Subject	Term	Unit
Science - Year 6	Autumn 2	Evolution

Intent

At Hurst Hill, we nurture young scientists by fostering curiosity and developing strong scientific knowledge and enquiry skills. Children learn to investigate, observe and evaluate confidently, understanding how science shapes the past, present and future while building firm foundations for lifelong scientific learning.

Prior knowledge	National Curriculum
• compare and group together different kinds of rocks on the basis of their appearance and simple physical properties • describe in simple terms how fossils are formed when things that have lived are trapped within rock • recognise that soils are made from rocks and organic matter • describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals • give reasons for classifying plants and animals based on specific characteristics	• 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

What?	To learn that living things have changed overtime. To understand that offspring are different to their parents. To think about adaptations.
Why?	This topic will be a culmination of learning across Key Stage 2, bringing together learning on rocks, classification and reproduction.
How?	Through observation and research.

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 animal and plant 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 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 a particular place.
Fossil	The hard remains of a prehistoric animal 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 human 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, whilst those that are less well adapted die out.
Offspring	A persons children or an animals young.
palaeontology	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 of 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.

Learning	
Objective	**Learning**
Can I compare characteristics? *If living things produce offspring what characteristics / features do they take?*	**Comparative** Recognise that living things produce offspring of the same kind, but the offspring vary and are not identical to their parents. Look at photos of humans (mum and dad) and compare the features that they share. Does their brother or sister share the same features / characteristics?
Can I explain how animals have adapted to their environment?	**Observing Over Time** **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. Look at animals today and find out what features they have that help them to live in the environment in which they live. Link back to year 5 work on biomes. Children record how animals are adapted. Could do their own research. Science KS2 / KS3: How animals have adapted - BBC Teach What is adaptation? - BBC Bitesize
Can I explain evolution?	**Research** Use the last two lessons as a basis for learning about natural selection - we adapt through mutation because we don't get exactly the same traits from our parents. Mutations.

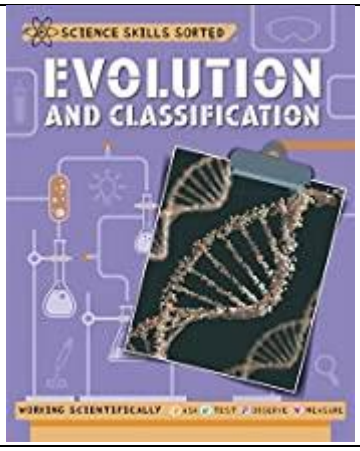
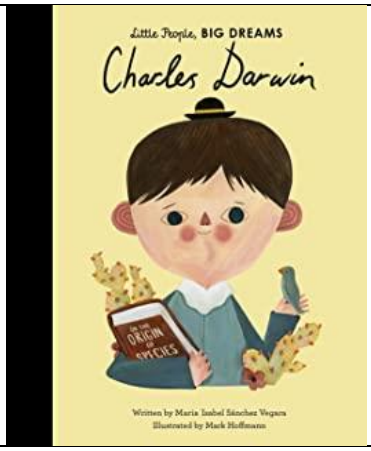
	Evolution is a process of change that takes place over many **generations**, during which **species** of animals, plants, or insects slowly change some of their physical **characteristics.** This is because **offspring** are not identical to their parents. · It occurs when there is competition to **survive**. 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**. Think about an animal such as a giraffe. Why does it have a long neck? Explain that the neck hasn't stretched overtime but the animals with long necks got the better food so lived longer to pass this trait on to their offspring. Overtime giraffes all had long necks as the short neck gene died out. Other e.g. white fur on arctic animals Camouflage in animals 20 Examples of Natural selection – LORECENTRAL more examples
Can I explain the importance of Charles Darwin's visit to the Galapagos Islands?	**Research** Find out what Charles Darwin found out on the Galapagos Islands. How did this help him and the future understand evolution? Charles Darwin developed the theory of natural selection alongside other scientists such as Wallace. Give examples as per pervious lesson. Darwin collected items everywhere the ship weighed anchor. He found huge fossils of recently extinct mammals. After experiencing an earthquake in Chile, he noticed the land had been raised. He knew of raised beaches elsewhere, high in the Andes, with fossil seashells and trees which had once grown on a sandy beach. He observed the earth was constantly changing, with land rising in some places and

	sinking in others. He collected birds and insects and sent shipments back to Cambridge for experts to identify. Darwin was the first dedicated naturalist to visit the Galapagos Islands, off the west coast of Ecuador. He noticed that some of the birds were like mockingbirds on the mainland, but different enough to be placed in separate species. He began to wonder how so many new species (groups of similar plants or animals) came to be on these islands. This helped him to develop his theory. Research what he found out and more examples of **natural selection.**
Can I compare the skeletons of apes, humans and Neanderthals?	**Comparative** Compare the skeletons of apes, humans, and Neanderthals – how are they similar, and how are they different? 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**. Look at pictures, especially of skulls, compare these using labels pictures, charts, Venn diagrams. Why have these changes occurred. Theorise together. E,g. the skull has become larger to encase a larger brain which was naturally selected for problem solving. Arms becoming shorter as we no longer needed to live in trees when we learnt to protect ourselves.  **Human**

	 **Neanderthal**  **Gorilla** **Could look at other hominids such as Lucy, Homo Erectus and see the development of the human skeleton as arms got shorter and we got taller.**
Can I explain why breeds evolve over time? *Why we now have different breeds of dogs such as labradoodles, cockapoos etc. that never existed before?*	**Observing over Time** Characteristics are passed onto their offspring, consider different breeds of dogs and what happens for example when Labradors are crossed with poodles. Look at other breeds of dog. Over time this variation can make animals more or less able to survive in different environments. Predict what certain breeds of dog would look like. Think about ways that humans might evolve in the future. E.g. larger thumbs for texting, shorter backs for typing on the computer etc.

Websites
Evolution and inheritance - KS2 Science - BBC Bitesize
Research 2 Practice (research-2-practice.org.uk)
What Is Evolution? • Stated Clearly
What Is Natural Selection? • Stated Clearly
What Is The Evidence For Evolution? • Stated Clearly

Recommended Reads

Golden Thread
Evolution