



## Science Year 9

**Intent** : Science curriculum intent: As a school our curriculum inspires students to want to know more, understand more and be able to do more. In science we intend to harness the innate desire in young people to want to know more about the world and use this to help them understand how the strands of science learning fit into the big picture. We intend to help the students develop into learners who can see a problem and work both independently and together to find a solution. We recognise that all young people are scientists, and we aim to enable them to develop these skills. At the start of year 9 students will have a firm grasp of most KS3 concepts. By the end of year 9 they will have started to build these ideas into they key concepts for GCSE. They will be able to work independently in a science lab.



	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 9 Units	9AA safety and maths 9A Genetics and evolution 9E making materials	9I forces and motion 9B plant growth	9F reactivity 9J Force fields and electromagnets KS3 revision lessons	CB1a - key concepts in biology cells, enzymes CB1b- transport across membranes	CC1 & CC2 states of matter and separating CP1 – motion	Projects  (9RS1 to cover B2 – cells and control)
Key Content	9A Covers inherited and environmental variation, DNA and genes, probability in inheritance, adaptations to habitats, natural selection, evolution, extinction, and biodiversity conservation.  9E Explores material properties and structures, exothermic and endothermic reactions, environmental impacts of manufacturing, recycling, biodegradable solutions, and peer review in science.	9B Covers how plants absorb water, carbon dioxide, and light; glucose uses in respiration and growth; farming practices and their environmental impacts; and how selective and cross-breeding improve crop yields.  9I Explores measuring and calculating speed, interpreting graphs, using levers and pulleys, calculating moments, work done, and conservation of energy in mechanical systems.	9F Covers differences between physical and chemical changes, gas pressure, the reactivity series, rust prevention, combustion of hydrocarbons, energy changes, displacement reactions, and methods of extracting metals.  9J Explores electric charge and fields, resistance and its calculation, magnetic fields around currents, how to strengthen electromagnets, and how electric motors use magnetic forces to produce motion.	B1 – Key concepts in biology Covers cell structure, specialised cells, enzymes, transport processes (diffusion, osmosis, active transport), and microscopy techniques.	C1 – Key concepts in chemistry Covers atomic structure, periodic table, bonding types, properties of substances, and chemical calculations. C2 – States of matter and mixtures Explores particle theory, physical changes, separation techniques, chromatography, and water purification  P1 – motion covers foundational mechanics concepts such as vectors and scalars.	B2 – Cells and control Explores mitosis, growth, stem cells, cancer, and the nervous system including reflex arcs and neurones.
Literacy	Key word sheets 9A and 9E	Key word sheets 9I and 9B	Key word sheets 9F and 9J	Key word sheet – B1 key concepts in biology	Key word sheets C1&2, P1	9RS1 – key word sheet B2
Knowledge organiser	<b>9AA safety and maths</b> <b>9A Genetics and evolution</b> <b>9E making materials</b>	9I forces and motion 9B plant growth	9F reactivity 9J Force fields and electromagnets KS3 revision lessons	CB1a - key concepts in biology cells, enzymes CB1b- transport across membranes	C1 & C2 states of matter and separating P1 – motion	B2 – cells and control
Assessment	9A and 9E are assessed in assessment one.	9I and 9B are assessed in assessment two.	The end of key stage three assessment covers all the work across years 7,8 and 9.	Biology key concepts are covered in assessment four.	The final assessment covers C1,C2 and P1.	

GCSE AO Link (or other) if applicable	In science the assessment objectives are: AO1 Demonstrate knowledge and understanding. AO2 Apply knowledge and understanding. AO3 Analyse information and ideas. These are all covered in each block of three modules.
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Homework	One piece of homework, set on Seneca, a fortnight. This should take up to 30 minutes.
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CEIAG – STEM careers that relate to these topics.	<p><b>Career: Geneticist</b> Focuses on DNA, inheritance, evolution, and biodiversity—ideal for someone studying genetics and working in medical or agricultural research.</p>	<p><b>Career: Botanist</b> Explores plant growth, photosynthesis, farming practices, and environmental impacts—suited for careers in plant science and ecology.</p> <p><b>Career: Sports Scientist</b> Uses speed measurements to analyze athletic performance and improve training techniques.</p>	<p><b>Career: Chemist</b> Covers chemical reactions, combustion, rust prevention, and metal extraction—relevant to laboratory and industrial chemistry roles.</p> <p><b>Aerospace Engineer (Avionics/Electromagnetics)</b> Design radar, communication, and navigation systems for aircraft and spacecraft.</p>	<p><b>Career: Biologist</b> Includes cell structure, enzymes, and transport mechanisms—ideal for careers in biomedical science, microbiology, or healthcare.</p>	<p><b>Career: Chemical Engineer</b> Focuses on atomic structure, bonding, separation techniques, and mechanics—perfect for roles in chemical manufacturing and process engineering.</p> <p><b>Data Analyst</b> Applies graph interpretation to study trends in motion, transport, or engineering systems.</p>	<p><b>Career: Neuroscientist</b> Covers reflex arcs, neurons, and control systems—suited for careers in neuroscience, psychology, or medical research.</p>
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Enrichment	Science club is open to all KS3 students.
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