



‘An ambitious curriculum that meets the needs of all’
Medium Term Planning - Topic: Evolution

Curriculum Intent	<p>In addition to working further on objectives from KS2, pupils will be taught, following National Curriculum guidelines, the following this topic:</p> <p>Genetics and evolution</p> <ul style="list-style-type: none"> the variation between species and between individuals of the same species means some organisms compete more successfully, which can drive natural selection 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 the importance of maintaining biodiversity and the use of gene banks to preserve hereditary material.
Skills/National Curriculum Links	
Spiritual, moral, social, and cultural development	<p>SMSC: Enable students to develop their self-knowledge of their own body.</p> <p>PSHE/British Values: <i>Gene mutations occur continuously and on rare occasions can affect the functioning of the animal or plant and therefore evolution of a species.</i></p> <p>Skills Builder: Listening (Receiving, retaining and processing info), Speaking (The oral transmission of info and ideas), Problem solving (Find a solution to a situation or challenge), Creativity (imagination and generation of new ideas), Staying positive (The ability to use tactics and strategies to overcome setbacks), aiming high (Set clear and tangible goals), Leadership and teamwork</p>
Numeracy	Looking at different figures – millions of years, thousands of years etc
Literacy	<p>Vocabulary Tier 2: Gradually, billion, resulted, eventually, remains, exist, generation, reduce, disruption, prevent, discovered, re-introduce, rich and varied</p> <p>Vocabulary Tier 3: Evolution, fossil, natural selection, camouflaged, peer review, beak, accepted, observed, extinct, competition, biodiversity, population, species, endangered species, conservation, captive breeding, gene bank,</p> <p>Reading: Following a written method and read risk assessments. Students may be directed to the textbook; this could be in lesson or at home on Kerboodle.</p> <p>Writing: Describing and explaining scientific phenomenon, free response writing for describing precautions taken, use of word mat to promote sentence formation.</p> <p>Oracy: inclusion of BEST resources which are research evidence on common misunderstandings in science, effective diagnostic questioning and formative assessment, constructivist approaches to building understanding, and effective sequencing of key concepts that promote metacognitive talk and dialogue.</p>
Becoming future ready	<p>Careers/Employability:</p> <ul style="list-style-type: none"> - <i>Biologist</i> - <i>Research scientist</i> - <i>Farmer</i> - <i>Zoologist</i>
Adaptation	Throughout this topic, quality first teaching will provide differentiation:
QFT/SEND Provision	<p>By product: Linear assessments and differentiated practical work.</p> <p>By resource: Lessons are differentiated per class and students, worksheets are coloured blue if support and assessments are linear.</p> <p>By Intervention: by providing different levels of supervision and support</p> <p>By Progressive Questioning: exploring pupils’ understanding through interactive dialogue.</p> <p>By Grouping: according to prior attainment, gender, social preference, preferred learning style.</p> <p>By Task: Pupils should be involved in the identification of targets which are meaningful to them and in the selection of an appropriate task from the given range.</p>

	<p>By Offering Optional Activities: In class or as homework, to extend learning. This QFT/SEND provision will be explicit within the lesson-by-lesson schemes of work.</p>
Implementation Curriculum Delivery	<p>To be able to:</p>
Learning Outcomes (Core Knowledge)	<p><i>Know</i></p> <ul style="list-style-type: none"> - State what is meant by peer review. - Name the process by which organisms evolve. <p><i>Apply</i></p> <ul style="list-style-type: none"> - Describe the process of peer review. - Describe the evidence that Darwin used to develop his theory of natural selection. <p><i>Extend</i></p> <ul style="list-style-type: none"> - Explain the importance of peer review to scientists. - Explain how Darwin used the evidence from finches to develop his theory of natural selection and evolution.
	<p><i>Know</i></p> <ul style="list-style-type: none"> - State how survival rates differ for successful adaptation. - State that organisms have changed over time, giving examples. - Create a simple evolutionary sequence. <p><i>Apply</i></p> <ul style="list-style-type: none"> - Describe the process of natural selection. - Describe how organisms evolve over time. - Create an evolutionary family tree, giving justification for the route chosen in the tree. <p><i>Extend</i></p> <ul style="list-style-type: none"> - Explain how natural selection leads to evolution. - Explain how scientists know that organisms have changed over time. - Create an evolutionary family tree, and present reasoned arguments to justify the structure of the tree.
	<p><i>Know</i></p> <ul style="list-style-type: none"> - State what is meant by the term extinct. - State what is meant by biodiversity. - Extract information from scientific text about a possible theory for dinosaur extinction. <p><i>Apply</i></p> <ul style="list-style-type: none"> - Describe some factors that may lead to extinction. - Use examples to describe the difference between an area of high biodiversity and area of low biodiversity. - Interpret evidence provided in scientific texts to explain the most likely theory for dinosaur extinction. <p><i>Extend</i></p> <ul style="list-style-type: none"> - Explain some factors that may have led to extinction. - Explain how a lack of biodiversity can affect an ecosystem. - Interpret evidence provided in a range of scientific texts to explain the most likely theory for dinosaur extinction.
	<p><i>Know</i></p> <ul style="list-style-type: none"> - State what is meant by an endangered species. - Name one way of protecting endangered species. - Identify simple patterns in data. <p><i>Apply</i></p> <ul style="list-style-type: none"> - Describe what is meant by captive breeding. - Describe some techniques used to prevent extinction. - Use data from a graph to describe the effect of Project Tiger on the local tiger population. <p><i>Extend</i></p> <ul style="list-style-type: none"> - Explain some of the advantages and disadvantages of captive breeding. - Explain how the techniques used to prevent extinction work. - Link ideas given in the text to explain data presented in a graph.
	<p><i>Know</i></p> <p>To state why bacteria evolve rapidly.</p> <p><i>Apply</i></p> <p>To explain how antibiotic resistance develops by natural selection.</p> <p>To explain how antibiotic strains of bacteria develop.</p> <p><i>Extend</i></p> <p>To discuss how we can reduce the development of antibiotic-resistant strains.</p>

Know
 Explain what a fossil is
 Apply
 Describe how fossils can form



Current learning
 to be developed in
 the future within:

Before: At KS2 you should understand how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. You may have found out about the work of palaeontologists such as Mary Anning and about how Charles Darwin and Alfred Wallace developed their ideas on evolution.

Future: At GCSE you will learn how variation generated by mutations and sexual reproduction is the basis for natural selection; this is how species evolve and how an understanding of these processes has allowed scientists to intervene through selective breeding to produce livestock with favoured characteristics.

Assessment

Refer to assessment maps for formative and summative assessment opportunities.

Impact

Attainment and Progress – Refer to assessment results / data review documentation.