

Long Term Plan: Biology Year 11

“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 4 sets in each population. X/Y 2, 3, and 4 classes will be taught 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	<p>Biotic and Abiotic factors</p> <p>Competition between organisms</p> <p>Food chains, webs and trophic levels</p> <p>Sampling techniques</p> <p>Human impact on biodiversity</p>	<p>Practical sampling techniques</p> <p>Recording accurate data</p> <p>Representing and interpreting data in tabular and graphical form</p> <p>Extended Writing</p> <p>Reading for comprehension</p>	<p>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</p> <p>The difference between Quadrat and Transect sampling</p>	<p>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</p> <p>In KS3 students also study the importance of plants to human food security.</p> <p>This unit also follows</p>	<p>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.</p>	<p>Consider why and how energy is lost along a food chain</p> <p>Evaluate sampling techniques and suggest why a given technique may be used</p> <p>Suggest ways to improve food security</p>

					directly on from HTI, in which students looked at evolution and how organisms compete for survival		
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	Atmospheric Chemistry	The composition of the modern atmosphere and how this has changed from the formation of the Earth Human impact on the atmosphere, including greenhouse gases, climate change and global warming. The impact of major atmospheric pollutants on human health and the environment	Use of timelines Extended Writing Reading for comprehension Evaluating the accuracy of data Using data to make predictions about the outcome of experiments Interpreting data presented	Many students believe that oxygen is the most plentiful gas in the atmosphere, rather than Nitrogen. Many students overestimate the concentration of carbon dioxide in the atmosphere Many students confuse global warming with	In KS3 students studied the atmosphere and discussed the impact of human activity on the climate. This unit builds on this by introducing a more analytical and quantitative approach to exploring human impact on the atmosphere and environment	At A-Level, students will study the impact of CFCs and the mechanism by which they have contributed to loss of ozone.	Students may be asked to compare interventions based on compromise between their environmental and economic impacts.

			in tabular or graphical form	climate change			
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						