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Curriculum Progression Pathway for Science
Subject Intent: To provide students with the powerful knowledge in science that will promote social mobility, deepening students' knowledge and understanding of scientific concepts and vocabulary through consistent teaching approaches supported by evidence. To make use of sophisticated interleaving of substantive and disciplinary knowledge, literacy and numeracy skills in order to allow students to revisit and build on prior knowledge which will support them to transfer information into long term memory improving retention of knowledge and depth of understanding. Composite knowledge of big ideas is broken down into components and sequenced logically allowing students to build and understand complex schemas. To develop students' understanding of the importance of science in the world around us and inspire the next generation of scientists, medics and engineers.
Why is the study of science important? The study of science is essential when trying to understand the world around us, developing a sense of excitement and curiosity about natural phenomena. It should empower students to see their potential to influence the future of the environment and the lives of future generations. The link between science knowledge and living longer healthier lives promotes its importance. Also gaining the knowledge of how we are damaging our planet and how we can prevent this damage. Studying science encourages creativity, experimenting and promotes resilience due to the requirement for trial and error. It develops communication skills, focus, organisation and analytical thinking. It also promotes problem solving. The idea that we don't know more than we do know leads to the excitement involved in making scientific discoveries.

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What skills will the study of Science teach students?

- Compile, analyse and critically evaluate information
- Understand and make informed judgements about science based issues
- Interpret use and evaluate data
- Put together reasoned arguments and question assumptions

What will students know and understand from the study of Science?

- Substantive and disciplinary knowledge in line with the national curriculum that is carefully sequenced logically and intertwined to support students in terms of their understanding as well as their cognitive load.
- Substantive knowledge across all 3 specialisms with appropriately linked disciplinary literacy.

How does the study of science support students learning in other subjects?

Curricular links are carefully considered. Adapting the time that topics are taught within the school year supports students' understanding . Cross curricular links with maths inform the appropriate sequencing of key skills such as graph drawing. A joint field trip in Year 8 with Geography makes explicit links with the two curriculum areas and encourages students to see Science in a broader context.

How can you deepen students' understanding of Science?

Deepening students' understanding of science is possible through the use of a wide variety of teaching and learning approaches. Quality first, objective led teaching, carefully checking for misconceptions and addressing these misconceptions. Giving students constant opportunities to be challenged and having their learning broken down into meaningful components. This means that by remembering the key information they have the capacity to explore their ideas at a higher level. Retrieval practice opportunities offered regularly, making the retention of information more possible.

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How can science support students' future progression?

The hierarchical structure of the science curriculum is designed to build on what has been taught at KS1 and 2. This structure also therefore leads to what the next stage of their study involves. Science study skills are valuable not only for future study of science, but also life in general due to the increased knowledge and understanding of the world around us.

Exam board used in Y10 & Y11

AQA

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CURRICULUM PROGRESSION PATHWAY- Biology, Chemistry, Physics (In year 10 and 11 -Some variation in topic timings exists due to topic rotation, but topic order within the sciences remains the same.)					
	Year 7	**Year 8**	**Year 9**	**Year 10**	**Year 11**
Autumn 1	Introduction to science Space Cells Materials	Health and Lifestyle The Periodic table	Cells structure and transport Atomic structure	Plant biology Respiration	Reproduction Variation and evolution Genetics Organising ecosystems Biodiversity
Autumn 2	Particles Body systems	Forces Animal and plant processes	Conservation and dissipation of energy Cell division The Periodic table	Forces in balance Forces in motion Forces and acceleration	Forces in motion
Spring 1	Energy	Separation techniques Electricity and magnetism	Energy transfer by heating Organisation & Digestion	Electrolysis Hydrocarbons Chemical analysis	The Earth's resources Chemical calculations
Spring 2	Separation techniques Sound	Adaptation and Inheritance Metals and acids	Structure and bonding Energy resources	Hormones Reproduction	Mock preparation
Summer 1	Light Elements, atoms and compounds	Motion and pressure Ecosystem	Organising animals Chemical changes	Revisiting key concepts	Revision and Exams

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Summer 2	Reproduction	The Earth	Energy and matter	Biology, Chemistry and Physics paper 1 revision and Mocks	