Science Knowledge Organiser

Evolution and inheritance

Yr 6

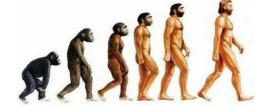
Main Foci: Biology

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.
- Features of habitats and the animals and plants that exist there (biodiversity).
- Examples of different biomes
- The life cycle of some animals and plants
- Sometimes environments can change and this has an effect on the plants and animals that exist there
- Living things breed to produce offspring which grow into adults. This is called reproduction.
- The role of Mary Anning in palaeontology and the discovery of fossils.
- The features of some rocks and the role they play in the formation of fossils

Diagram Charles Danuin an evalutionary eciontist, studied different

Charles Darwin, an evolutionary scientist, studied different animal and plant **species**, which allowed him to see how **adaptations** could come about. His work on the finches was some of his most famous.



	Wha	at will I know by the end of the unit?
What is	•	Evolution is a process of change that takes
evolution?		many generations during which species of a

- Evolution is 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. This is because offspring are not identical to their parents.
- It occurs when there is competition to survive. This is called natural selection.
- Difference within a species (for example between parents and offspring) can be caused by inheritance and mutations
- Inheritance is when **characteristics** are passed on from generation to the next.
- Mutations in characteristics are not inherited from the parents and appear as new characteristics.

How do we know about **evolution**?

- Evidence of evolution comes from fossils when these are compared to living creatures from today, palaeontologists can compare similarities and differences.
- Other evidence comes from living things comparisons of some species may reveal common ancestors.

What is adaptation?

- Adaptation is when animals and plants have evolved so
 that they have adapted to survive in their
 environments. For example, polar bears have a thick
 layer of blubber under their fur to survive the cold, harsh
 environment of the Arctic while giraffes have long necks
 to reach the leaves on trees.
- Some environments provide challenges yet some animals and plants have adapted to survive there
- Sometimes adaptations can be disadvantageous. One example of this can be the dodo, which became extinct as it lost its ability to fly through evolution. Flying was unnecessary for the dodo as it had lived for so many years without predators, until its native island became inhabited.
- When adaptations are more harmful than helpful, these are called maladaptations.

	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 the process of producing plants or animals by
breeding	reproduction the qualities or features that belong to them and
characteristics	make them recognisable all the circumstances, people, things, and events
environment	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
extinct	physical characteristics 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
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
palaeontology	the study of fossils as a guide to the history of life
reproduction	when an animal or plant produces one or more
species	a class of plants or animals whose members have the same main characteristics and are able
survive	continue to exist
theory	a formal idea or set of ideas that is intended to

explain something

	Science	Knowledge C	Organiser	
Evolution and inheritance		Yr 6 Main Foci: E		Biology
Question 1: A gradual change that takes place over many generations is called:	End of unit:	same or and	ion 6: When we have the characteristic as our parents estors, wethat	End of unit:
inheritance			cteristic.	
mutations			nherited	
evolution			nutated to get	
reproduction		have a	adapted to	
		have r	maladapted to	
Question 2: Evolution occurs when there is competition to survive. This is called	End of unit:	has ad	on 7: Explain how a cactus apted to suit its natural nment.	End of unit:
reproduction				
natural selection				
variation				
biodiverse				
Question 3: Evidence of evolution comes from(tick two)	End of unit:			
fossils				
living things				
museums				
food chains				
		Quest	tion 8: Comparisons of some	
Question 4: Animals adapt to survive in their environments. Write down an example of an animal that has adapted and the		ances exam	es may reveal common tors. Can you give an ple of two species that may a common ancestor?	End of unit:
reason it can survive in its environment. For example, polar bears have a layer of blubber under their fur to keep them warm in the Arctic.	End of unit:			
		Quest	ion 9: The dodo was unable	End of
		1 +0 040	nt to its onvironment to	Lndat

Write down an example of an animal that has adapted and the reason it can survive in its environment. For example, polar bears have a layer of blubber under their fur to keep them warm in the Arctic.	End of unit:

Question 5: Charles Darwin	End of unit:
found the first fossil	
was made famous by his theory of evolution	
found remains of the dodo	

Question 9: The dodo was unable	- · ·
to adapt to its environment to	End of
survive. This means that the dodo	unit:
is now	
extinct	
endangered	
alive	
flying	

Question 10: When a characteristic is not inherited from a parent or ancestor, this is called(tick two)	End of unit:
an adaptation	
a mutation	
a generation	
variation	