

Curriculum Intent Framework



Subject:	Science
Curriculum Vision:	We seek to encourage students to have a sense of curiosity and wonder at the complexity of the world around them. As Einstein famously said, “the important thing is never to stop questioning.” Our Science curriculum helps students to learn to see the world analytically through the acquisition of knowledge, development of scientific skills and the recognition that problems can be solved.

Core Subject Values:

Dignity and Respect	Scientific ideas are discussed openly so that students feel valued. Our positive learning environments ensure that students have the self-belief and confidence to discuss modern issues whilst showing respect to others. We strive to instill an understanding that spiritual beliefs do not have to conflict with Scientific ideas.
Wisdom, Knowledge and Skills	Our curriculum provides learners with the knowledge and practice to ensure a solid foundation in scientific thinking. Robust recall processes during taught lessons, alongside state-of-the-art online learning platforms for use outside of the classroom ensure students learn and develop key skills. Opportunities are given to develop conversation around the big questions that naturally occur from Scientific enquiry.
Hope and Aspiration	Students are inspired by interactive lessons which include elements of linking their learning to possible careers. We set high expectations for all students and encourage self-improvement and independent learning in parallel to structured debate where students are given the tools which will allow reasoned argument within civil discourse.
Extra-curricular Provision	Students participate in different extra-curricular opportunities helping our young learners investigate their relationship with the world around them. We participate in events such as: STEM projects, Unilever’s Bright Future Inspire Programme, GCSE competitions such as the National Scientific Thinking Challenge, Sixth form young analyst competition and other events.

KS3 Science Map

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 7 – taught sequentially across teacher split	Introduction to Science: practical skills and working scientifically Biology: Movement and cells	X1,X3b,Y2,Y3a: Chemistry: Particle model and mixtures Physics: Speed X2,X3a,Y1,Y3b: Physics: Speed and gravity Chemistry: Particle model	X1,X3b,Y2,Y3a: Physics: Gravity X2,X3a,Y1,Y3b: Chemistry: Mixtures PPE assessment Both year halves: Biology: Variation Biology: Human Reproduction	X1,X3b,Y2,Y3a: Physics: Static electricity Physics: Electrical voltage X2,X3a,Y1,Y3b: Chemistry: The Earth Chemistry: The Universe	X1,X3b,Y2,Y3a: Chemistry: The Earth Chemistry: The Universe X2,X3a,Y1,Y3b: Physics: Static electricity Physics: Electrical voltage Both year halves: 1 week revision EOY assessment	Both year halves: EOY assessment review Physics: Sound and light Working scientifically: Scientific skills developed. Focused practical work used to prepare pupils for year 8. Buzz of learning activities.
Year 8 – taught sequentially across teacher split	Both halves of year: Biology: Interdependence Biology: Plant reproduction A1,A3b,B2,B3a: Chemistry: Metals and non-metals A2,A3a,B1,B3b: Physics: Energy costs	A1,A3b,B2,B3a: Chemistry: Acids and alkalis Physics: Energy costs Physics: Energy transfers Biology: Breathing A2,A3a,B1,B3b: Physics: Energy transfers Chemistry: Metals and non-metals Chemistry: Acids and alkalis Chemistry: Climate	A1,A3b,B2,B3a: Biology: Digestion Chemistry: Climate Chemistry: Earth’s A2,A3a,B1,B3b: Chemistry: Earth’s resources Biology: Breathing Biology: Digestion	A1,A3b,B2,B3a: Chemistry: Elements Chemistry: The periodic table Physics: Forces Physics: Pressure A2,A3a,B1,B3b: Physics: Forces Physics: Pressure Chemistry: Elements Chemistry: The periodic table	Both halves Biology: Respiration Biology: Photosynthesis Review of year 7 and 8 topics ready for EOY assessment	End of year assessments Review of end of year assessments Both year halves: Physics: Magnets and electromagnets Working scientifically: Scientific skills developed. Focused practical work used to prepare pupils for year 9. Buzz of learning activities.
Year 9 – taught in subject specialist groups	Biology: Evolution Chemistry: Chemical energy Physics: Magnets and electromagnets	Biology: Inheritance Chemistry: Types of reaction Physics: Work and heating Followed by: Structured revision for internal exams		Structured revision for internal exams End of KS3 assessments Review of end of year assessments Key gaps/misconceptions addressed in preparation for KS4	<i>Starting KS4 content to end of year</i> Biology: Cell biology Chemistry: Atomic structure and the periodic table Physics: Atomic structure	

KS4 Science

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 10	Biology: Organisation Chemistry: Structure and bonding Physics: Electricity	Biology: Organisation Chemistry: Structure and bonding Physics: Electricity	Biology: Infection and response Chemistry: Quantitative chemistry Physics: Particle model	Biology: Infection and response, Bioenergetics Chemistry: Chemical changes Physics: Particle model	Biology: Bioenergetics Chemistry: Chemical changes Physics: Atomic Structure	Biology: Ecology Chemistry: Energy Physics: Atomic Structure and revision
Year 11	Biology: Ecology Chemistry: Rates Physics: Forces	Biology: Homeostasis Chemistry: Organic Chemistry Physics: Forces	Biology: Inheritance Chemistry: Atmosphere and Chemical analysis Physics: Waves	Biology: Inheritance Chemistry: Resources Physics: Magnetism	GCSE Examinations and Preparation	GCSE Examinations and Preparation

KS5 Biology

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 12	<p>Teacher 1: Topic 1 Biological Molecules 1.1-1.4</p> <p>Teacher 2: Topic 2: Cells and Viruses 2.1-2.2</p>	<p>Teacher 1: Topic 1 Biological Molecules 1.4-1.6</p> <p>Teacher 2: Topic 2: Cells and Viruses 2.3-2.5</p>	<p>Teacher 1: Topic 4 Exchange and transport 4.1-4.3</p> <p>Teacher 2: Topic 3: Classification 3.1-3.3</p>	<p>Teacher 1: Topic 4 Exchange and transport 4.4-4.5</p> <p>Teacher 2: Core Practicals</p>	<p>Consolidation of AS Biology.</p> <p>Review of CPACs and preparation for end of year assessment</p>	<p>Teacher 1: Topic 6 Microbiology and Pathogens</p> <p>Teacher 2: Topic 10 Ecosystems</p>
Year 13	<p>Teacher 1: Topic 6 Microbiology and Pathogens 6.1-6.2</p> <p>Teacher 2: Topic 10 Ecosystems</p>	<p>Teacher 1: Topic 7 Modern Genetics</p> <p>Teacher 2: Topic 5 Energy for Biological Processes</p>	<p>Teacher 1: Topic 8 Origins of Genetic Variation</p> <p>Teacher 2: Topic 9 Chemical control in mammals and plants</p>	<p>Teacher 1: Topic 8 Origins of Genetic Variation</p> <p>Teacher 2: Topic 9 Chemical control in mammals and plants</p>	<p>A-level Examinations and Preparation</p>	

KS5 Chemistry

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 12	Teacher 1: Atomic Structure Teacher 2: Bonding	Teacher 1: Amount of substance Energetics Teacher 2: Kinetics Introduction to organic	Teacher 1: Equilibria Teacher 2: Alkanes Halogenoalkanes	Teacher 1: Redox Periodicity Teacher 2: Alkenes Alcohols	Teacher 1: Redox Periodicity Teacher 2: Mass Spec and IR	Consolidation of AS Chemistry. Review of CPACs and preparation for end of year assessment
Year 13	Teacher 1: Rates of reaction Teacher 2: Isomerism and aldehydes and ketones	Teacher 1: Thermodynamics Electrochemical cells Teacher 2: Carboxylic acids and aromatic chemistry Nitrogen chemistry (amines, polymers)	Teacher 1: Acids and bases Teacher 2: Nitrogen chemistry (amines, polymers) NMR	Teacher 1: Reactions of ions in aqueous solutions Teacher 2: Transition metals	A-level Examinations and Preparation	

KS5 Physics

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 12	Both: Measurements and their errors Teacher 1: Wave phenomena Teacher 2: Particles and radiation	Teacher 1: Wave phenomena Teacher 2: Particles and radiation	Teacher 1: Electricity Teacher 2: Mechanics	Teacher 1: Electricity Teacher 2: Mechanics	Teacher 1: Electricity Teacher 2: Materials	Teacher 1: Thermal Physics Teacher 2: Further mechanics
Year 13	Teacher 1: Further mechanics Teacher 2: Thermal Physics	Teacher 1: Further mechanics Teacher 2: Nuclear Physics	Teacher 1: Fields and their consequences Teacher 2: Nuclear Physics/ Astrophysics	Teacher 1: Fields and their consequences Teacher 2: Astrophysics	A-level Examinations and Preparation	