



Term 6
Unit Overview: UKS2 Science
Evolution and Inheritance

<p><u>National Curriculum Objectives</u></p> <ul style="list-style-type: none"> ❖ 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. 	<p><u>Substantive knowledge</u></p> <ul style="list-style-type: none"> ❖ Know that all living things have offspring of the same kind, as features in the offspring are inherited from the parents. ❖ Know that due to sexual reproduction, the offspring are not identical to their parents and vary from each other. ❖ Know that plants and animals have characteristics that make them suited (adapted) to their environment. If the environment changes rapidly, some variations of a species may not suit the new environment and will die. If the environment changes slowly, animals and plants with variations that are best suited survive in greater numbers to reproduce and pass their characteristics on to their young. ❖ Know that over time, these inherited characteristics become more dominant within the population. Over a very long period of time, these characteristics may be so different to how they were originally that a new species is created. This is evolution. ❖ Know that fossils give us evidence of what lived on the Earth millions of years ago and provide evidence to support the theory of evolution. More recently, scientists such as Darwin and Wallace observed how living things adapt to different environments to become distinct varieties with their own characteristics. 	<p><u>Vocabulary</u></p> <p>offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils, naturalist, variation, disadvantage, advantage, organism, evidence, generation</p> <p><u>Phonics / polysyllabic words</u></p> <p>en/vi/ron/ment (5/6)</p> <p>adaptation</p> <p>generation</p>
<p><u>Working Scientifically Skills</u></p> <ul style="list-style-type: none"> ❖ Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. ❖ Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. ❖ Identifying scientific evidence that has been used to support or refute ideas or arguments. ❖ Explain degree of trust in results. 	<p><u>Disciplinary knowledge</u></p> <ul style="list-style-type: none"> ❖ Use models to demonstrate evolution e.g. ‘Darwin’s finches’ bird beak activity. 	<p><u>Reading support</u></p> <ul style="list-style-type: none"> ❖ Word mats ❖ Scaffolded recording / choice of recording ❖ Pre teaching of vocab <p><u>Extension deeper thinking</u></p> <ul style="list-style-type: none"> ❖ How might humans evolve in the next few thousand years? ❖ How have humans affected evolution?



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<p><u>Possible misconceptions</u> Some children may think:</p> <ul style="list-style-type: none"> ❖ 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. 	<ul style="list-style-type: none"> ❖ Use secondary sources to find out about how the population of peppered moths changed during the industrial revolution. ❖ Make observations of fossils to identify living things that lived on Earth millions of years ago. ❖ Identify features in animals and plants that are passed on to offspring and explore this process by considering the artificial breeding of animals or plants e.g. dogs. ❖ Compare the ideas of Charles Darwin and Alfred Wallace on evolution. ❖ Research the work of Mary Anning and how this provided evidence of evolution. 	<p><u>Key People</u></p> <ul style="list-style-type: none"> ❖ Charles Darwin ❖ Evolutionary Biologist – Telma G Laurentino ❖ Evolutionary Biologist – Dr Kelsey Byers
<p><u>Prior learning</u></p> <ul style="list-style-type: none"> ❖ Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. (Y2 - Living things and their habitats) ❖ Notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals, including humans) ❖ Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants) ❖ Describe in simple terms how fossils are formed when things that have lived are trapped within rock. (Y3 - Rocks) 	<p><u>British Values</u></p> <ul style="list-style-type: none"> ❖ <u>Democracy</u> Take the views and opinions of others into account. Take turns and instructions from others. ❖ <u>The rule of law</u> Understand the importance of safety rules when working scientifically make choices when planning an investigation as others may have different points of view as to where to start. ❖ <u>Tolerance</u> Scientific discoveries have come from other cultures and religious beliefs often compete with scientific understanding. ❖ <u>Mutual respect</u> Work as a team, discuss findings and Offer support and advice to others. 	<p><u>Christian Values</u></p> <p><u>Courage</u></p> <ul style="list-style-type: none"> ❖ Ask our own questions to support our own understanding of the world and understand that sharing ideas, data, and results (for further testing and development by others) is a key principle of the scientific method. <p><u>Respect</u></p> <ul style="list-style-type: none"> ❖ Supporting other’s ideas, even if they differ to our own. ❖ Explore and celebrate research and developments that take place in many different cultures, both past and present.



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<ul style="list-style-type: none">❖ Recognise that environments can change and that this can sometimes pose dangers to living things. (Y4 - Living things and their habitats)❖ Describe the life process of reproduction in some plants and animals. (Living things and their habitats - Y5) <p><u>Future learning</u></p> <ul style="list-style-type: none">❖ Heredity as the process by which genetic information is transmitted from one generation to the next. (KS3)❖ A simple model of chromosomes, genes and DNA in heredity, including the part played by Watson, Crick, Wilkins and Franklin in the development of the DNA model. (KS3)❖ The variation between species and between individuals of the same species means some organisms compete more successfully, which can drive natural selection. (KS3)❖ Changes in the environment may leave individuals within a species, and some entire species, less well adapted to compete successfully and reproduce, which in turn may lead to extinction. (KS3)		<ul style="list-style-type: none">❖ Explore how scientific discoveries have shaped the beliefs, cultures and politics of the modern world. <p><u>Trust</u></p> <ul style="list-style-type: none">❖ Celebrate everyone's unique ideas and working together collaboratively.
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