

	Intent The Year 9 curriculum has been designed to develop practical and application skills and to introduce the key concepts of Science at GCSE level. The topics taught in Term 1 cover equal amounts of Biology, Chemistry and Physics and link to GCSE work. In terms 2 and 3 the first modules of GCSE content are taught which include the key concepts of Biology, Chemistry and Physics.		
Year 9 Science	Term 1 September to December Biology 1-4 Chemistry 1-4 Physics 1-4	Term 2 January to Easter B1 Key Concepts in Biology P2a Motion (depending on topic rotation)	Term 3 April to July C2 States of matter and Mixtures C8a+b Fuels and Earth Science (depending on topic rotation)
Knowledge (facts, information, concepts and key terminology)	Microscopes, variation, photosynthesis, respiration, acids/alkalis, separating techniques, chemical reactions, energetics, electricity, insulation/energy transfers, speed, electromagnets.	Microscopes; IAM calculations; plant, animal and bacterial cells; specialised cells; enzymes. Scalar and vector quantities, speed, acceleration, d-t and v-t graphs, stopping distance.	Particle theory, separating techniques. Extraction/formation of crude oil, fractional distillation, combustion. Alkanes, alkenes and homologous series, cracking. Formation and composition of Earth's atmosphere.
Understanding (ability to connect and synthesise knowledge within a context)	Use a microscope correctly (inc. preparing a slide). Define photosynthesis and respiration in a practical context. Compare separating techniques. Describe chemical and energy reactions. Describe current, voltage and resistance. Investigate speed and insulation in relation to energy transfers.	Describe the differences between cells in living organisms. Explain how adaptations of specialised cells are related to their function. Describe how to prepare and view a sample. Explain enzyme activity and how factors affect rate of activity. Understand that direction affects quantities and describe the motion of objects by generating and using presented data.	Describe the arrangement and movement of particles in solids, liquids and gases and during state changes. Know the difference between pure substances and mixtures from heating curves. Describe the techniques used to separate different mixtures inc. filtration, crystallisation, distillation and chromatography.
Skills (successful application of knowledge and understanding to a specific task)	Identify and use suitable science equipment to carry out investigations, inc. identification of risks and experimental evaluation. Collect, present and process data. This includes identification of variables, correct use/conversion of units, ranges and scales for table and graphs. Drawing scientific apparatus. Mathematical skills including rearrangement and application of equations	Preparation of samples and use of microscopes. Practical techniques using pipettes with multiple chemicals in timed conditions. Use and rearrange IAM calculations inc. conversion of units. Relate motion of objects to real-life situations. Construct and interpret graphs of motion (d-t and v-t graphs). Use and rearrange equations to calculate speed and acceleration.	Describe hydrocarbons and use general formulae to explain the difference between alkanes and alkenes. Describe the process and importance of cracking. Understand how crude oil is extracted and separated by fractional distillation. Know the equations for complete and incomplete combustion and the effects of their products inc. acid rain. Know the composition of the Earth's atmosphere and explain how/why it has changed and how humans affect it.
Formal Assessments (those done by all/vast majority of the cohort)	Practical on a page for each topic, summarising key practical skills/concepts. Year 9 transition test, assesses understanding/application of experimental procedures and data handling skills.	End of topic assessments.	End of topic assessments. End of Y9 exam based on topics covered from Jan-July.
By the end of the year students on course for at least a grade 5 will... <ul style="list-style-type: none"> • Know the components of animal, plant and bacterial cells and their roles. • Describe how to prepare slides, use a microscope and solve IAM calculations inc. correct use of units. CORE PRACTICAL • Know that enzymes catalyse biological reactions, the factors that affect enzyme activity and explain the lock and key theory. CORE PRACTICAL • Know the difference between scalar and vector quantities. • Calculate speed and acceleration and use d-t and v-t graphs to describe the motion of objects. • Describe the movement and arrangement of particles in solids, liquids and gases and during state changes. • Describe the equipment and techniques used to separate various mixtures inc. filtration, crystallisation, distillation and chromatography. CORE PRACTICAL • Describe the stages in the formation of crude oil. • Know the properties and uses of the fractions obtained by fractional distillation. • Know the equations for complete and incomplete combustion. • Describe homologous series and recall the general formulae for alkanes. • Describe the composition of the Earth's atmosphere and explain how it was formed. 			