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Ormiston Academies Trust
ACHIEVING MORE TOGETHER

Science curriculum overview

Science at Tenbury High Ormiston Academy

Key stage 3, Years 7, 8 and 9

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

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) *or* 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
Science skills The particle model Changing shape	Animal cells The atom Astrophysics	Changes of state The breathing system	Types of reaction The cycles	Human reproduction Healthy living	Purity

Assessment

At the end of each half term there will be a formative assessment on the half term learning.

Midpoint assessment will take place in January and end of year assessment in June and we will share revision information a few weeks before each assessment.

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

Assessment

At the end of each half term there will be a formative assessment on the half term learning.

Midpoint assessment will take place in January and end of year assessment in June and we will share revision information a few weeks before each assessment.

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 Interdependence Gas pressure	Inheritance and evolution Light waves Life on Earth	Static electricity The reactivity series of metals	GCSE Biology Unit 1 – Cell Biology	GCSE Chemistry Unit 1 – Atomic structure and periodic table.	GCSE Physics Unit 1 – Energy.

Assessment

At the end of each half term there will be a formative assessment on the half term learning.

Midpoint assessment will take place in January and end of year assessment in June and we will share revision information a few weeks before each assessment.

Year 10

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

Combined Science – Trilogy

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Biology	Unit 2 – Organization	Unit 3 – Infection and response	Unit 3 Infection and response Unit 4 - Bioenergetics	Unit 4 – Bioenergetics Unit 5 – Homeostasis and response	Unit 5 – Homeostasis and response	Unit 5 – Homeostasis and response Unit 6 – Inheritance, variation and evolution
Chemistry	Unit 2 – Bonding, structure and properties of matter	Unit 4 – Chemical changes	Unit 5 – Energy changes	Unit 3 – Quantitative Chemistry	Unit 6 -The rate and extent of chemical change	Unit 6 -The rate and extent of chemical change Unit 7 – Organic Chemistry
Physics	Unit 1- Energy	Unit 1- Energy Unit 4 – Atomic structure	Unit 4 – Atomic structure Unit 2 - Electricity	Unit 2 – Electricity	Unit 2 - Electricity	Unit 2 – Electricity Unit 7 – Magnetism and electromagnetism

Triple Science

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Biology	Unit 2 – Organization Unit 3 – Infection and response	Unit 3 – Infection and response	Unit 4 – Bioenergetics Unit 5 – Homeostasis and response	Unit 5 – Homeostasis and response	Unit 5 – Homeostasis and response	Unit 6 – Inheritance, variation and evolution
Chemistry	Unit 2 – Bonding, structure and properties of matter Unit 4 – Chemical changes	Unit 4 – Chemical changes Unit 5 – Energy changes	Unit 3 – Quantitative Chemistry Unit 6 -The rate and extent of chemical change	Unit 6 -The rate and extent of chemical change Unit 7 – Organic Chemistry	Unit 7 – Organic Chemistry	Unit 8 – Chemical Analysis Unit 9 – Chemistry of the atmosphere
Physics	Unit 1- Energy Unit 4 – Atomic structure	Unit 4 – Atomic structure Unit 2 - Electricity	Unit 2 – Electricity Unit 7 – Magnetism and electromagnetism	Unit 7 – Magnetism and electromagnetism Unit 5 - Forces	Unit 5 - Forces	Unit 5 – Forces Unit 6 - Waves

Assessment

End of unit assessments will take place throughout the year.

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

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.

Combined Science – Trilogy

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Biology	Unit 5 – Homeostasis and response Unit 6 – Inheritance, variation and evolution	Unit 6 – Inheritance, variation and evolution Unit 7 - Ecology	Unit 7 - Ecology	Unit 7 - Ecology	Revision	
Chemistry	Unit 4 – Chemical changes – Electrolysis Unit 9 – The chemistry of the atmosphere Unit 6 -The rate and extent of chemical change	Unit 6 -The rate and extent of chemical change	Unit 6 -The rate and extent of chemical change Unit 10 - Using Resources	Unit 10 - Using Resources	Revision	
Physics	Unit 5 - Forces	Unit 5 - Forces	Unit 5 – Forces Unit 7 – Magnetism and electromagnetism	Revision	Revision	

Triple Science

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Biology	Unit 6 – Inheritance, variation and evolution	Unit 6 – Inheritance, variation and evolution Unit 7 - Ecology	Unit 7 - Ecology	Unit 7 - Ecology	Revision	
Chemistry	Unit 9 – Chemistry of the atmosphere Unit 6 -The rate and extent of chemical change Unit 10 – Using resources	Unit 10 – Using resources	Unit 10 – Using resources Revision	Revision	Revision	
Physics	Unit 5 – Forces	Unit 5 – Forces Unit 7 – Magnetism and electromagnetism	Unit 7 – Magnetism and electromagnetism Unit 8 – Space Physics	Revision	Revision	

Assessment

End of unit assessments will take place throughout the year.

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