AIM AND PURPOSE

Science gives us the tools to look at the world around us and understand it, to see the world around us and to begin to see how things work, and to understand the scale of what we are looking at. It allows us to see ourselves as part of a greater whole. Philosopher Frank Jackson proposes a thought experiment:

Mary is a scientist. She knows everything there is to know about light, about colour, however she has not personally ever experienced the full range of visible light. She has been raised in one room her whole life where everything is black and white and grey. Mary knows everything there is to know about light, she just has never experienced colours. One day, a door in Mary's room opens and the full spectrum of visible light enters. She experiences trees of green, skies of blue, the bold yellow of a buttercup. Surrounded by these colours, she finally understands what it is to see colours.

Adam Boxer suggests as teachers we need to take Jackson's thought experiment further. He suggests that Mary has a brother – Declan. Declan is not the super scientist that Mary is. He lives in the same grey room, but he doesn't learn all there is to learn about light, about colours. He too passes through the door into the colourful world. But he doesn't have the same experience. His experience of colour is likely to be a positive one, but it won't have the same effect on him as it does on his sister, Mary. It will not be the final piece in a puzzle. It will not be the thing that brings together years of research and learning. It will simply be "nice".

Without equipping our students with the knowledge to understand the world around them, we are allowing students to leave schools as "Declans" - enjoying their experiences, but not being able to understand them on any greater level. This is why we teach science.

HOW DOES THE CURRICULUM INDUCT STUDENTS INTO THE DISCIPLINE OF THE SUBJECT?

Scientific discoveries are made by people hypothesising, conducting experiments, and then applying their knowledge of certain fields to the results. Without knowledge of what discoveries have been made previously, science cannot progress. One cannot make a hypothesis without an understanding of what could happen. To do otherwise is not a hypothesis, it is a guess. Our curriculum is designed to ensure students have that knowledge to be able to hypothesise and to be able to conduct accurate experiments, should they wish to.

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Subject: Science
Year: 7

OVERVIEW

The Curriculum in Science is based on the National Curriculum, but is modified to allow completion before GCSE Science begins in Year 9.

Term	Focus	Assessment
Aut 1	• **Introduction to Chemistry:** Particles, properties of solids, liquids and gases, changing state, separating mixtures of substances.	Find Out Fortnight assessments – short Core Question assessments
Aut 2	• **Introduction to Biology:** Cells, Tissues and Organs, including cell transport, animal and plant cells, and using microscopes • **Introduction to Physics**: Different types of energy, energy transfers and energy efficiency.	Find Out Fortnight assessments – short Core Question assessments
Spr 1	• **Biology:** Skeletal and muscular systems, including biomechanics and the principles of organisation • **Chemistry:** Atoms, elements, compounds and mixtures, including chemical symbols and formulae	Mid-year assessment, FOFs
Spr 2	• **Chemistry, continued**: Atoms, elements, compounds and mixtures, including chemical symbols and formulae • **Physics:** Speed, including distance-time graphs.	Find Out Fortnight assessments – short Core Question assessments
Sum 1	• **Chemistry:** Pure and Impure substances, including separation techniques	Find Out Fortnight assessments – short Core Question assessments
Sum 2	• **Physics:** Forces, including Hooke's law, moments, and simple machines.	End of year assessment to include all material

Home Learning:
- Students will often be asked to complete classwork at home
- Students are expected to complete a Carousel quiz each week, as set by their teacher

Useful resources:
- Core Questions – found at the front of each booklet.

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Subject: Science
Year: 8

OVERVIEW

The Curriculum in Science is based on the National Curriculum, but is modified to allow completion before GCSE Science begins in Year 9.

Term	Focus	Assessment
Aut 1	• **Physics:** Light and Space • **Biology:** Nutrition and digestion	Find Out Fortnight assessments – short Core Question assessments
Aut 2	• **Biology, continued:** Nutrition and digestion • **Chemistry:** Chemical Reactions	Find Out Fortnight assessments – short Core Question assessments
Spr 1	• **Chemistry, continued:** Chemical Reactions • **Physics:** Pressure in fluids	Mid-year assessment, FOFs
Spr 2	• **Biology**: Gas exchange systems • **Chemistry:** Energy changes	Find Out Fortnight assessments – short Core Question assessments
Sum 1	• **Chemistry, continued:** Energy changes • **Physics:** Sound	Find Out Fortnight assessments – short Core Question assessments
Sum 2	• **Physics:** Light, Cameras and the Eye • **Biology:** Photosynthesis, including the structure of the leaf.	End of year assessment to include all material

Home Learning:
- Students will often be asked to complete classwork at home
- Students are expected to complete a Carousel quiz each week, as set by their teacher

Useful resources:
- Core Questions – found at the front of each booklet.

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Subject: Science
Year: 9

OVERVIEW

GCSE Combined Science begins in Year 9 and we follow the AQA Trilogy curriculum.
Combined Science leads to 2 GCSE awards.
For higher-attaining students, we also offer Separate Sciences, beginning in Year 10 in an option block.

Term	Focus	Assessment
Aut 1	• **C1: Atomic structure and the periodic table**	FOFs Required practicals
Aut 2	• **B1: Cell biology**	FOFs Required practicals
Spr 1	• **P1: Energy**	FOFs Required practicals
Spr 2	• **C2: Bonding, structure and the properties of matter**	Spring assessment: 1 exam paper, combining Biology, Chemistry and Physics
Sum 1	• **B2: organisation**	FOFs Required practicals
Sum 2	• **P2: Electricity** • *Based on the results of the Year 9 mock exams, and assessments of progress throughout Year 9, the highest-attaining student will be offered the chance to study Separate Science in Years 10 and 11.*	Summer exams: 1 Biology paper, 1 Chemistry paper, 1 Physics paper

Home Learning:
- Students will often be asked to complete classwork at home
- Students are expected to complete a Carousel quiz each week, as set by their teacher

Useful resources:
- Core Questions – found at the front of student booklets.

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Subject: Science
Year: 10

OVERVIEW

GCSE Combined Science begins in Year 9 and we follow the AQA Trilogy curriculum.
Combined Science leads to 2 GCSE awards
For higher-attaining students, we also offer Separate Sciences, beginning in Year 10 in an option block. Separate Science content is embedded within combined science content. Dedicated Separate Science units will be taught in year 11.

Term	Focus	Assessment
Aut 1	• **C3: Quantitative Chemistry** and **B3: Infection and Response** taught simultaneously by two different teachers	FOFs - fortnightly short assessments Required practicals
Aut 2	• **C3: Quantitative Chemistry** and **B3: Infection and Response** taught simultaneously by two different teachers	End of term test Required Practicals
Spr 1	• **C4: Chemical changes**, **C5: energy changes** and **B4: Bioenergetics** taught simultaneously by two different teachers	FOFs - fortnightly short assessments Required practicals
Spr 2	• **P3: Particle model of matter**	Spring assessment: 1 exam paper, combining Biology, Chemistry and Physics
Sum 1	• **P4: Atomic structure**	FOFs - fortnightly short assessments Required practicals
Sum 2	• *Results of summer mocks will determine the tier students are entered into for their November mocks in year 11*	Summer mock: 1 Biology paper, 1 Chemistry paper, 1 Physics paper

Home Learning:
- Students will often be asked to complete classwork at home
- Students are expected to complete a Carousel quiz each week, as set by their teacher

Useful resources:
- Carousel
- Core Questions – found at the front of student booklets

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Subject: Science
Year: 11

OVERVIEW

GCSE Combined Science begins in Year 9 and we follow the AQA Trilogy curriculum.
Combined Science leads to 2 GCSE awards
For higher-attaining students, we also offer Separate Sciences, beginning in Year 10 in an option block. Separate Science content is embedded within combined science content. Dedicated Separate Science units will be taught in year 11.

Term	Focus	Assessment
Aut 1	• **B5: Homeostasis and response** • **C6: The rate and extent of chemical change** • **C7: Organic chemistry**	FOFs - fortnightly short assessments Required practicals
Aut 2	• **P5: Forces** • **B6: Inheritance, variation and evolution** • *Results of November mocks will determine the tier students are entered into for March mocks and GCSE exams*	FOFs – fortnightly short assessments Required practicals November Mocks
Spr 1	• **C8: Chemical analysis** • **P6: Waves** • **B7: Ecology**	FOFs - fortnightly short assessments Required practicals
Spr 2	• **C9: Chemistry of the atmosphere** • **P7: Magnetism and electromagnetism** • **C10: Using resources**	March mocks
Sum 1	• Exam preparation and consolidation	
Sum 2		Summer exams: 2 Biology paper, 2 Chemistry paper, 2 Physics paper

Home Learning:
- Students will often be asked to complete classwork at home
- Students are expected to complete a Carousel quiz each week, as set by their teacher

Useful resources:
- Carousel
- Core Questions – found at the front of student booklets