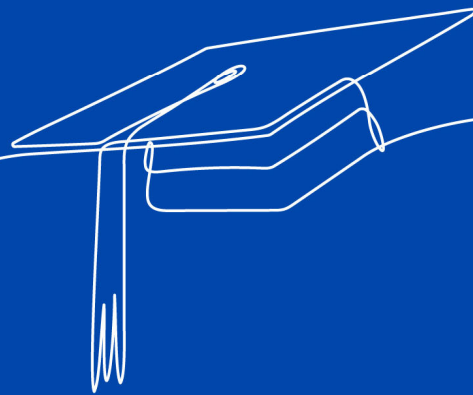




ACHIEVING MORE TOGETHER

Science curriculum overview



Science at Sandymoor Ormiston Academy

Key stage 3, Years 7, 8 and 9

'Nothing in life is to be feared, it is only to be understood. Now is the time to understand more so that we may fear less' Marie Curie

Our KS3 Science curriculum helps students understand the world around them through the study of biology, chemistry and physics. We want students to develop a secure understanding of the key scientific concepts that explain living organisms, matter, energy and the universe, whilst also understanding how scientific knowledge is developed and refined through enquiry and evidence.

The curriculum is carefully sequenced to build students' knowledge of science and how to be a scientist. Students learn the fundamental ideas of science through themes that are revisited and developed over time, allowing them to make increasingly complex connections both within and across the scientific disciplines. Through practical work, investigation and critical evaluation of evidence, students develop the skills needed to think and work scientifically.

We aim to develop students' scientific literacy by explicitly teaching the language of science, enabling them to communicate ideas effectively, interpret information critically and engage confidently with scientific issues. Students also explore the wider richness of science, including its impact on society, the environment and future technological developments, helping them appreciate the relevance of science in their everyday lives and future careers.

By the end of KS3, our intent is for students to be curious, knowledgeable and scientifically literate young people who can think critically, ask questions about the world around them and feel inspired to continue studying science.

Key stage 4, Years 10 and 11

'The important thing is to never stop questioning' Albert Einstein

Our KS4 Science curriculum is designed to prepare students for success in GCSE Combined Science: Trilogy or separate GCSEs in Biology, Chemistry and Physics using the AQA examination board. Building on the strong foundations established at KS3, students deepen their understanding of biology, chemistry and physics while continuing to develop the disciplinary knowledge and mathematical skills required to work scientifically.

Students learn to apply their scientific knowledge to familiar and unfamiliar contexts, analyse evidence, evaluate claims and solve problems. Practical work remains an important aspect of the curriculum, enabling students to develop their understanding of scientific enquiry and the methods used by scientists to generate reliable knowledge.

Alongside securing strong outcomes in GCSE Science, our intent is that students leave school scientifically literate and able to make informed decisions about issues that affect their lives and society. Students gain an appreciation of the role science plays in addressing local, national and global challenges and develop the knowledge and skills that will support progression into further study, apprenticeships and a wide range of science-related careers.

GCSE course information

Exam board	AQA
Course	GCSE Combined Science: Trilogy (8464) <i>or</i> GCSE Biology (8461) GCSE Chemistry (8462) GCSE Physics (8463)
Specification and resources	Combined Science: https://www.aqa.org.uk/subjects/science/gcse/combined-science-trilogy-8464 GCSE Biology: https://www.aqa.org.uk/subjects/biology/gcse/biology-8461/specification GCSE Chemistry: https://www.aqa.org.uk/subjects/chemistry/gcse/chemistry-8462/specification GCSE Physics: https://www.aqa.org.uk/subjects/physics/gcse/physics-8463/specification

Year 7

In year 7, students learn some of the fundamental ideas in biology, chemistry and physics, laying the foundations for future learning.

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
The particle model	Animal cells	Astrophysics	The breathing system	The cycles	Healthy living
Changing shape	The atom	Changes of state	Types of reaction	Human reproduction	Purity

Assessments will take place in January and June and we will share revision information a few weeks before each assessment.

Consolidation homework is set weekly using the Sparx science application: www.sparxscience.com

Year 8

In year 8, students learn about energy, waves, forces, bodily systems and the elements, building on their knowledge from year 7 and extending it to some of the key areas of each scientific discipline.

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
The pH scale	Principles of energy	Energy in the home	Electrical circuits	Photosynthesis	The periodic table
The digestive system	Heating and cooling	Plant cells	Mechanical Waves	Forces and Motion	Changing forces
Our atmosphere	Cellular respiration				

Assessments will take place in January and June and we will share revision information a few weeks before each assessment.

Consolidation homework is set weekly using the Sparx science application: www.sparxscience.com

Year 9

In year 9, students extend their learning from year 8, deepening their understanding of how the world works from a scientific perspective.

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Magnetism	Gas pressure	Light waves	Static electricity	Cells to cells systems	Chromatography and analysis
Interdependence	Inheritance and evolution	Life on earth	The reactivity series of metals	Atoms and the periodic table Energy and the particle model	Forces 1: Defining forces

Assessments will take place in January and June and we will share revision information a few weeks before each assessment.

Consolidation homework is set weekly using the Sparx science application: www.sparxscience.com

Year 10

In year 10, students learn knowledge of science but also how to work like a scientist, making, testing and refining hypotheses.

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Digestion and respiration	Quantitative chemistry	Human health	Homeostasis 1	Energy and reactions	Resources
Electricity 1: IV relationships	Forces 2: Velocity and acceleration	Carbon	Energy and electricity	Transport in plants	Human impact
Types of bonding	Principles of waves	Trends and patterns in the reactivity series	Atoms and nuclear radiation		

Assessments will take place in April and we will share revision information a few weeks before each assessment.

Consolidation homework is set weekly using the Sparx science application: www.sparxscience.com

Year 11

In year 11, students learn more knowledge of science and how to work like a scientist, and they prepare to take their GCSEs.

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Structure of materials and their properties Electrolysis Reproduction	Rate of reaction Forces 3: Newton's laws	Classification Biodiversity	Revision	<i>Exams</i>	<i>Exams</i>

Mocks will take place in November and February and we will share revision information a few weeks before each assessment.

Consolidation homework is set weekly using the Sparx science application: www.sparxscience.com

Additional topics for separate sciences		
Biology	Chemistry	Physics
Plants and disease Genetics Homeostasis 2 Energy and ecosystems	Bulk and surface properties Quantitative chemistry, gases and liquids Chemical changes and fuel cells Identification of ions Using materials Synthetic and natural polymers	Radiation Space Waves Moments Fields and inductions Pressure