YEAR 12 TERM 2

'An ambitious curriculum that meets the needs of all'

Medium Term Planning - Topic: Core concepts: the cell cycle and cell division

Curriculum Intent	
Skills/National Curriculum Links	**Developing knowledge from GCSE Biology or GCSE Combined Science, pupils will be taught, following National Curriculum guidelines, the following this topic:** • Cells and chromosomes • Mitosis and the cell cycle • The significance of mitosis • Meiosis • Comparison of mitosis and meiosis Specified practical work: • Preparation of slides of root tip showing the stages of mitosis • Biological drawing of the stages of mitosis
Spiritual, moral, social, and cultural development	**SMSC:** n/a **PSHE/British Values:** Cloning, genetic variation in offspring, genetic engineering **Skills Builder:** Practical skills, reading a scientific method, recording results
Numeracy	Length of the cell cycle / phases of the cell cycle Mitotic index
Literacy	**Vocabulary Tier 2:** Clone, asexual, genetically identical, chromosome **Vocabulary Tier 3:** Mitosis, meiosis, chromatid, bivalent, homologous, interphase, prophase, metaphase, anaphase, telophase, cytokinesis, diploid, haploid, spindle fibre, cell plate, centriole, centromere, meristem **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. **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. **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.
Becoming future ready	**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.
Adaptation	Throughout this topic, quality first teaching will provide adaptive teaching accessible to all students:
QFT/SEND Provision	**By product:** Assessments have opportunities for students to achieve all grades, with structured questions and opportunities for development of extended writing for all abilities. **By Intervention**: by providing different levels of supervision and support in theory and in practical lessons. **By Progressive Questioning:** exploring pupils' understanding through interactive dialogue. **By Grouping:** according to prior attainment, gender, social preference. **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. **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.
Implementation Curriculum Delivery	To be able to: • Explain the need for the production of genetically identical cells in living organisms • Understand that the replication of DNA takes place during interphase

Learning Outcomes (Knowledge)	• Describe the behaviour of chromosomes and the formation of a spindle during mitosis • Name and describe the main stages of mitosis • Explain that as a result of mitosis, asexual reproduction can take place as well as growth, replacement of cells and repair of tissues • Explain the significance of mitosis as a process in which daughter cells are provided with copies of genes • Describe how cell division may become unrestricted and lead to cancer • Name and describe the main stages in meiosis • Describe how meiosis creates genetic variation • Describe the differences between mitosis and meiosis • Make scientific drawings of cells in meiosis and mitosis Red denotes interleaving; aspects of knowledge covered previously.
Current learning to be developed in the future within:	Core concept topics are developed further in all three final exam Components.
Assessment	Refer to assessment maps for formative and summative assessment opportunities.
Impact	Attainment and Progress – Refer to assessment results / data review documentation.