Year 6 Evolution and Inheritance

National Curriculum Objectives:

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

Building on what they learned about fossils in the topic on rocks in year 3, pupils should find out more about how living things on earth have changed over time. They should be introduced to the idea that characteristics are passed from parents to their offspring, for instance by considering different breeds of dogs, and what happens when, for example, labradors are crossed with poodles. They should also appreciate that variation in offspring over time can make animals more or less able to survive in particular environments, for example, by exploring how giraffes' necks got longer, or the development of insulating fur on the arctic fox. Pupils might find out about the work of palaeontologists such as Mary Anning and about how Charles Darwin and Alfred Wallace developed their ideas on evolution.
Note: At this stage, pupils are not expected to understand how genes and chromosomes work.

Killer Facts:

- Lifecycles have evolved to help organisms survive into adulthood.
- Over time, characteristics that are most suited to the environment become increasingly common.
- Survival of the fittest meant that the strongest of the species survived and reproduced, whereas the weaker died.
- Organisms best suited to their environment are most likely to survive.
- Offspring have similar patterns to their parents.
- Variation exists within a population.
- Competition exists for food, resources and mates.

Prior Learning	What is evolution?	What is variation?	Why do we adapt?	Key Vocabulary
Year 6 Living Things and their Habitats: - describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals - give reasons for classifying plants and animals based on specific characteristics **Year 3 Rocks including Fossils:** - describe in simple terms how fossils are formed when things that have lived are trapped within rock	Over millions of years, many animals have become extinct and we only have fossils to help us prove this. Create a large time line in the classroom spanning a billion years. Add on key points – appearance of life, plants, dinosaurs, extinction, humans etc. Give children the task of tracking an animal's evolution over time and add this to the timeline. Compare and contrast images of the human skull overtime – what do they notice? Can they order images in chronological order? How are the skeletons of humans, Neanderthals and apes different? Create a biscuit cladogram to show how biscuits have evolved over time and how we record those changes.	Children are to consider a family – use images – can they identify the similarities and differences between the parents and offspring? This can be done with a range of living things. Can children identify the offspring of 2 different breeds of dog? Which is similar? What is different? Discuss and sort different characteristics of humans – are they inherited or environmental traits?	Know how plants and animals are specially adapted to suit their environments, e.g. the Arctic Fox, Giraffe or Camel. A polar bears habitat is rapidly changing. What possible future could they face and which are most likely? Match animals to their environments based on observable adaptions. Darwin – why did birds beaks evolve and adapt? Children to pick up a range of foods using tweezers, spoons, pins etc. Consider the evolution of the Peppered Moth (linked to text). Can children explain why it changed over time? Give children a new environmental factor – how would they predict the Peppered Moth would adapt? Create a creature that is well adapted to a particular environment. Can they explain their choices using scientific vocabulary?	habitat* characteristics* reproduction* fossils* skeleton* sedimentary* offspring* organisms adaption evolution variation breed palaeontologists Darwin genetics survival of the fittest Inherited traits Environmental traits *prior learning

In KS3:

- https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/335174/SECONDARY_national_curriculum_-_Science_220714.pdf

Year Group	Common Misconceptions	Recommended Linked Texts for Evolution and Inheritance	
Year 6	- adaptation occurs during an animal's lifetime: giraffes' necks stretch during their lifetime to reach higher leaves and animals living in cold environments grow thick fur during their life - offspring most resemble their parents of the same sex, so that sons look like fathers - all characteristics, including those that are due to actions during the parent's life such as dyed hair or footballing skills, can be inherited - cavemen and dinosaurs were alive at the same time	**Moth: An Evolution Story** by Isabel Thomas **When the Whales Walked** by Dougal Dixon **On the Origin of Species** by Sabina Radeva