

SCIENCE KEY STAGE 3 CURRICULUM OVERVIEW

By the end of Key Stage 3, students should: Have covered all areas outlined in the Science national curriculum

Know	<i>By the end of KS3, science students should have a solid understanding of fundamental concepts across biology, chemistry, and physics. They should be familiar with cell biology, including the structure and function of plant and animal cells, and understand key processes such as photosynthesis and respiration. In chemistry, students should know about the states of matter, the periodic table, basic chemical reactions, and the reactivity series. Physics coverage should include basic principles of forces and motion, energy forms and transfers, and simple electrical circuits. Additionally, students should be skilled in using scientific methods, conducting experiments, analysing data, and drawing evidence-based conclusions, all while adhering to safety protocols in the laboratory.</i>
Do	<i>During KS3 science, students should focus on building a solid foundation in biology, chemistry, and physics through hands-on experiments and practical investigations. They should develop scientific inquiry skills by forming hypotheses, conducting experiments, analysing data, and drawing evidence-based conclusions. Mastering scientific vocabulary and applying mathematical skills to analyse data are crucial. Collaborative work on projects and experiments helps enhance communication and problem-solving abilities. Additionally, students should connect scientific concepts to real-life applications, fostering an appreciation for the relevance of science in everyday life and global issues, while preparing thoroughly for assessments to ensure a deep understanding of the material.</i>
Appreciate	<i>KS3 science students should appreciate the wonder and complexity of the natural world, recognizing how scientific principles explain everyday phenomena. They should value the importance of accurate data collection and critical thinking in solving problems. Understanding the relevance of science in addressing global challenges, such as environmental issues and health advancements, is crucial. Additionally, they should appreciate the role of teamwork and collaboration in scientific discoveries and the ethical considerations in scientific practices.</i>

Curriculum coverage

	Topic	Sub topic	Coverage
Year 7	Foundations of Science	PHYSICS	Energy
			Forces & pressure
			Space
		BIOLOGY	Cells & organisation
			Body systems
			Reproduction
CHEMISTRY	Atoms, element & compounds		
	Chemical reactions		
Year 8	Developing Scientific ideas	BIOLOGY	Digestion
			Respiration
			Ecology
			Genetics & inheritance
		CHEMISTRY	Periodic table
			The Earth & the Atmosphere
			Chemical reactions
		PHYSICS	Electricity
			Motion
Waves			

Curriculum Coverage continued:

	Topic	Sub Topic	Coverage
Year 9	Fundamentals of Science	<i>CHEMISTRY</i>	<i>Atomic structure & periodic table</i>
			<i>Reactivity of metals</i>
			<i>Reactions of metals</i>
		<i>BIOLOGY</i>	<i>Cell Biology & Biological Organisation</i>
			<i>Photosynthesis</i>
		<i>PHYSICS</i>	<i>Forces & motion</i>
<i>Internal energy and energy transfers</i>			
<i>The particular nature of matter</i>			

Wider Key Stage 3 Curriculum

*There will be 3 Science competitions run throughout the year
Students will be set a minimum of one interleaving and targeted homework each unit and at least one Forms quiz each week*

SCIENCE KEY STAGE 4 CURRICULUM OVERVIEW

By the end of Key Stage 4, students should:

Know	<i>By the end of the KS4 science curriculum, students should have a comprehensive understanding of key concepts in biology, chemistry, and physics. They should grasp the structure and function of cells, the principles of genetics, and the fundamentals of ecosystems and environmental science. In chemistry, students should understand atomic structure, the periodic table, chemical reactions, and the properties of materials. Physics knowledge should include forces and motion, energy transformations, electricity and magnetism, and the principles of waves and radiation. Additionally, students should be skilled in scientific inquiry, able to design experiments, analyse data, and draw valid conclusions, all while understanding the importance of safety and ethical considerations in science.</i>
Do	<i>By the end of the KS4 science curriculum, students should be able to apply scientific principles to explain natural phenomena and solve problems. They should proficiently conduct experiments, collect and analyse data, and use scientific methods to draw evidence-based conclusions. Students should be capable of interpreting scientific information presented in various formats, such as graphs and tables, and effectively communicate their findings both verbally and in writing. Additionally, they should critically evaluate scientific claims and understand the impact of science on society, the environment, and technological advancements. These skills will prepare them for further education and informed decision-making in everyday life.</i>
Appreciate	<i>By the end of the KS4 science curriculum, students should appreciate the profound impact science has on understanding and improving the world around us. They should recognize the interconnectedness of scientific disciplines and the relevance of science to everyday life, including health, technology, and the environment. Students should value the importance of evidence-based reasoning and the role of experimentation in advancing knowledge. Additionally, they should understand the ethical considerations and responsibilities that come with scientific discovery and innovation, fostering a sense of curiosity and respect for the natural world and the scientific endeavour</i>

Curriculum coverage

	Topic	Sub topic	Coverage
Year 10	Developing Scientific Ideas	BIOLOGY	<i>Inheritance, Variation and Evolution</i>
			<i>Photosynthesis</i>
			<i>Co-ordination & control of the human body</i>
		CHEMISTRY	<i>Bonding</i>
			<i>Electrolysis</i>
			<i>Rate of reaction</i>
			<i>Organic chemistry</i>
		PHYSICS	<i>Energy changes in a system</i>
			<i>Atoms & radiation</i>
			<i>Electricity</i>
			<i>Waves</i>

Curriculum Coverage continued:

	Topic	Sub Topic	Coverage
Year 11	Mastering Scientific Concepts	<i>BIOLOGY</i>	<i>Evolution</i>
			<i>Respiration</i>
			<i>Ecology</i>
		<i>CHEMISTRY</i>	<i>Quantitative chemistry & chemical analysis</i>
			<i>Using resources</i>
			<i>Atmospheric chemistry</i>
		<i>PHYSICS</i>	<i>Newton's laws of motion</i>
			<i>Space Physics</i>
			<i>Magnets & electromagnets</i>

Wider Key Stage 4 Curriculum

There will be 3 Science competitions run throughout the year

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