



# VIA DIVERSA VITA UNA – ONE LIFE, MANY PATHS



## Science curriculum map

*“It is very important for young people to keep their sense of wonder and keep asking why” – Stephen Hawking*

Curriculum text – *Frankenstein – Mary Shelley*

Yr	Intent	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
7	During Year 7, students develop an understanding of the foundations of Biology, Chemistry and Physics whilst securing their “Working Scientifically” skills across all three specialisms. This is built upon the AQA “Big Ideas”, developing the key concepts across the 7 of the 10 areas of knowledge: Forces, Energy, Matter, Earth, Organisms, Ecosystems and Genes.	Being a Scientist (Working Scientifically) The Particle Model (Matter)	Cells (Organisms) Forces and their effects (Forces) Forces and motion (Forces)	Atoms, elements and compounds (Matter) Reproduction (Genes)	Separating Mixtures (Matter) Breathing (Organisms)	Solar system and beyond (Earth) Variation and Classification (Genes)	Energy transfers (Energy) Periodic table (Matter)
8	During Year 8, students build upon the foundations they secured in Year 7, further developing their understanding of the 7 topic areas they have already covered and progressing to develop their knowledge of the key concepts across the final 3 of the 10 areas of knowledge: Electromagnets, Waves and Reactions	Nutrition and digestion (Organisms) Metal reactions (Reactions)	Light and sound (Waves) Static and current (Electromagnets)	Respiration and circulation (Ecosystems) Acids and alkalis (Reactions)	Photosynthesis (Ecosystems) Magnets and electromagnets (Electromagnets)	Types of reaction (Reactions) Ecosystems (Ecosystems)	Heating and cooling (Energy) Environmental chemistry (Earth)
9	During Year 9, students fully secure their knowledge of the 10 Big Ideas and use this to progress into GCSE level content – challenging students to apply their knowledge to unfamiliar scenarios. This further develops students Working Scientifically skills as they are required to implement these alongside their understanding of key scientific concepts in order to plan, carry out and analyse scientific practical work.	Pressure and density (Forces) Evolution and inheritance (Genes)	Chemical energy (Reactions) Work (Energy)	The Earth’s atmosphere (Earth) Energy (Energy)	Atomic structure (Matter) Cell biology (Organisms)	Cell biology (Organisms) Rate of reaction (Reactions)	Particle model of matter (Matter) Ecology (Ecosystems)
10	During Year 10, students develop their knowledge across Biology, Chemistry and Physics using the framework of the 10 Big Ideas. These are implemented alongside the Working Scientifically framework to secure clear understanding of the relationship between theoretical and practical Science. In Year 10, students are taught by specialist teachers with 3 lessons each per fortnight. Students who have opted to take Separate Science cover additional content within each topic, and some additional topics (in italics) which provides a greater depth and breadth to their scientific understanding.	Organisation (Organisms) The periodic table (Matter) Electricity (Electromagnets)	Organisation (Organisms) Structure and bonding (Matter) Electricity (Electromagnets)	Infection and response (Organisms) Chemistry calculations (Reactions) Chemical changes (Reactions) Atomic structure (Matter)	Infection and response (Organisms) Electrolysis (Earth) Forces (Forces)	Bioenergetics (Ecosystems) Energy changes (Reactions) Crude oil and fuels (Earth) Forces (Forces)	Homeostasis and response (Organisms) <i>Organic reactions (Reactions)</i> <i>Polymers (Matter)</i> Crude oil and fuels (Earth) Forces (Forces) Waves (Waves)
11	During Year 11, students develop the final scientific knowledge and Working Scientifically skills required, before applying these across a range of revision and intervention sessions to fully secure the knowledge they have developed since their Year 7 studies began.	Inheritance, variation and response (Genes) Chemical analysis (Matter) The Earth’s atmosphere and resources (Earth) Waves (Waves) Electromagnetism (Electromagnets)	Inheritance, variation and response (Genes) The Earth’s atmosphere and resources (Earth) <i>Using our resources (Earth)</i> <i>Space Physics (Earth)</i> Electromagnetism (Electromagnets)	Paper 1 Revision	Paper 2 Revision	Examinations (Paper 1)	Examinations (Paper 2)
12	The programme of study in Year 12 varies between specialisms in terms of content, although all programmes build further on the Big Ideas that form the core structure throughout Key Stages 3 and 4. <ul style="list-style-type: none"> <li>Applied Science BTEC – students develop research and practical skills through practical-based coursework tasks, as well as developing their understanding of complex scientific concepts across Biology, Chemistry and Physics</li> <li>Biology, Chemistry and Physics A Level courses all follow the OCR A framework which develops their understanding of complex scientific concepts alongside the development of their practical skills as seen in industry and academia.</li> </ul>	Applied Science BTEC – Unit 1: Principles and Applications of Science I  A Levels - Module 2: Biology – Foundations in biology Chemistry – Foundations in chemistry Physics – Foundations of physics	Applied Science BTEC – Unit 1: Principles and Applications of Science I  A Levels - Module 2: Biology – Foundations in biology Chemistry – Foundations in chemistry Physics – Foundations of physics	Applied Science BTEC – Unit 1: Principles and Applications of Science I  A Levels - Module 3: Biology – Exchange and transport Chemistry – Periodic table and energy Physics – Forces and motion  A Levels - Module 4: Biology – Biodiversity, evolution and disease Chemistry – Core organic chemistry Physics – Electrons, waves and photons	Applied Science BTEC – Unit 3: Science Investigation Skills  A Levels - Module 3: Biology – Exchange and transport Chemistry – Periodic table and energy Physics – Forces and motion  A Levels - Module 4: Biology – Biodiversity, evolution and disease Chemistry – Core organic chemistry Physics – Electrons, waves and photons	Applied Science BTEC – Unit 1: Revision  A Levels - Module 3: Biology – Exchange and transport Chemistry – Periodic table and energy Physics – Forces and motion  A Levels - Module 4: Biology – Biodiversity, evolution and disease Chemistry – Core organic chemistry Physics – Electrons, waves and photons	Applied Science BTEC – Unit 3: Science Investigation Skills  A Levels – Revision and Mock Examinations
13	The programme of study in Year 13 varies between specialisms in terms of content, although all programmes build further on content covered in Year 12, with practical skills being integrated into each module.	Applied Science BTEC – Unit 3: Science Investigation Skills  A Levels – Module 5: Biology – Communication, homeostasis and energy Chemistry – Physical chemistry and transition elements Physics – Newtonian world and astrophysics  A Levels – Module 6: Biology – Genetics, evolutions and ecosystems Chemistry – Organic chemistry and analysis Physics – Particles and medical physics	Applied Science BTEC – Unit 2: Practical scientific procedures and techniques  A Levels – Module 5: Biology – Communication, homeostasis and energy Chemistry – Physical chemistry and transition elements Physics – Newtonian world and astrophysics  A Levels – Module 6: Biology – Genetics, evolutions and ecosystems Chemistry – Organic chemistry and analysis Physics – Particles and medical physics	Applied Science BTEC: Unit 2: Practical scientific procedures and techniques Unit 15: Electrical circuits and their applications  A Levels – Module 5: Biology – Communication, homeostasis and energy Chemistry – Physical chemistry and transition elements Physics – Newtonian world and astrophysics  A Levels – Module 6: Biology – Genetics, evolutions and ecosystems Chemistry – Organic chemistry and analysis Physics – Particles and medical physics	Applied Science BTEC: Unit 2: Practical scientific procedures and techniques Unit 15: Electrical circuits and their applications  A Levels – Module 5: Biology – Communication, homeostasis and energy Chemistry – Physical chemistry and transition elements Physics – Newtonian world and astrophysics  A Levels – Module 6: Biology – Genetics, evolutions and ecosystems Chemistry – Organic chemistry and analysis Physics – Particles and medical physics	Applied Science BTEC: Unit 15: Electrical circuits and their applications  A Levels – Revision in preparation for external examinations	Revision in preparation for external examinations

*The national curriculum frame work for science is fully covered by the SRPA curriculum provision.*