



# Curriculum Overview

## Science

### Medium term plans covered

	Autumn Term		Spring Term		Summer term	
	HT1	HT2	HT3	HT4	HT5	HT6
	Year 7	Introduction to Science Biology: Cells Chemistry: Particle Model	Physics: Forces Biology: Structure and Function of Organisms Chemistry: Atoms, Elements and Compounds	Chemistry: Atoms, Elements and Compounds Physics: Energy Biology: Reproduction	Biology: Reproduction Chemistry: Chemical Reactions Physics: Sound and Light	Physics: Sound and Light Chemistry: Acids and Alkalis
Year 8	Chemistry: Acids and Alkalis Biology: Health and Lifestyle	Chemistry: The Periodic Table Physics: Energy Biology: Biological Processes	Chemistry: Metals and Acids Physics: Motion and Pressure	Physics: Motion and Pressure Biology: Inheritance	Biology: Inheritance Chemistry: The Earth	Physics: Heating and Cooling Chemistry: Quantitative Chemistry End of Year Review
Year 9	Scientific Skills Biology (B1): Cells and Mitosis Chemistry (C1): Atomic Structure	Chemistry (C1): Atomic Structure Physics (P1): Energy Stores and Calculations Biology (B1): Movement of Substances	Biology (B1): Movement of Substances Chemistry (C1): Separating Techniques Physics (P1): Using Energy Resources	Biology (B2): Digestion and Plants Chemistry (C5): Energy Changes	Chemistry (C5): Energy Changes Physics (P4): Radioactivity	Biology (B2): Circulation and Health End of Year Review
Year 10 (Combined)	Chemistry (C2): Structure and Bonding Physics (P2): Electricity and Magnetism Biology (B3): Infection and Response	Biology (B3): Infection and Response Chemistry (C3): Quantitative Chemistry Chemistry (C4): Chemical Changes	Chemistry (C3): Quantitative Chemistry Chemistry (C4): Chemical Changes Physics (P4): Atomic Structure Biology (B4): Bioenergetics	Physics (P4): Atomic Structure Biology (B4): Bioenergetics Physics (P5): Forces Chemistry (C6): Rates of Reaction	Physics (P5): Forces Chemistry (C6): Rates of Reaction	Revision and PPES
Year 10 (Separate)	Biology (B3): Infection and Response Chemistry (C2): Structure and Bonding Physics (P2): Electricity and Magnetism	Biology (B3): Infection and Response Chemistry (C2): Structure and Bonding Physics (P2): Electricity and Magnetism Biology (B4): Bioenergetics Chemistry (C3): Quantitative Chemistry	Biology (B4): Bioenergetics Chemistry (C3): Quantitative Chemistry Physics (P4): Atomic Structure	Biology (B4): Bioenergetics Chemistry (C3): Quantitative Chemistry Physics (P4): Atomic Structure Biology (B7): Ecology Chemistry (C4): Chemical Changes	Biology (B7): Ecology Physics (P5): Forces Chemistry (C6): Rates of Reaction	Revision and PPES
Year 11 (Combined)	Biology (B7): Ecology - Biodiversity and Resources Chemistry (C6): Rates of Reactions Chemistry (C7): Organic Chemistry	Biology (B6): Inheritance, Variation and Evolution Chemistry (C8): Chemical Analysis Physics (P6): Waves Chemistry (C10): Using Resources	Biology (B6): Inheritance, Variation and Evolution Chemistry (C10): Using Resources Physics (P7): Magnetism	Revision	Revision and Exams	
Year 11 (Separate)	Biology (B7): Ecology - Biodiversity and Resources Chemistry (C6): Rates of Reactions Physics (P5): Forces Physics (P6): Waves	Biology (B6): Inheritance, Variation and Evolution Chemistry (C7): Organic Chemistry Physics (P6): Waves	Biology (B6): Inheritance, Variation and Evolution Chemistry (C7): Organic Chemistry Chemistry (C8): Chemical Analysis Physics (P7): Magnetism	Biology (B6): Inheritance, Variation and Evolution Chemistry (C8): Chemical Analysis Chemistry (C10): Using Resources Physics (P8): Space	Revision and Exams	



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Year 12 (Biology)	Unit 1: biological molecules Unit 2: Cell structure Unit 2: Transport	Unit 1: Nucleic acids Unit 2: Immunity	Unit 3: Exchange Unit 4: DNA, genes & protein synthesis	Unit 3: mass transport Unit 4: genetic diversity Unit 4: biodiversity	Revision and Exams	
Year 12 (Chemistry)	3.1.1. Atomic Structure 3.1.2 Amount of substance	3.1.3 Bonding 3.1.4. Energetics 3.2.1 Periodicity	3.1.5. Kinetics 3.1.6. Equilibria 3.2.2. Group 2 The alkaline earth metals 3.3.1 Introduction to Organic Chemistry	3.3.2. Alkanes 3.3.3 Haloalkanes 3.3.4. Alkenes	3.2.3. Group 7 Halogens 3.3.5. Alcohols Revision and Exams	3.1.7. Oxidation, reduction and redox 3.3.6. Organic Analysis Revision and Exams
Year 12 (Physics)	Unit 1 - measurements and errors Unit 2- particles and their interactions	Unit 3- Waves and optics Unit 5 - mechanics	Unit 3 - Waves and optics Unit 5 - mechanics	Unit 4 - Electricity Unit 5 - mechanics	Unit 4 - Electricity Unit 5 - materials	Unit 6 - thermal physics and further mechanics
Year 12 (Applied)	<u>Unit 1: Principles and Application of Science</u> Chemistry: Periodicity and properties of elements Biology: Cell Structure and Function Physics: Waves in communication			<u>Unit 2: Practical Scientific Procedures and Techniques</u> A Undertake titration and colorimetry to determine the concentration of solutions B Undertake calorimetry to study cooling curves C Undertake chromatographic techniques to identify components in mixtures D Review personal development of scientific skills for laboratory work. Unit 1: Resets and Revision		
Year 13 (Biology)	Unit 5: Photosynthesis & respiration Unit 6: Response to stimuli	Unit 5: energy in ecosystems Unit 6: Nervous system and muscles & homeostasis	Unit 7: Inheritance Unit 8: gene expression and control	Unit 7: population and ecosystems Unit 8: recombinant DNA technology	Unit 7: population and evolution	Revision and Exams
Year 13 (Chemistry)	3.1.8 Thermodynamics 3.1.9 Rates Equations 3.3.7 Optical Isomerism 3.3.8 Aldehydes, Ketones 3.3.9 Carboxylic Acids	3.1.10 Equilibrium Constant K <sub>p</sub> 3.1.11 Electrode Potentials 3.3.10 Aromatic Chemistry 3.3.11 Amines 3.3.12 Polymers 3.3.13 Amino Acids, Proteins and DNA	3.1.12 Acids and Bases 3.3.14 Organic Synthesis 3.3.15 NMR 3.3.16 Chromatography 3.2.4 Properties of Period 3 Elements	3.2.5 Transition Metals 3.2.6 Reactions of Ions in Aqueous Solutions	Revision and Exams	Revision and Exams
Year 13 (Physics)	Unit 6 - thermal physics and further mechanics	Unit 7 - intro to fields Unit 8 - nuclear physics	Unit 7 - gravitational fields, electric fields	Unit 7 - magnetic fields Option unit	Revision and Exams	Revision and Exams
Year 13 (Applied)	<u>Unit 3: Science Investigation Skills</u> A Planning a scientific investigation B Data collection, processing and analysis/interpretation C Drawing conclusions and evaluation D Enzymes in action F Plants and their environment G Energy content of fuels H Electrical circuits Unit 1: Resets and Revision			<u>Unit 8: Physiology of Human Body Systems</u> A Understand the impact of disorders of the musculoskeletal system and their associated corrective treatments B Understand the impact of disorders on the physiology of the lymphatic system and the associated corrective treatments C Explore the physiology of the digestive system and the use of corrective treatments for dietary-related diseases. Unit 1 and Unit 3: Resets and Revision		