



YEAR 12 TERM 3

‘An ambitious curriculum that meets the needs of all’

Medium Term Planning - Topic: Inheritance

Curriculum Intent	<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"> • Monohybrid inheritance • Dihybrid inheritance • Linkage • The chi² test • Sex determination • Sex linkage • Mutation • Control of gene expression <p>Specified practical work</p> <ul style="list-style-type: none"> • Illustration of gene segregation using chi squared test
Skills/National Curriculum Links	
Spiritual, moral, social, and cultural development	<p>SMSC: Inheritance of genetic diseases</p> <p>PSHE/British Values:</p> <p>Skills Builder: Problem solving</p>
Numeracy	<p>Chi squared test</p> <p>Ratios</p>
Literacy	<p>Vocabulary Tier 2: cancer, tumour, genetics</p> <p>Vocabulary Tier 3: homozygous, heterozygous, genotype, phenotype, dominant, recessive, gene, allele, monohybrid, dihybrid, codominant, incomplete dominance, carrier, mutation, point mutation, non-disjunction, polyploid, epigenetics, oncogene, histone</p> <p>Reading: 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.</p> <p>Writing: 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.</p> <p>Oracy: 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>Careers/Employability: 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> <p>By product: Assessments have opportunities for students to achieve all grades, with structured questions and opportunities for development of extended writing for all abilities.</p> <p>By Intervention: by providing different levels of supervision and support in theory and in practical lessons.</p> <p>By Progressive Questioning: exploring pupils’ understanding through interactive dialogue.</p> <p>By Grouping: according to prior attainment, gender, social preference.</p> <p>By Task: 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.</p> <p>By Offering Optional Activities: In class or as homework, to extend learning.</p> <p>This QFT/SEND provision will be explicit within the lesson-by-lesson schemes of work.</p>
QFT/SEND Provision	
Implementation Curriculum Delivery	<p>To be able to:</p> <ul style="list-style-type: none"> • Define genetic terms



Learning Outcomes (Knowledge)	<ul style="list-style-type: none">• Predict the outcome of monohybrid crosses, including the test cross and incomplete and dominance• Predict the outcome of dihybrid crosses, including the test cross• Understand the concept of gene linkage and its consequences for genetic ratios• Carry out a χ^2 test• Explain mechanisms of sex determination• Describe the origins of mutations• Describe sex linkage using haemophilia as an example• Describe gene mutations using sickle cell anaemia as an example• Describe chromosome mutations using Down's syndrome as an example• Describe the relationship between carcinogens and genes• Explain the control of gene expression in epigenetics <p>Red denotes interleaving; aspects of knowledge covered previously.</p>
Current learning to be developed in the future within:	Application of reproduction and genetics Variation and evolution
Assessment	Refer to assessment maps for formative and summative assessment opportunities.
Impact	Attainment and Progress – Refer to assessment results / data review documentation.