

What should I already know?

I know that most living things live in habitats to which they are suited.
 I can describe how different habitats provide for the basic needs of animals and plants and how they depend on each other.
 I can describe how fossils are formed when things that have lived are trapped within rocks.
 I know that environments can change and that this can sometimes pose dangers to living things.

Enquiry Question

Is the type of food a bird eats related to the shape of its beak?

Vocabulary

Variation	differences between organisms
Species	similar organisms where two parents can create offspring
Offspring	the young of a living thing
Characteristics	a feature of an organism, used to identify individuals or a group
Inheritance	the passing on of characteristics from parent to offspring
Adaptation	characteristics which improve the chances of survival in a habitat
Evolution	the process where descendants develop different characteristics from their ancestors, eventually creating new species
Common ancestors	an ancestor shared by two or more descendant species
Natural selection	the process where organisms which are better adapted to their habitat are more likely to survive and reproduce

Variation, Inheritance and Mutation

What is variation?

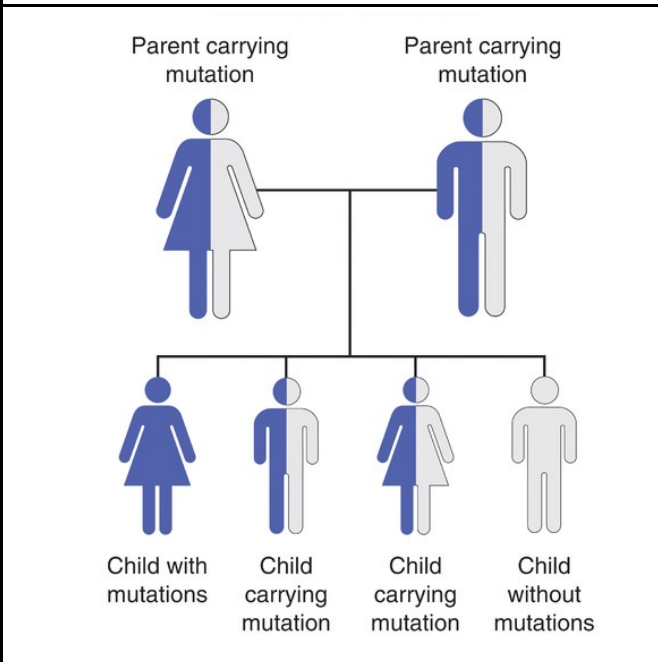
These dogs are the same species but are different size, fur colour and length. We call these differences variations



Living things produce offspring of the same kind. Some of a parent's characteristics are passed down to the offspring - this is called inheritance. This is why we often share similar features with our parents.

Inheritance is genetic, not environmental. e.g. If two blonde haired parents dye their hair black, this does not mean they will have black-haired child.

Some features are new to the offspring. These are called mutations. This is why we are not exact copies of our parents. These changes in offspring over time allow evolution to take place.



Adaptation

Evolution and natural selection have enabled living things to adapt to their environment.

These animals are both species of fox. They have adapted to the habitat in which they live.

The Arctic foxes live in polar habitats. Its fur keeps it warm and camouflaged short ears to keep body heat. The Desert foxes live in desert habitats. Its fur keeps it cool and camouflaged large ears to get rid of body heat.



Sometimes the changes that offspring have from their parents are advantageous - they allow the offspring to cope better in their environment.

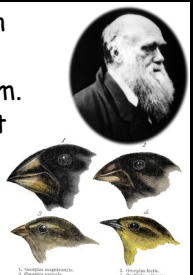
Often the changes are not advantageous (called maladaptation). When this is the case, the offspring will find it more difficult to thrive.

Natural selection ensure that, over time, the advantageous characteristics survive in the species. If environments change rapidly, some variations of species may not suit the new environment and will die.

If the environment changes slowly, animals and plants with variations that are best suited survive in greater numbers. They reproduce and pass their characteristics on to their young. Over time, these inherited characteristics become more dominant within the population. Over a very long period of time, these characteristics may be so different to how they were originally that a new species is created. This is evolution.

When palaeontologists compare animals in fossils to animals today, they can see similarities and differences between them.

Fossils show that giraffes necks were not always long. They have developed over time to reach high branches. Living things also provide evidence of natural selection and evolution.



On the Galapagos Islands, Charles Darwin found differences between finches from island to island. They had adapted for the different foods that they eat.