



### What should I already know?

- Parents produce offspring through reproduction.
- That fossils are the preserved remains of living things.
- Fossils are formed when an animal dies and becomes trapped by layers of rock.

### Scientists

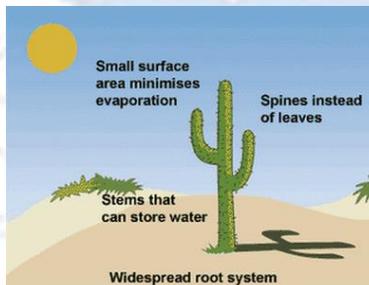
We are scientists. We ask questions about our world and technology and then explore and discover the answers with the aim of making the world a better place.

### Technical vocabulary

<b>characteristic</b>	something that belongs to a person, place or thing that we use to identify them (e.g. hair colour, height, nose shape).
<b>inherited</b>	this is when characteristics are passed on to offspring from their parents.
<b>adaption</b>	when a characteristic changes to improve a living thing's chances of surviving and reproducing.
<b>evolution</b>	adaption over a very long time.
<b>natural selection</b>	idea that living things that are best suited to the environment will survive.
<b>theory</b>	a system of ideas to explain something.

### Adaptation

- Animals adapt to the environment they live in.
- The peppered moth adapted to change colour to camouflage during the Industrial revolution.
- Cacti have stems that can store water and spines instead of leaves that reduce water loss and protect them from animals that might want to eat them.
- Camels have a double row of long eyelashes and nostrils which can close to help them during sand storms. They store fat in their humps to give them energy when they can't get food.
- Adaptations can be positive, negative or neutral.



### Human intervention

Selective breeding involves humans deliberately breeding living things to produce particular characteristics. This results in new varieties/breeds. Cross breeding is where two parents from the same species are bred in order to combine specific characteristics from each parent.

### Theories of Evolution and Natural Selection

Charles Darwin was an English born evolutionary biologist, who was best known for his contributions to the science of evolution. Darwin discovered differences in finches' beaks on the Galapagos Island in 1835. He realised that the beaks were better for the different foods that each finch would eat.

Alfred Wallace was observing animals in Brazil and noticed similar differences in butterflies and birds. Wallace shared his findings with Darwin and they both decided that this was to be called natural selection. Living things that have the best adapted traits means they may be more likely to pass these on to offspring through reproduction. Darwin first published his theory in his book "On the Origin of Species" in 1859.

### Cladogram

A cladogram is a diagram that shows how living things are similar and have evolved.

The simplest form of the living thing appears on the left and the living things progress as the diagram moves to the right.

The adaptations/evolutionary traits are written at the bottom between each living thing.

