Our Vision:

To develop aspirational learners who strive for excellence academically, creatively and culturally, benefitting from a wide range of opportunities led by inspirational educators.

Science Curriculum
Overview Mapping

Year Group	Curriculum Intention	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 7	"Novice" = Developing context and the general rules and laws of several scientific processes. Challenge pupils to: Develop and appetite to construct their own ideas that although deviate from the "rules" show extension of the scientific principles	Introductory science + Force + Matter	Organisms + Energy	Reactions +	Ecosystems + Electromagnets	Genes + Waves	Earth + Cultural capital
Year 8	"Advanced Beginner" = Increasing situational perception and competency. Challenge pupils to: Develop the understanding of causal effect and deliberate planning of scientific investigations.	Forces + Matter	Organism + Electromagnets +	Reactions	Ecosystem + Energy	Genes + Waves	Earth

Year 9	"Competent" = Learners are now able to apply their classroom science to the wider world and how their learning links with possible career options. Challenge pupils to: Communicate with the correct scientific keywords.	B: Cell Structure and Cell Transport C: Atomic Structure	P: Conservation and Dissipation of Energy C: The Periodic Table B: Cell Division	P: Energy Transfer by Heating C: Bonding and Structure B: Organisation and the Digestive System	P: Energy resources B: Organising animals and plants	C: Chemical Changes P: Electrical Circuits	Revision / EOY exam
Year 10	"Proficient scientist" = Learners are now able to take their KS3 knowledge and develop it further to become proficient in the subject Challenge pupils to: Link KS3 ideas to higher level thinking.	1 Cell Biology 8 Atomic structure and the PT 18 Energy	20 Particle model of matter 21 Atomic structure 2 Organisation	9 Bonding, structure and the properties of matter 10 Quantitative chemistry 3 Infection and response	11 Chemical changes 12 Energy changes	4 Bioenergetics 14 Organic chemistry 19 Electricity	The rate and exchange of chemical change; END OF YEAR EXAMS WEX Cultural Capital Week
Year 11	"Expert scientist" = Learners are now able to complete their GCSE studies and progress to their exams. Challenge pupils to: Apply their knowledge in an intuitive way to unfamiliar situations.	5 Homeostasis and response 22 Forces	PPES 13 The rate and extent of chemical change 23 Waves 24 Magnetism and electromagnetism	12 EM spectrum 15 Chemical analysis 16 Chemistry of the atmosphere	PPES 7 Ecology 17 Using resources	GCSE revision	GCSE exams
Year 12 Biology	A level Biology is a stepping stone to future study. We have chosen a course that allows students to develop the skills that they will need in future studies. The course allows us to support and inspire our students to nurture a passion for Biology and lay the groundwork for further study in courses like biological sciences, medicine and other science related courses.	Teacher 1. Section 1- Biological molecules Topic 1. Biological molecules 1.1-1.5 Teacher 2 Section 2- Cells Topic 3- Cell structure	Teacher 1 Section 1- Biological molecules Topic 1. Biological molecules 1.6-1.8 Teacher 2 Section 2- Cells Topic 3 cell structure 3.6-3.8 Topic 4. Transport 4.1-4.2	Teacher 1 Topic 2. Nucleic acid and ATP.2.1-2.4 Teacher 2 Topic 4. Transport 4.3-4.5 Topic 5. Cell recognition and immune system, 5.1-5.4	Teacher 1 Section 3- Organism's exchange substances with their environment. Topic 6- Exchange 6.1-6.8 Teacher 2 Topic 5. Cell recognition and immune system,	Teacher 1. Section 3- Organism's exchange substances with their environment. Topic 6- Exchange 6.9-6.10 Topic 7-Mass transport.7.1-7.2	Topic 7-Mass transport.7.3-7.8 Topic 10. - Biodiversity Core Practical tasks Review of AS topics 1-10 Catch up on required practical. Yr 12 assessment

	AQA Biology A-level gives students the skills to make connections and associations with all living things around us. Being such a broad topic, it aims to encourage students to find a specific area of interest, plus it opens the door to a fantastic range of interesting careers.	3.1-3.5			5.4-5.7 Topic 8-. DNA, genes and protein synthesis 8.1-8.2	Teacher 2 Section 4 Genetic information, variation, and relationships between organisms. Topic 8-. DNA, genes and protein synthesis. 8.3-8.5 Topic 9.- Genetic diversity 9.1-9.4	
Year 13 Biology	A level Biology is a steppingstone to future study, we have chosen a course that allow students to develop the skills that they will need in future studies. The course allows us to support and inspire our students to nurture a passion for Biology and lay the groundwork for further study in courses like biological sciences, medicine and other science related courses. AQA Biology A-level gives students the skills to make connections and associations with all living things around us. Being such a broad topic, it aims to encourage students to find a specific area of interest, plus it opens the door to a fantastic range of interesting careers.	Teacher A.(4 lessons a fortnight) Section 5. Energy Transfer in and between organisms. Topic 11 Photosynthesis Topic 12: Respiration Topic 13: Energy and ecosystem Teacher B(6 lessons a fortnight) Section6. Organisms respond to changes in their environments Topic 14.	Teacher A.(4 lessons a fortnight). Core practical7 Core Practical 8 Core practical catch up Section 5. Energy Transfer in and between organisms Topic 13: Energy and ecosystem Teacher B(6 lessons a fortnight) PPE Section6. Organisms respond to changes in their environments Topic 16. Homeostasis Section 8; The	Teacher A.(4 lessons a fortnight) Section 7: Genetics, populations, evolutions and ecosystem. Topic 17: inherited change Teacher B(6 lessons a fortnight) Section 8; The control of Gene expression Topic 20.Gene expression 20.5-20.6 Topic 21: Recombinant DNA technology 21.1- 21.5	Teacher A.(4 lessons a fortnight) PPE Section 7: Genetics , populations, evolutions 17.8: Epistasis 17.9: Chi square Topic 18. Populations and evolutions 18.1:Population genetics 18.2: Phenotype 18.3: Natural selection Teacher B(6 lessons a fortnight)	Teacher A (4 lessons a fortnight) Catch up core practical 18.4 Selection and evolution 18.5 Isolation and speciation Teacher B (6 lessons a fortnight). Catch up core practical Revision	Teacher A.(4 lessons a fortnight) Revision/Exam Teacher B(6 lessons a fortnight) Revision/Exam

		Response to Stimuli Topic 15. nervous coordination and muscles.	control of Gene expression Topic 20. Gene expression. 20.1-20.4		PPE Core Practical 11 Section 7: Genetics, populations, evolutions and ecosystem. Topic 19.1-19.7		
Year 12 Chemistry	The course helps to bring the subject to life and inspire students to achieve more. It is a teacher-friendly specification based on extensive research and engagement with the teaching community. The course is designed to be straightforward and accessible so that the delivery is tailored to suit the needs of the students. We aim to encourage learners to develop the basic skills required, to become responsible for their own learning, confident in discussing ideas, innovative and engaged.	Module 2: Atoms ions and compounds; Amount of substance; Compounds; acids & Redox	Module 2: Electrons and bonding; shapes of molecules and intermolecular forces; Module 4: Basic concepts of organic Chemistry	Module 3: Periodicity, Reactivity trends and Enthalpy Module 4: Alkanes, alkenes and alcohols	Module 3: Reaction rates Module 4: Haloalkanes, organic synthesis	Module 3: Equilibrium Module 4: Spectroscopy Revision	A2: Module 5: Rates of reaction Module 6: Aromatic Chemistry
Year 13 Chemistry	The course helps to bring the subject to life and inspire students to achieve more. It is a teacher-friendly specification based on extensive research and engagement with the teaching community. The course is designed to be straightforward and accessible so that the delivery is tailored to suit the needs of the students. We aim to encourage learners to apply the basic skills acquired in the previous year. At this stage students are to a large extent responsible for their own learning and should be confident in discussing ideas, innovative and engaged. They should be able to apply the concepts learnt to world issues.	Module 5 (Physical chemistry): Equilibrium, Module 6 (Organic Chemistry): Carbonyl compounds	Module 5: Acids, bases and pH; Buffers and neutralisation Module 6: Amines, amino acids and polymers	Module 5: Enthalpy and Entropy; Redox and electrode potential Module 6: Organic synthesis; Chromatography	Module 5: Transition Elements and Revision of Physical and Inorganic chemistry Module 6: Spectroscopy and Revision of Organic Chemistry	Revision and practice	External exams
Year 12 Physics	To develop a working knowledge of base units, measurement instrumentation and errors. To introduce students to the fundamental	Measurements and their errors. AS Topic 1	Radiation AS Topic 2 Waves section 1 AS Topic 3	Waves section 2 AS Topic 3 Materials AS Topic 4	Mechanics AS Topic 4	Electricity AS topic 5	Circular motion A level Topic 6

	properties of matter, em radiation and quantum phenomena and the importance of international collaboration. To extend knowledge of waves by considering refraction, diffraction, superposition and interference. To introduce and develop vector knowledge and increase understanding of forces, energy, linear motion and momentum. To consider the bulk properties and tensile strengths of materials. To build on and develop GCSE knowledge of current electricity and develop practical skills. To extend knowledge of circular motion.	Particles AS Topic 2					
Year 13 Physics	To introduce and build mastery of simple harmonic motion and systems, to introduce the phenomenon of resonance in systems. To review Thermal energy transfers and build practical skills To review the gas laws and introduce and build mastery of the theory of the ideal gas and the molecular kinetic theory model of a gas. To investigate electric, gravitational and magnetic fields and build knowledge of their consequences by derivation of equations and real world examples. To review Radioactivity and make links to the particles topic from Year 12. To build knowledge of radioactive decay and the decay equations and their applications in the real world, to consider the operation and constraints of Nuclear fission and fusion power stations making links to Einstein's equation. To review and increase knowledge of the physics of vision, defects and their correction using lenses To consider the ear as a sound detection system and make links to sensitivity, frequency response and hearing defects. To review and extend work on non- invasive diagnostic techniques, the ECG, Ultrasound	Simple harmonic motion A Level Topic 6 Thermal Physics A Level topic 6	Gravitational and Electric Fields A level Topic 7	Magnetic fields A Level Topic 7 Nuclear Physics Part 1 A level Topic 8	Nuclear Physics part 2 A level Topic 8 Medical Physics Option Part 2	Medical Physics Option part 1	

	scanning including A and B scans, endoscopy building on knowledge of fibre optics and MR scans. To review and build knowledge of ionising imaging techniques, x-ray, gamma scans, CT scans and their enhancements To investigate radionuclide imaging techniques considering, half life, common isotopes and effective, biological and physical half lives