

## "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

Торіс	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	Chemical Analysis	Pure and impure substances Chromatography Gas Testing (Triple Only) Flame testing, ion testing and spectroscopy	Following written methods and flow charts Interpreting chromatograms and other experimental results Writing scientific methods Measuring and recording accurate results Safe use of laboratory equipment and glassware. Presenting and interpreting data in both tabular and	Students often confuse the results of the various ion tests. Students often describe spectroscopy as being more "accurate" or "Reliable" as opposed to more "Sensitive" or "Precise"	Students have studied the idea of pure and impure substances, mixtures vs compounds and separation techniques at KS3. This unit extends this by introducing deeper analysis - not just separating mixtures but identifying their components.	Organic Analysis is studied in further depth at A-Level, where students will look at more complex spectroscopic methods, such as IR and MS spectroscopy.	Students could be presented with complex mixtures or a number of different solutions and challenged to produce viable methods of identification.

			graphical form.				
SMSC &	British values in science						
Values	Safe working in the lab, and respect for others workspaces.						
Cultural Capital	The use of sp	The use of spectroscopic methods in real life applications, such as quality assurance and forensic investigation					
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. As the central science, Chemistry opens doors to a range of STEM Field careers						
Two	Atmospheri c 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 in tabular or graphical form	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 climate change	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.
SMSC & British Values	British values in science The effects of climate change, how every day actions contribute to climate change and what interventions can be put in place to prevent climate catastrophe						

Cultural Capital	The effects of climate change, how every day actions contribute to climate change and what interventions can be put in place to prevent climate catastrophe						
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. Climate scientis Environmental campaigner Meteorologist						
Three	Using Resources	Finite and infinite resources Potable water and water treatment Life cycle assessments (Triple Only) Bioleaching and phytomining The use of alloys, polymers and composite materials The Harber Process	Safe use of laboratory equipment Interpreting data presented in tabular or graphical form Recording accurate date Simple calculations involving addition and subtraction Extended Writing Using data to evaluate and compare	The differences between potable and pure water	Students have previously studied the difference between finite and infinite resources, and this is extended in this unit; alongside the new concepts that are introduced.	At A-Level students will study processes such as the Harber Process in greater depth, and place it in its chemical and economical context.	Students could be tasked to carry out life cycle assessments of varying complexities
SMSC & British Values	British values in science The social, economic and environmental impact of modern products, including how individual actions can have an impact on the environment						
Cultural Capital	The social, economic, and environmental impact of modern products, including how individual actions can have an impact on the environment						

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 <u>here</u> .				
	As the central science, Chemistry opens doors to a wide range of STEM field careers				
Five & Six	Supporting Revision – from 24/April				
	Consolidation of the KS4 programme of study				
	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				