




# YEAR 12 TERM 3

‘An ambitious curriculum that meets the needs of all’

## Medium Term Planning - Topic: Variation and evolution

Curriculum Intent	
Skills/National Curriculum Links	<p>Developing knowledge from GCSE Biology or GCSE Combined Science, pupils will be taught, following National Curriculum guidelines, the following this topic:</p> <ul style="list-style-type: none"> <li>• Variation</li> <li>• Competition for breeding success and survival</li> <li>• Selection pressures</li> <li>• Population genetics</li> <li>• Evolution and selection</li> <li>• Isolation and speciation</li> <li>• Darwinian evolution</li> </ul>
Spiritual, moral, social, and cultural development	<p><b>SMSC:</b> Discussion of differences between Darwinian evolution and belief systems  <b>PSHE/British Values:</b> Theory of evolution, invasive species  <b>Skills Builder:</b> Data analysis</p>
Numeracy	<p>Display discontinuous variation using bar charts  Display continuous variation using normal distributions  Interpret changes in distributions  Hardy-Weinberg equation for calculation of allele and genotype frequencies</p>
Literacy	<p><b>Vocabulary Tier 2:</b> variation, inherited, hybrid, inviable, sterile,  <b>Vocabulary Tier 3:</b> continuous variation, polygenic, discontinuous variation, monogenic, selection pressure, natural selection, directional selection, stabilising selection, disruptive selection, founder effect, genetic drift, speciation, deme, reproductive isolation, pre-zygotic isolation, post-zygotic isolation, sympatric speciation, allopatric speciation,  <b>Reading:</b> Students are given opportunity to develop their skills in specified tasks that develop disciplinary literacy. Throughout the A Level Biology course they develop their understanding of the requirements of exam questions and the key terminology in questions. In addition, they read practical methodology and translate this to actions in laboratory tasks.  <b>Writing:</b> Students construct answers independently and through class teaching. Their answers range from single word answers to the planning and writing of 9-mark “extended writing” tasks that require linking of multiple concepts from a topic or across topics. These often develop students’ ability to construct written evaluations of contrasting situations, or data, where the use of comparative connectives are required.  <b>Oracy:</b> Students are regularly given the opportunity to practice their scientific vocabulary in class discussion, through choral response, pair or group discussion and in giving instruction to others during practical activities.</p>
Becoming future ready	<p><b>Careers/Employability:</b> A Level Biology students from Crompton House progress on to a wide range of undergraduate degrees, degree apprenticeships and into work. Opportunities to develop effective communication skills, concise written work, following written and verbal instructions as well as extending their problem solving skills are all key skills identified by business leaders for future success.</p>
Adaptation	<p>Throughout this topic, quality first teaching will provide adaptive teaching accessible to all students:</p>
QFT/SEND Provision	<p><b>By product:</b> Assessments have opportunities for students to achieve all grades, with structured questions and opportunities for development of extended writing for all abilities.  <b>By Intervention:</b> by providing different levels of supervision and support in theory and in practical lessons.  <b>By Progressive Questioning:</b> exploring pupils’ understanding through interactive dialogue.  <b>By Grouping:</b> according to prior attainment, gender, social preference.  <b>By Task:</b> Pupils are involved in the identification of targets which are meaningful to them and in the selection of an appropriate task to develop specific skills further.  <b>By Offering Optional Activities:</b> 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	To be able to: <ul style="list-style-type: none"><li>• Explain that variation is the result of a combination of genetic and environmental factors</li><li>• Describe continuous and discontinuous variation</li><li>• Describe competition for breeding success and survival</li><li>• Describe selection pressures</li><li>• Use the Hardy-Weinberg equation to calculate allele and genotype frequencies</li><li>• Explain the founder effect and genetic drift</li><li>• Describe the mechanisms of natural selection</li><li>• Explain how isolation can result in speciation</li><li>• Describe Darwin's theory of evolution by natural selection</li></ul>	
Learning Outcomes (Knowledge)	Red denotes interleaving; aspects of knowledge covered previously.	
Current learning to be developed in the future within:	Inheritance Application of reproduction and genetics Populations and ecosystems	
Assessment	Refer to assessment maps for formative and summative assessment opportunities.	
Impact	Attainment and Progress – Refer to assessment results / data review documentation.	