organisms** have developed from earlier forms over millions of years. Scientists have proof that living things are continually **evolving**- even today!



Vocabulary (continued)

inherit	If you **inherit** a **characteristic**, you are born with it because your parents.
maladaptation	The failure to **adapt** properly to a new situation or **environment.**
mutation	**Characteristics** that are not **inherited** from parents and appear new.
natural selection	A process by which **species** of animals and plants that are best **adapted** to their **environment** survive and **reproduce,** while those less **adapted** die out.
offspring	A person's children or an animal's young.
organisms	All living things.
paleontology	The study of **fossils** as a guide to the history of life on Earth.
reproduction	When an animal or plant produces new animals (babies) or plants.
species	A class of plants or animals whose members have the same **characteristics** and are able to **breed** with each other.

Working Scientifically

- Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations
- Identifying scientific evidence that has been used to support or refute ideas or arguments
- Using test results to make predictions to set up further comparative and fair tests