

Science Curriculum: Year 8

Science provides a key foundation for students to understand the world around us. Science effects our daily lives, stimulates curiosity and broadens student's horizons, both in the understanding of wider scientific issues and providing access to a range of job opportunities. The science curriculum provides students with the opportunity to develop a love and appreciation of science and realise their full potential through the breadth and depth of scientific knowledge and skills. Students are naturally curious, by stimulating this curiosity, through scientific ideas, practical investigation and the studying the wider implications of science, we can ensure they are motivated to reach their full potential.

All students study a unit of Biology, Chemistry and Physics each term as shown below.

	Autumn term	Spring	Summer
Biology	Body systems – Organisms, bodies are systems Students study the hierarchical organisation in multicellular organisms using the respiratory system and skeletal systems as examples. This unit links to the Cells unit taught in year 7	Ecosystems – Organisms are interdependent and species show variation Students study the links between different species in a food web and consider the flow of energy along the chain. They also consider the impact species can have on each other within an ecosystem	Healthy systems – bodies are systems Students study the role of the digestive system, drawing links to the respiratory system and respiration. Students also consider the impact of lifestyle choices on health including diet, smoking, alcohol and drugs.
	Important vocabulary: Structure, function, exchange, antagonistic, ventilation	Important vocabulary: Prey, predator, interdependence, bioaccumulation, producer, tertiary	Important vocabulary: Nutrient, digestion, mechanical, chemical, physical.
Chemistry	Periodic table – structure determines properties Students study the arrangement in elements in the periodic table and its structure. They build on this by looking at the common properties of metals and nonmetals before studying patterns in reactions of the group 1, 7 and 0 elements	Acids and Alkalies – reactions rearrange matter Students identify a range of acids and alkalies and their common features. They make their own indicator to test a range of substances. They investigate neutralization reactions and how they can be useful and represent these reactions using word equations.	The Earth and rocks – Earth systems interact. Students Study the structure of the Earth and consider its role as a source of materials. The formation of igneous, metamorphic and sedimentary rocks are linked into a complete cycle before students study the composition of the atmosphere and human impact upon it.
	Important vocabulary: Period, trend, property, reactivity.	Important vocabulary: Acid, alkali, hazard, salt, neutral, indicator, word equation, symbol equation, reactant, product	Important vocabulary: Climate, Ceramic, Composite, Impact, Sediment, metamorphic, igneous
Physics	Light and Sound – radiation transfers energy Students study the behavior of waves and identify features of waves. In sound waves they study how the wave alters as pitch and volume do. In Light students investigate reflection and refraction.	Forces – Forces predict motion and fields produce forces Students identify and investigate a range of forces, both contact and non contact. They represent the forces using force diagrams and assess whether forces are balanced or unbalanced	Energy 2 – energy is conserved Students investigate the energy in different foods and fuels before considering the difference between temperature and heat. They then study three forms of heat transfer, conduction, convection and radiation
	Important vocabulary: Period, transmit, frequency, wavelength, hertz, reflect, refract, absorb, emit	Important vocabulary: Newton, reaction force, balanced, unbalanced, resultant, field (non-contact forces)	Important vocabulary: Conduct, error, hypothesis, thermal, radiation, transfer, equilibrium

These topics will also help students to:

- Make connections between these subject areas and become aware of some of the big ideas underpinning scientific knowledge and understanding.
- Understand that science is about working objectively, modifying explanations to take account of new evidence and ideas and subjecting results to peer review
- Apply knowledge and skills to solve scientific problems and answer scientific questions about the world around us.

How parents can help:

-  Review key vocabulary with your child to help them transfer it to their long-term memory.
-  Ask students to explain what they have learnt that week, this also helps build long-term memory.
-  Try watching science / nature programs together and talking about them to encourage them to investigate the world around them.
-  Help them explore science YouTube channels (like Sci show or Minute Physics), to give them a broader knowledge of science in the real world.
-  Research some simple experiments they can do at home.

How your child will be assessed:

Assessment of learning takes many forms. Much of this will be informal assessment in lessons through verbal and written responses to questions. Students will have regular opportunity to assess their own progress through the regular quiz reviews.

In Science, we understand that to make progress students need to know and practice the next steps to improve their work. For this reason in each topic, staff assess an identified assessment task. Students will receive feedback that includes some improvement or next steps to complete. This may take a number of forms from short answer correction, answering additional, extension questions, or redrafting sections of longer written work either for correct scientific content or for improving the quality of written English.

To monitor the progress in students' knowledge and skills they will also sit a short assessment for each topic, with time to mark their work and correct mistakes. This provides an important opportunity for students to reflect on their learning and any additional steps to take.

Each term also includes 1 longer formal assessment that covers the previous 3 units, to give a clear assessment of learning over time. It is this assessment, along with the ongoing formative assessment that form the basis of the reports each term.

Developing an understanding of the scientific process is an intrinsic part of learning about science. In addition to carry out practical work in lessons where appropriate students understanding of this process will be assessed along with key knowledge in the topic assessment tasks, short unit assessments and the longer formal assessments in line with how these skills are assessed in standard national assessments.

Please feel free to contact us to discuss our assessment policy in depth.