Long Term Plan: Physics 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 4 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 – both are PPE's.

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	Space Physics triple only	The solar system The moon The life cycle of a star Red shit, and evidence for the big bang.	Present and interpret data in tabular and graphical form. Extended writing	Some students think the sun must be special in some way, when it is in reality, a very average star. The status of pluto. That the "dark side" of the moon is in perpetual darkness.	This unit follows on from the Universe Topic studied in KS3, looking at concepts in greater depth and introducing the idea of red shift and satellites.	This builds into the Astrophysics unit at A-Level which forms the bulk of Paper Three	Multi Step calculations drawing on equations from multiple units.
SMSC & British Values	British values in science Developments in technologies over time has broadened our understanding of the universe and its contents Provides an opportunity to discuss ideas from different communities and religions around the commencement of life on Earth						
Cultural Capital	A greater appreciation for our place in the universe. SETI, space exploration & colonisation of other planets and moons						

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. This programme opens doors to a wide range of STEM field careers; particularly those in engineering, architecture and mechanical sciences						
Two	Magnetism and Electromagnetism	Bar magnets and the magnetic field around them. Magnetic attraction and repulsion The Earth's magnetic field Electromagnets (HT Only) Electric Motors (Triple Only) Transformers	Record accurate experimental data Present and interpret data in tabular and graphical form. Extended writing Change the subject of, and evaluate equations with four terms.	That all metals are magnetic, rather than just iron, nickel and cobalt.	This unit follows on from the magnetism unit studied in KS3. Students will study the same concepts but in much greater depth.	In the second year of A-Level students will study these concepts in even greater depth, taking a mathematical approach.	Multi Step calculations drawing on equations from multiple units.
SMSC & British Values	British values in science Developments in technologies using magnetism and electromagnetism How the Earth's magnetic field "flips" periodically and the vulnerability the Earth experiences during this short period of time when the switch happens						
Cultural Capital	Use of waves for global and intergalactic communication The ubiquity of magnetism means that problems can be framed in a variety of familiar and unfamiliar contexts						
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. This programme opens doors to a wide range of STEM field careers; particularly those in engineering, architecture and mechanical sciences						

Three (Triple)	Waves	Wave characteristics The wave equation (Triple Only) Lenses Seismic Waves Reflection and Refraction Electromagnetic waves (HT only) Use of waves in communication	Record accurate experimental data Present and interpret data in tabular and graphical form. Extended writing Drawing scientific diagrams to the correct scale	That waves move matter - rather than just energy.	This unit builds directly from the waves topic at key stage three, taking a more quantitative approach, and introducing the idea of electromagnetic waves	At A-Level students will study all kinds of waves in more depth, taking a deeper mathematical approach.	Multi Step calculations drawing on equations from multiple units.
SMSC & British Values	British values in science Waves for communication Dangers of using EM waves Historic discovery of EM waves						
Cultural Capital	Use of waves for global and intergalactic communication The ubiquity of waves means that problems can be framed in a variety of familiar and unfamiliar contexts						
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. This programme opens doors to a wide range of STEM field careers; particularly those in engineering, architecture and mechanical sciences						
Four	**Revision and preparation for GCSE exams (**& Consolidation of this part of the KS4 programme of study) 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 Extensive SLOP style activities to ensure that all are prepared for the aspects of maths that will be present on the exam papers