

Curriculum Map - Science

Curriculum Intent

Through a well thought out curriculum and well executed lessons we hope to play a part in creating confident and courageous young people who are liberated through the knowledge we teach them to be critical evaluators in an ever-changing world.

We hope to inspire all students to feel passionately about the science of everyday life to see how the big ideas of science have developed throughout time and are a continuum of ideas and theories that at times involve paradigm shifts in our cultures and beliefs. We hope that in doing so we are preparing our young people to question and embrace further developments and to use scientific fact to differentiate from the fake news and scaremongering that is all around us.

Lastly, we want to instil in our students a sense of pride in their achievements and the achievements of others as we provide opportunities for all students to experience success and to provide information on the exciting career pathways that science can lead them to.

Key Stage 3

		Autumn		Spring		Summer	
<u>Y7</u>	T1 (3)	Matter - Solids, Liquids & Gases	Matter - Atoms, Elements & Compounds	Waves - Sound & Light		Matter - Types of Reaction	Ecosystems - Interdependence
	T2 (3)	Forces - Balanced & Unbalanced	Organisms - Cells & Microscopy	Organisms - Organisation			Earth - Solar System & Space
	Lit	Autumn Literacy & Numeracy		Spring Literacy & Numeracy		Summer Literacy & Numeracy	
<u>Y8</u>	T1 (3)	Matter - Separating Mixtures	Forces - Forces at Work	Genes - Human & Plant Reproduction	Genes - Variation, Evolution & Inheritance	Earth - Structure, Climate & Resources	
	T2 (3)	Energy - Stores & Transfers	Electromagnets - Electricity & Static	Reactions - Acids & Alkalis	Reactions - Energy in Reactions	Electromagnets - Magnets, Electromagnets & Generating Electricity	
	Lit	Autumn Literacy & Numeracy		Spring Literacy & Numeracy		Summer Literacy & Numeracy	

Year 9 (GCSE)

TERM		Autumn	Spring	Summer
Y9	T1	4.1 Cell Biology	6.1 Energy	4.4 Bioenergetics (inc. Plant Organisation)
	T2	5.1 Atomic Structure & Periodic Table	5.2 Structure & Bonding	6.3 Particle Model of Matter

Key Stage 4 (GCSE)

TERM		Autumn	Spring	Summer
Y10	Bi	4.2 Organisation	4.3 Infection & Response	4.7 Ecology
	Ch	5.4 Chemical Changes	5.5 Energy Changes	5.6 Rates of Reaction
	Ph	6.2 Electricity	6.3 Particle Model of Matter (Triple Only) 6.4 Atomic Structure	6.5 Forces
Y11	Bi	4.5 Homeostasis	4.6 Inheritance, Variation & Evolution	Revision & Exams
	Ch	Finish 5.6 Rates (if needed) 5.7 Organic	5.8 Chemical Analysis	5.9 Chemistry of the Atmosphere 5.10 Using Resources Revision & Exams
	Ph	Finish 6.5 Forces (if needed) 6.6 Waves	6.7 Magnetism & Electromagnetism	6.8 Space (Triple Only) Revision & Exams

GCSE Assessments

AQA GCSE Combined Science: Trilogy (1h15, 70 marks each)

- **Biology Paper 1:** Cell Biology; Organisation, Infection & Response; and Bioenergetics
- **Biology Paper 2:** Homeostasis & Response; Inheritance, Variation & Evolution; and Ecology
- **Chemistry Paper 1:** Atomic Structure & Periodic Table; Bonding, Structure and Properties of Matter; Quantitative Chemistry; Chemical Changes, and Energy in Reactions
- **Chemistry Paper 2:** The Rate and Extent of Chemical Change; Organic Chemistry; Chemical Analysis; Chemistry of the Atmosphere; and Using Resources
- **Physics Paper 1:** Energy; Electricity; Particle Model of Matter; and Atomic Structure
- **Physics Paper 2:** Forces; Waves; and Magnetism & Electromagnetism

AQA GCSE Biology (Triple Science) (1h45, 100 marks each)

- **Biology Paper 1:** Cell Biology; Organisation, Infection & Response; and Bioenergetics
- **Biology Paper 2:** Homeostasis & Response; Inheritance, Variation & Evolution; and Ecology

AQA GCSE Chemistry (Triple Science) (1h45, 100 marks each)

- **Chemistry Paper 1:** Atomic Structure & Periodic Table; Bonding, Structure and Properties of Matter; Quantitative Chemistry; Chemical Changes, and Energy in Reactions
- **Chemistry Paper 2:** The Rate and Extent of Chemical Change; Organic Chemistry; Chemical Analysis; Chemistry of the Atmosphere; and Using Resources

AQA GCSE Physics (Triple Science) (1h45, 100 marks each)

- **Physics Paper 1:** Energy; Electricity; Particle Model of Matter; and Atomic Structure
- **Physics Paper 2:** Forces; Waves; Magnetism & Electromagnetism; and Space Physics

Key Stage 5 (A-Level)

TERM		Autumn			Spring			Summer			
Y12	Bi	3.1 Biological Molecules					3.3 Organisms Exchange Substances with their Environment				
		3.2 Cell Biology						3.4 Genetic Information, Variation and Relationships between Organisms			
	Ch	Atomic Structure	Amount of substance	Energetics	Chemical equilibria	Equilibrium constant	Oxidation, reduction and redox	Periodicity and group 2	Halogens		
		Electronic Structure	Bonding	Introduction to Organic	Alkanes	Halogenoalkanes	Kinetics	Alkenes	Alcohols	Organic Analysis	
	Ph	3.1 Measurements & Errors	3.2 Particle Physics & Quantum Phenomena		3.4.1 Mechanics			3.6.1 Further Mechanics			
		3.3 Waves			3.4.2 Materials		3.5 Electricity		Year 1 Revision		
	Sc	Unit 1: Principles & Applications of Biology									
		Unit 2: Principles & Applications of Chemistry									
		Unit 3: Principles & Applications of Physics									

TERM		Autumn				Spring				Summer	
Y13	Bi	3.6 Organisms respond to changes in their internal and external environments				3.7 Genetics, populations, evolution and ecosystems				Essays & Revision	
		3.5 Energy transfers in and between organisms				3.8 The Control of Gene Expression				Revision	
	Ch	Thermodynamics Born Haber cycles	Thermodynamics Gibbs and entropy	Equilibrium K_p	Electrode potentials and cells	Acids and bases	Properties of Period 3 elements and their oxides	Transition metals	Revision		
		Optical isomerism	The carbonyl group		Aromatic chemistry	Amines	Polymers, amino acids and DNA	Organic synthesis, NMR and chromatography	Revision		
	Ph	3.7.1/2 Gravitational Fields	3.7.3 Electric Fields	3.7.4 Capacitance		3.7.5 Magnetic Fields	(2025) Year 1 Revision	Revision			
		3.6.2 Thermal Physics		3.8 Nuclear Physics			Option Unit D - Turning Points in Physics		Revision		
	Ev	Agriculture		Marine Agriculture		Forestry			Revision		
		Pollution						Revision			
		Geochemical Cycles			Sustainability			Revision			

AQA A-Level Biology:

- **Paper 1:** Biological Molecules, Cell Biology, Organisms Exchange Substances with their Environment , Genetic Information, Variation and Relationships between Organisms, including relevant practical skills
- **Paper 2:** Energy transfers in and between organisms, Organisms respond to changes in their internal and external environments, Genetics, populations, evolution and ecosystems, The Control of Gene Expression, including relevant practical skills
- **Paper 3:** Any content from topics 1–8, including relevant practical skills PLUS Synoptic essay

AQA A-Level Chemistry:

- **Paper 1:** Physical and Inorganic
- **Paper 2:** Physical and Organic
- **Paper 3:** Synoptic paper of full course, including practical skills

AQA A-Level Physics:

- **Paper 1:** Particle Physics; Quantum Phenomena & Electromagnetic Radiation; Waves; Mechanics; Materials; Electricity; and Further Mechanics
- **Paper 2:** Thermal Physics; Gravitational Fields; Electric Fields; Capacitance; Magnetic Fields; and Nuclear Physics
- **Paper 3a:** Synoptic Practical Skills Paper
- **Paper 3b:** Option Topic – Turning Points in Physics

AQA A-Level Environmental Science: (Y13 2025 ONLY)

- **Paper 1 (180 mins)** The physical environment, Energy resources, Pollution, Research methods
- **Paper 2 (180 mins)** The living environment, Biological resources, Sustainability, Research methods

Pearson AAQ BTEC Applied Science: (Y12 2025 ONLY)

- **Unit 1:** Principles & Applications of Biology
- **Unit 2:** Principles & Applications of Chemistry
- **Unit 3:** Principles & Applications of Physics
- **Unit 4:** Practical Scientific Procedures & Techniques
- **Option Unit 6:** Contemporary Issues in Science