



## Science Curriculum Overview

YEAR 7

YEAR 8

YEAR 9

	Autumn Term	Spring Term	Summer Term	Rationale
<b>Composites</b>	C: Mixtures, P: Energy resources, B: Cells, C: The Particle model	P: Electrical circuits, B: Sexual reproduction, C: Atoms elements and molecules	P: Forces and their effects, C: Acids and alkalis, B: Ecosystems, P: Sound and hearing	<p>At the start of year 7 all students complete a baseline assessment. This helps to identify gaps from KS2 and build on current knowledge.</p> <p>The autumn term focuses on covering the key concepts across biology, chemistry and physics that underpin all other topics of study through out their science journey. This will provide the building blocks to other topics and they will have to recall upon this knowledge through out spiral curriculum. Students are supported through the understanding of tier 3 language by forming links to root words.</p> <p>Each topic incorporates skills based lessons which challenge our students to think scientifically, manipulate data and think creatively.</p> <p>The inclusion of practical-heavy topics are spread throughout the three terms. This will inspire students to begin their journey of mastery of safe and effective practical skills utilised within science.</p>
<b>Key Components</b>	Solubility, energy transfers, efficiency, cells, organs, solids liquid and gases, diffusion	Current, series and parallel circuits, reproductive organs, asexual reproduction, atoms, compounds	Mass, newtons, friction, transverse waves, speed of sound, hazards, indicators, variation, species, adaptations, food chains	
<b>Tier 3 language</b>	Solution, evaporation, renewable, nucleus, condensation, solid, liquid, gas, state	Electrons, conductors, malleable, carbon dioxide, asexual, offspring, variation	Resistance, surface area, vibration, frequency, acidic, alkaline, pH, neutralisation	
<b>Assessment</b>	Baseline assessment, Cumulative termly test Low stakes testing (end of each topic)	Cumulative termly test Low stakes testing (end of each topic)	Cumulative termly test Low stakes testing (end of each topic)	
<b>The best that has been thought and said</b>	Robert Brown	Andre-Marie Ampere, Heinrich Hertz	Robert Hooke, Sir Isaac Newton, Charles Darwin	
<b>Composites</b>	P: Fluids, B: Food and nutrition, C: The Periodic table, P: Light	B: Breathing and respiration, C: Combustion, P: Energy,	C: Metals and reactivity, B: Unicellular organisms, P: Earth and space	<p>The year 8 curriculum builds upon the key concepts met in year 7 within our spiral curriculum in order to deepen understanding and provide spaced practice. For example, in the autumn term by using knowledge based on the particle model students will be able to describe the more challenging concept of pressure in the fluids topic.</p> <p>This use of previous knowledge is continued in the spring term where students will need to rely on their knowledge of cells to explain the process of respiration and unicellular organisms.</p> <p>Throughout each topic there are opportunities for practical work and skills based lessons that support our students in to working scientifically with precision and confidence.</p> <p>The Earth and space topic is left until last in year 8 as our students always enjoy this topic and we want to inspire them into carrying out some more independent research in the form of a summer project.</p>
<b>Key Components</b>	Particle model, density, pressure, nutrients, digestion, diffusion, elements chemical reactions, reflection, colour	Respiration, diffusion, hydrocarbons, conservation of mass, power, efficiency, energy transfers	Diffusion, bacteria, fungi, decomposers, corrosion, reactivity series, alloys, solar system, seasons, orbits	
<b>Tier 3 language</b>	Anomaly, respiration, malnutrition, hypothesis, up-thrust, convection, insulate	Aerobic, anaerobic, oxidation, exothermic, radiation, friction, lubricate	Unicellular, conductor, catalyst, effervescent, gravitational field, magnetism, constellations	
<b>Assessment</b>	Cumulative termly test Low stakes testing (end of each topic)	Cumulative termly test Low stakes testing (end of each topic)	Cumulative termly test Low stakes testing (end of each topic)	
<b>The best that has been thought and said</b>	Dmitri Mendeleev, James Joule, John Dalton, John Newlands	Galen of Pergamon, Robert Boyle, John Mayow, Matthew Sankey	Florence Nightingale, Copernicus, Galileo,	
<b>Composites</b>	B: Cells and organs, B: Microscopes, B: Enzymes, B: Mitosis, C: Separating Mixtures, C: Using the periodic table	C: Rates of reaction, C: States of matter, C: Atoms, P: Forces and movement, P: Electromagnets	P: Forces and motion, B: Plants, C: Making materials, P: Waves	<p>The year 9 curriculum has be designed in such a way as to allow pupils to further develop their understanding of concepts studied in year 7 and 8. Our spiral curriculum means that with each topic, pupils are deepening their understanding of more challenging concepts. To do this more challenging terminology is utilised as well as making explicit links between topics.</p> <p>Year 9 serves as a transition year to ensure that all pupils are confident in their understanding of the key concepts required for further study.. In order to achieve this the scheme of work has been arranged so that each topic explores content that will support students with bridging the gap between Key stage 3 and 4.</p>
<b>Key Components</b>	Organelles, magnification, the particle model, catalysts, balancing equations	Endothermic and exothermic, surface area, conservation of energy, speed, electricity	Photosynthesis, respiration, selective breeding, polymers, composites, types of waves	
<b>Tier 3 language</b>	Nuclei, mitochondria, gametes, resolution, chromatography, distillation, neutralisation	Displacement, evaporation, friction, resistance, equilibrium	Xylem, phloem, epidermis, ceramics, transverse, longitudinal	
<b>Assessment</b>	Cumulative termly test Low stakes testing (end of each topic)	Cumulative termly test Low stakes testing (end of each topic)	Cumulative termly test Low stakes testing (end of each topic)	
<b>The best that has been thought and said</b>	Robert Hooke, Robert Brown, Dmitri Mendeleev	Sir Isaac Newton, Georg Ohm, John Dalton, Ernest Rutherford	Sir Isaac Newton, Heinrich Hertz	