



<p>Unit: Genetic Information</p> <p>LESSONS</p>	<ol style="list-style-type: none"> 1. DNA, genes and chromosomes 2. DNA and protein synthesis 	<ol style="list-style-type: none"> 3. Genetic diversity can arise as a results of mutation 4. Genetic diversity and adaptation 	<ol style="list-style-type: none"> 5. Species and taxonomy 6. Biodiversity within a community 7. Investigating diversity
<p>Knowledge & Skills Development</p>	<ul style="list-style-type: none"> • Describe the structure of molecules such as tRNA and mRNA • Describe and explain the stages in transcription, including any enzymes involved. • Describe and explain the stages in translation, including any enzymes involved. • Relate the base sequence of nucleic acids to the amino acid sequence of polypeptides, when provided with suitable data about the genetic code • Interpret data from experimental work investigating the role of nucleic acids. • Recall domain, kingdom, phylum, class, order, family, genus and species. • Identify binomial names of species given • appreciate that advances in immunology and genome sequencing help to clarify evolutionary relationships between organisms. • Define biodiversity and species richness • Calculate and index of diversity using the equation given • Describe and explain how diversity within a species can be investigated • Interpret data relating to similarities and differences in the base sequences of DNA and in the amino acid sequences of proteins to suggest relationships between different organisms within a species and between species 		<ul style="list-style-type: none"> • appreciate that gene technology has caused a change in the methods of investigating genetic diversity; inferring DNA differences from measurable or observable characteristics has been replaced by direct investigation of DNA sequences. • Define mutation • Describe deletion and substitution mutations • Recall the stages in meiosis • Complete diagrams showing the chromosome content of cells after the first and second meiotic division, when given the chromosome content of the parent cell • Explain the different outcome of mitosis and meiosis • Recognise where meiosis occurs when given information about an unfamiliar life cycle • Explain how random fertilisation of haploid gametes further Increases genetic variation within a species. • Describe natural selection and directional selection • Use unfamiliar information to explain how selection produces changes within a population of a species • Interpret data relating to the effect of selection in producing change within populations • Show understanding that adaptation and selection are major factors In evolution and contribute to the diversity of living organisms.
<p>Assessment / Feedback Opportunities</p>	<p>Formative Assessment</p> <p>Teacher questioning</p> <p>Quizzes</p> <p>Exam style questions</p> <p>Essays</p>		<p>Summative assessment</p> <p>Topic assessment</p> <p>Exam questions in future end of topic assessments to assess recall</p>

Key Vocabulary	<p>Independent Variable, Dependent Variable, Control Variables, Method, Conclusion, Precaution, Evaluation, Reliable, Precision, Valid, Anomaly, Describe, Explain, Compare, Analyse, Calculate, Suggest, Absolute, Uncertainty, Error</p> <p>Degenerate, Universal, Transcription, Intron, Exon, Splicing, Translation, Genetic Diversity, Directional selection, Stabilising selection, Biodiversity, Hierarchy, Taxonomy, Population, Conservation</p>
Literacy/Reading Opportunities	<p>Subject specific vocabulary introduced before reading of related texts</p> <p>Word etymology from Latin and Greek roots</p> <p>Reading of simple and complex sentences, paragraphs, articles</p> <p>Scientific writing including structuring methods, comparisons and evaluations</p> <p>Synoptic essay writing</p>
Cross Curricular Themes	<p>Numeracy/Maths – averages (means), reading scales, graph plotting, lines of best fit, using and rearranging equations, using scientific calculators, significant figures</p>
Personal Development (Including British Values, RSE, Citizenship)	<p>None</p>
Career Opportunities	<p>Geneticist, ecology, wildlife conservationist, marine biology, zookeeper, education officer at a zoo</p>