



Year 6

Summer 1

Variation and Adaptations

Science

Focus:

Biology



Vocabulary	
Word	Definition
Scientific theory	An explanation of something in the natural world backed by evidence.
Variation	a different form or version of something.
Inheritance	the process by which genetic information is passed on from parent to child .
Adaptation	a special skill which helps an animal to survive and do everything it needs to do.
Selective breeding	involves choosing parents with particular characteristics to <i>breed</i> together and produce offspring with more desirable characteristics.
Characteristics	a special quality or appearance of an organism that makes an individual or a group different from others .
Fossils	the remains or traces of plants and animals that lived long ago.
Evolution	how living things change over a long time, and how they have come to be the way they are.
Offspring	The young of an animal or plant.
Species	A group of closely related organisms that are very similar to each other.

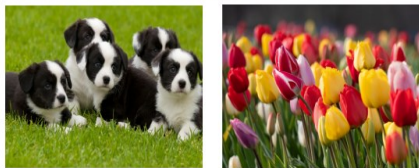
What should I already know?

- Which things are living and which are not.
- Identifying animals (e.g. amphibians, reptiles, birds, fish, mammals, invertebrates) and plants using classification keys
- Animals that are carnivores, herbivores and omnivores. Animals have offspring which grow into adults.
- The basic needs of animals for survival (water, food, air) Some animals have skeletons for support, protection and movement.
- Food chains, food webs and the role of predators and prey.

What will I know by the end of the unit?

Variation: differences between individuals of a species.

There is variation in all living things.



Variation happens because of the environment, inheritance or both.

Environmental variation is caused by our lifestyles and surroundings, such as scars.



Inherited variation is caused by the genes inherited from parents, such as eye colour.



Some characteristics are affected by both the environment and inheritance, such as height and hair colour.

Living things produce offspring of the same kind but often appear different to the parents due to **variation**.



Traits you can inherit

eye/hair/skin colour,
shape of nose,
size of feet,
height

Traits you can't inherit

a good singing voice,
ability to play football,
drawing skills

Labrador Poodle Labradoodle



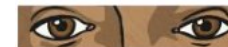
Living things produce offspring. Offspring are not identical to their parents.

There are variations that make them different. The two dogs have been mixed. They now have a combination of characteristics. We call the characteristics from either parent 'traits'.

Natural Selection



Fossils of giraffes from millions of years ago show that they used to have shorter necks. They have gradually evolved through natural selection to have longer necks so that they can reach the top leaves on taller trees.



Natural selection (survival of the fittest): the process where living things that are better adapted to their habitat survive and produce more offspring with those characteristics.



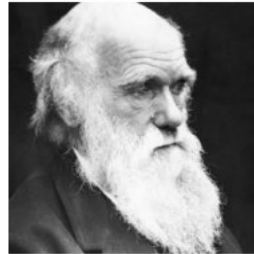
1. Variation.
2. Struggle to survive: competition for resources and adaptations to the environment.
3. Survival of the fittest: the best adapted survive and reproduce.
4. Advantages inherited by offspring.
5. Gradual change.

If these characteristics continue to be useful for survival, the species may change over time. If a new species is significantly different from its **ancestors**, it is said to have **evolved**.

Adaptation

Adaptations are characteristics that improve an organism's chance of survival. These are usually functional traits that have been maintained through evolution and natural selection and passed down through generations.

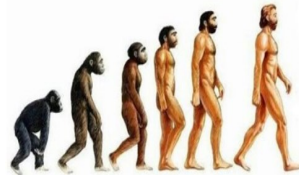
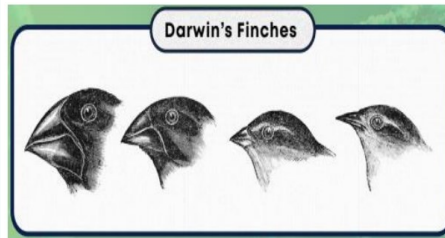
Key People - Charles Darwin



(1809 – 1882) was an English naturalist who changed the way humans viewed themselves and the world around them through his amazing ideas on evolution and natural selection. In 1831, when

Darwin was a young man of 22, he travelled to the Galapagos Islands aboard the HMS Beagle. While he was there,

he started studying the local fauna, and in so doing started developing the Theory of Evolution.



Key Questions

What is variation?

How do animals inherit characteristics from their parents?

How are animals adapted to their environment?

How are plants adapted to their environment?

What is evolution?

How has Charles Darwin helped us understand evolution?

What is natural selection?

How does the shape of a bird's beak relate to the type of food it eats?

Key skills and concepts:

- take measurements to record variation in plants and animals
- they use scientific models to describe complex processes such as selective breeding and natural selection
- question themselves and their peers on aspects of adaptation
- Develop their skills for evaluating evidence
- children present their work in a variety of ways and have several opportunities for peer assessment and feedback on the work of other children.

Living Things	Habitat	Adaptation
<p>Polar Bear</p>	<p>Arctic</p>	<p>Its white fur enable it to camouflauge in the snow. It has thick layers of fat to keep warm and large feet to increase grip on the snow.</p>
<p>Camel</p>	<p>Desert</p>	<p>Camels have large flat feet to spread their weight on the sand. Two rows of eyelashes to keep out the sand and the ability to go a long time without water.</p>
<p>Cactus</p>	<p>Desert</p>	<p>Stems can store large amounts of water and their very deep roots are able to collect water. Spines also provide protection from predators.</p>