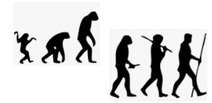
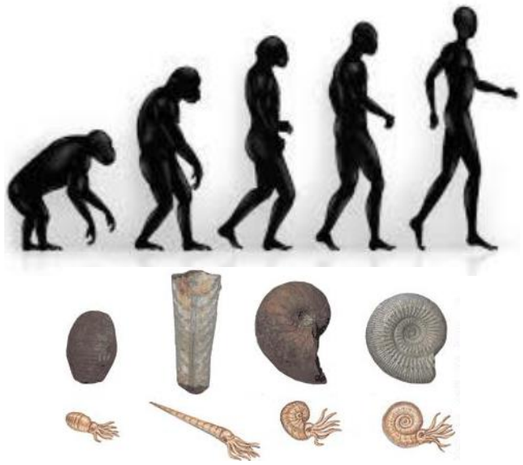
Year 6 – Evolution and Inheritance – Autumn Term



Overview



-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.

Evidence for Evolution

Fossils are the remains of living things, found in sedimentary rocks.

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

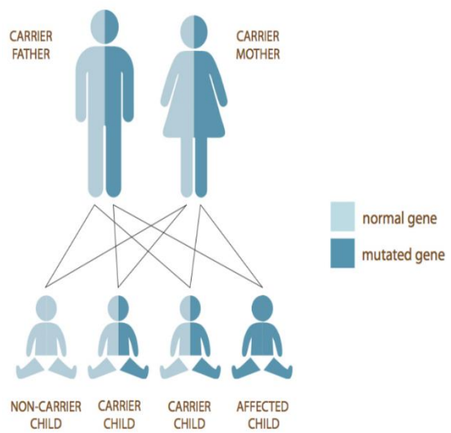
-e.g. Fossils show that giraffes necks did not used to be as long. They have developed over time to reach high branches.

-Living things also provide evidence of natural selection and evolution.

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

Inheritance and Mutation

Evolution is the name given for changes to a species over time.



-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).

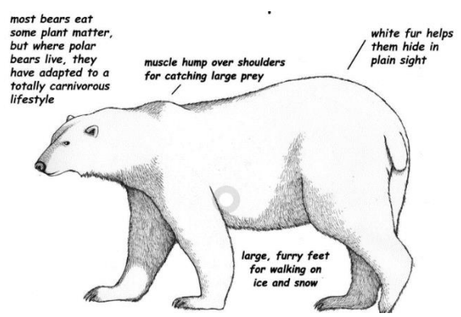
-Inheritance is genetic, not environmental. E.g. If two blonde-haired parents dye their hair black, this does not mean they will have a black-haired child.

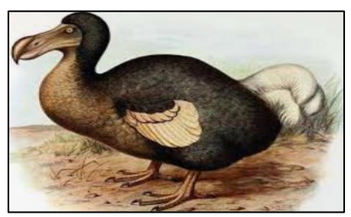
-Some features are new to the offspring. These are called mutations. This is why we are not exact copies of our parents.

-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).

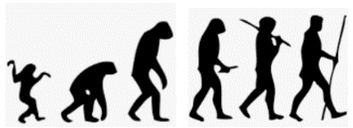
Adapted to Warm Environments

Camels  Fennec Fox  Kangaro 

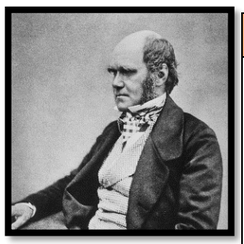
Adapted to Cold Environments

Penguin  Seal  Polar Bear 

Evolution and Inheritance – Vocabulary



adaptation	a change in structure or function that improves the chance of survival for an animal or plant within a given environment
ancestor	an early type of animal or plant from which a later, usually dissimilar, type has evolved
biodiversity	a wide variety of plant and animal species living in their natural environment
biome	a large naturally occurring community of animals and plants occupying a major habitat
breeding	the process of producing plants or animals by reproduction
characteristics	the qualities or features that belong to them and make them recognisable
environment	all the circumstances, people, things, and events around them that influence their life
evolution	a process of change that takes place over many generations, during which species of animals, plants, or insects slowly change some of their physical characteristics
extinct	no longer has any living members, either in the world or in a particular place
fossil	the hard remains of a prehistoric animal or plant that are found inside a rock
generation	the act or process of bringing into being; through reproduction, especially of offspring
inherit	if you inherit a characteristic you are born with it, because your parents or ancestors also had it
maladaptation	the failure to adapt properly to a new situation or environment
mutation	characteristics that are not inherited from the parents or ancestors and appear as new characteristics
natural selection	a process by which species of animals and plants that are best adapted to their environment survive and reproduce, while those that are less well adapted die out
offspring	a person's children or an animal's young
paleontology	the study of fossils as a guide to the history of life on Earth
reproduction	when an animal or plant produces one or more individuals similar to itself
species	a class of plants or animals whose members have the same main characteristics and are able to breed with each other
survive	continue to exist
theory	a formal idea or set of ideas that is intended to explain something
variation	a change or slight difference



Super Scientist – Charles Darwin	Super Scientist – Mary Leakey
Charles Darwin was an English Naturalist born on February 12, 1809 in Shrewsbury, England. He is best known for developing a theory of evolution to explain biological change. He went on a voyage to study animals on the Galapagos Islands. On his voyage, Darwin studied tortoises. He noticed that each island had a different species of tortoise. He also studied finches. Each island had a different species of finch. He wrote many books about his voyage, Journal of Researches, Coral Reefs, Volcanic Islands and Geographical Observations on South America.	Mary Leakey went on many digs during summer breaks with her husband. They discovered one of the first nearly complete human ancestor skulls in Africa. This fossil, and many others Leakey discovered in her solo work, work with her husband, and then later work with her son Richard Leakey, has helped fill in the fossil record with more information about human evolution.