

## Plant Adaptation

Some plants have **adapted** to suit the environment in which they live. **Water lilies** grow on the surface of ponds. They have large leaves that help them to float on top of the water. The large leaves also mean that they absorb as much sunlight as they can. The leaves have a waxy layer that helps stay dry and prevents them from sinking. **Cactuses** grow in the desert, which is hot and sandy. They have **spines** instead of leaves to protect them from being eaten by predators. They have thick, waxy skin, which helps reduce the amount of water they lose. They have shallow, widespread roots, allowing fast water absorption when it rains. They have large, thick stems that allow them to store water until needed.

## Natural Selection

**Natural selection** is when **organisms** that are best suited to their environment to survive and pass on their **genetic** traits. At the same time, organisms that are less likely to survive tend to be eliminated from the **ecosystem**. The fittest, most **adapted** organisms survive and multiply whilst the least adapted die out. This was shown with Peppered Moths which are light-coloured. When factories caused air pollution and deposited soot onto trees, the moths were no longer camouflaged or adapted to their environment, so they started to die out. Whilst dark coloured moths were adapted to the environment so multiplied. Natural selection is key to explaining evolution.

## Animal Adaptation

Some animals have **adapted** to suit the environment in which they live. **Camels** have long eyelashes to protect their eyes from the sand. They also have large, wide, flat feet to help them walk on the sand without sinking. **Polar Bears** have white fur to camouflage from prey on the snow and ice. They also have thick layers of fat and fur for insulation against the cold. **Giraffes** have long necks because they enable them to reach food sources that are high up, out of the reach of other animals. Their tongues are long which enable them to wrap around the leaves and strip them from the branches.

## Evolution

**Evolution** is a theory that states that all **species** that exist today are developed from previous species. For example, some scientists believe that humans are evolved from apes. Charles Darwin developed the theory of evolution, starting with a research voyage to the Galapagos Islands. He noticed that finches on the islands were identical to those on the mainland, except that they had adapted their beaks to be able to eat the food available on their island – this **adaptation** happened over many years – they had **evolved**.



## Key Vocabulary



**ADAPTATION:** When a plant or animal has changed in some way over a long period of time to be better suited to the environment in which they live.



**ECOSYSTEM:** All the plants and animals that live in a particular area together.



**EVOLUTION:** A theory that states that all species that exist today are developed from previous species.



**GENETICS:** The things in your DNA that make you who you are.



**INHERITANCE:** To receive particular characteristics which your family or ancestors had.



**OFFSPRING:** A person or animal's young.



**SPECIES:** A class of plants or animals whose members have the same main characteristic and are able to breed with each other.



**TRAIT:** A particular characteristic, quality, or tendency that someone or something has.

## Inheritance

**Adaptations** and **evolution** would not occur if species did not continue to have **offspring**. When parents have offspring, they pass on their physical traits. The offspring inherit their parents' qualities. This means that most offspring look like their parents, but they are not identical. The offspring may take characteristics from the father, the mother or a mixture of both.

You can inherit these characteristics from your parents: size of feet, height, thickness of hair, shape of nose, eye colour, hair colour, shape of face and skin colour. You cannot inherit abilities, such as a good singing voice or being able to play football. However, your parents can help to teach you these things.

