Long Term Plan: GCSE Biology Year 11

ARCHBISHOP SENTAMU ACADEMY
Church of England

"Science is simply the word we use to describe a method of organising our curiosity."

The programme for Y10 and 11 differs in comparison to KS3. There are 5 sets in each population. X/Y 1 classes will be taught triple science content and will see a subject specialist teacher three times a fortnight. There are 2 data collection points for Y11

Staff use the **Curriculum Road Map** to ensure they teach the correct topic with enough time to cover the depth and breadth of our curriculum.

Topic	Unit title	Key knowledge/ Content to learn and retain	Essential skills to acquire (subject & generic)	Anticipated misconceptions	Links to previous KS	Links to future KS	Opportunity for stretch for high prior attainers
One	Ecology	Biotic and Abiotic factors Competition between organisms Food chains, webs and trophic levels Sampling techniques Human impact on biodiversity (Triple Only) Decay and nutrient cycles (Triple Only) Human food production	Practical sampling techniques Recording accurate data Representing and interpreting data in tabular and graphical form Extended Writing Reading for comprehension	Students often think of humans as organisms beyond or outside of food webs and the larger ecosystem, so it is important that they understand the role humans play The difference between Quadrat and Transect sampling	This unit builds from the study of interdependence in KS3. Students should already have a basic understanding of food chains and how energy flows and is lost along them In KS3 students also study the importance of plants to human food security. This unit also follows directly on from HT1, in which students looked at evolution and how organisms compete for survival	Ecology forms an entire unit of study at Biology A-Level, where students will study all of the concepts looked at here in greater depth.	Consider why and how energy is lost along a food chain Evaluate sampling techniques and suggest why a given technique may be used Suggest ways to improve food security

SMSC & British Values	British values in science Humans as a wider part of the ecosystem and our place and role in protecting the environment; including the consequences if we fail to do so.
Cultural Capital	Study of different ecosystems, climates and habitats both in the UK And worldwide
Career Link	https://www.bbc.co.uk/bitesize/tags/zjb8f4j/jobs-that-use-science/1, https://www.bradfordacademy.co.uk/wp-content/uploads/2019/10/CEIAG-in-the-Curriculum-Science.pdf, https://www.pearson.com/uk/educators/schools/subject-area/science/why-science-matters/your-future-in-stem-a-z.html More information here. Conservationist Farmer Food Scientist Careers with the environment agency or DEFRA (Department for Environment, Food & Rural Affairs)

Two	Inheritance variation and evolution	The structure of DNA Genes and alleles; including the concepts of recessive alleles, dominant alleles, homozygous and heterozygous Structure of DNA and transcription/ translation (Triple only) Sexual vs asexual reproduction Inheritance and punnet squares Inheritance of sex and genetic disorders Evolution by natural selection	Calculation of simple probability Writing and interpreting tree charts Extended writing Calculation of simple probability Writing and interpreting tree charts Extended writing	Alleles as different genes rather than different versions of a gene Confusion between genotype and phenotype	This unit builds on the study of heredity and evolution that is completed in year 8	Study of genetics forms the basis of an entire unit of study in both A-Level biology and Applied human Biology	Sex linked traits Advantages and disadvantages of sexual be asexual reproduction and why organisms capable of both would choose a strategy

		Evidence for evolution, including fossils and genetic evidence Classification How human understanding of genetics has changed over time, Cloning and genetic engineering					
SMSC & British Values	British values in science Inherited disorders and issues around family planning						
Cultural Capital	Charles Darwin and the voyage of the beagle Historical debate around evolution						
Career Link	https://www.bbc.co.uk/bitesize/tags/zjb8f4j/jobs-that-use-science/1, https://www.bradfordacademy.co.uk/wp-content/uploads/2019/10/CEIAG-in-the-Curriculum-Science.pdf, https://www.pearson.com/uk/educators/schools/subject-area/science/why-science-matters/your-future-in-stem-a-z.html More information here. Medical research Family planning adviser Genealogist						
Three	**Revision and preparation for GCSE exams** Revisit to subject knowledge from across the course & use of PLC to ensure that students have a good grasp of all aspects of the specification Use of retrieval quizzes and activities to identify gaps in SK and misconceptions Support students in developing summary notes, flash cards etc to aid retrieval of key facts Ensure that students have the necessary skills for effective revision Focus on past exam questions and papers – command words and application of knowledge Practice the application of knowledge that draws upon the practical aspects of the course						

	Timed completion of questions to support with pace through the exam paper SLOP style activities to ensure that all are prepared for the aspects of maths that will be present on the exam papers