Year 6 Science Knowledge Organiser: Evolution & Inheritance

Subject Specific Skills

- I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago
- I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents
- I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

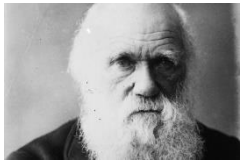
Prior Learning

- Pupils should have some knowledge of fossils and how they formed.
- Pupils may know that humans 'came from apes'.

What is Evolution?

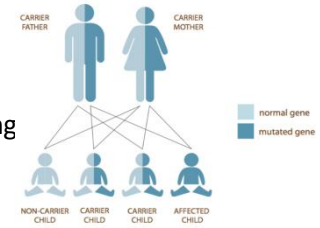
-Evolution is a change over time. It occurs when there is competition to survive (natural selection).
-Characteristics are passed from parents to their offspring. This is called inheritance.
-Offspring are not identical to their parents. Some characteristics are inherited, but some are new in the offspring – these are called mutations.
-Fossils are remains of living things, and provide evidence about living things from the past.
-Animals and plants are suited to their environments, and adaptation leads to advantageous changes.

Key Individuals: Charles Darwin and Mary Anning



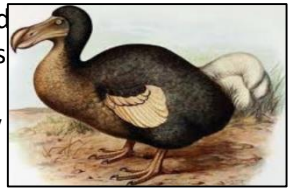
Inheritance and Mutation

-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, and some conditions are shared (see image).
-Inheritance is genetic, not environmental. E.g. If two blonde-haired parents dye their hair black, this does not mean they will have a 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.

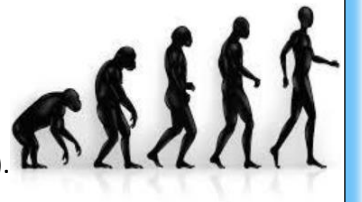


Adaptation

- Evolution & natural selection have enabled living things to adapt to their environments
-Sometimes, changes that offspring have from their parents are advantageous – they allow the offspring to cope better in their environment.



-However, often the changes are not advantageous (called maladaptations). When this is the case, the offspring will find it more difficult to thrive.
-Natural selection can ensure that, over time, the advantageous characteristics survive in the species.
-For example, many polar animals have adapted to possess layers of blubber and/or fur (for warmth) and white outer coats (for camouflage).
-The dodo, with no predators on its island, had adapted in a number of ways that made it unable to survive when humans arrived (maladaptations).



Key Vocabulary

Acquired Characteristic - A change to an organism during its lifetime, caused by use, disease or other environmental influences.
Adaptation - The process by which a species evolves over time to become better suited to its environment.
Ancestor - A living thing from which something else has evolved. All life shares a common ancestor that lived around 3.5 billion years ago.
Artificial Selection - Selectively breeding plants and animals to produce new species that possess certain characteristics.
Evolution - The gradual change in living things over many generations, due to changes in inherited characteristics.
Gene - Part of the DNA inside cells, through which inherited characteristics are passed down from parents to offspring.
Inherited Characteristic - A characteristic that is passed down from parents to offspring through genes.
Natural Selection - The process by which favourable characteristics become more common over time.
Primate - A group of mammals that includes humans, monkeys, lemurs and apes.
Species - A group of living organisms that can breed with others of the same type to produce fertile offspring.