# *Science*

At St. Saviour's & St. Olave's, our students learn to understand the fundamental scientific principles relating to the human body and how we interact with our environment, the study of particles and chemical reactions and the concepts of energy and forces. To acquire scientific skills to understand how a scientist carries out science safely through an interpretation of the meaning of practical work, its analysis and evaluation. A level of scientific literacy that enables them to understand key scientific events in their community and how they can contribute to a sustainable future.

## *KS3 Curriculum for Science*

In KS3 our students prepare for GCSE by facilitating their understanding of the key ideas, applying them and extending them for the brightest whilst at the same time developing their mathematical skills, literacy and scientific enquiry.

At SSSO, year 7 follows the Springboard science curriculum, brand new for 2025. Students embark on an exciting journey through the world of science, exploring key concepts in biology, chemistry, and physics. The curriculum is designed to build curiosity, develop practical skills, and lay strong foundations for future scientific learning. Our 2025-26 cohort will continue to build on this as they go into year 8

At present, in Year 8, our focus is more centralised to the scientific enquiry of our impact on the environment, how chemicals interact and the importance of energy.

In Year 9, our preparation steps up with observation and measurement as a fundamental focus.

| | Half-term 1 | Half-term 2 | Half-term 3 | Half-term 4 | Half-term 5 | Half-term 6 |
|---|---|---|---|---|---|---|
| **Year 7** | B1 – Cells | B2 – Skeleton and organisation | C1 – Particles | C2 - Atoms, elements, compounds | P1 – Energy | P3 – Forces |
| | | | | C3 Pure and impure substances | P2 – Speed | |
| **Year 8** | How do we take care of our environment? | How do we take care of our environment? | What can we do with Chemistry ? | What can we do with Chemistry? | Why is energy so important? | Why is energy so important? |
| | Interdependence of species in an ecosystem | Survival of the fittest | Chemical reactions of metals and non-metals | Using resources from our planet | Energy and its transfer | Relationship between electricity and magnetism |
| **Year 9** | Being Alive | Being alive | The periodic table | Chemistry of the atmosphere | Structure of matter | Linear motion |
| | Using microscopes and identifying food | Looking at interacting organ systems. | Historical models in science | | Measuring density and heat | measuring velocity, acceleration and springs |

## *KS4 Curriculum for Combined Science*

In KS4 our students study a range of topics to further develop the fundamental knowledge and enhance their scientific understanding through experimental work leading to a practical endorsement of their skills, boost their mathematical and scientific literacy and then be able to confidently apply their knowledge to unfamiliar scenarios whilst linking key ideas together

| | **Half-term 1** | **Half-term 2** | **Half-term 3** | **Half-term 4** | **Half-term 5** | **Half-term 6** |
|---|---|---|---|---|---|---|
| **Year 10** | Diseases | Preventing and treating disease | Non-communicable diseases | Photosynthesis | Respiration | Human nervous system |
| | Chemical structure | Bonding | Electrolysis | Energy changes | Rates of reaction | Equilibrium |
| | Energy transfer | Energy resources | Electrical circuits | Electricity in the home | Nuclear Radiation | Nuclear Radiation |
| **Year 11** | Hormonal coordination | Variation, genetics and evolution | Adaptations and ecosystems | Biodiversity | | |
| | Quantitative chemistry | Crude oil and chemical analysis | The Earth's atmosphere | The Earth's resources | | |
| | Waves | Electromagnetic spectrum | Balancing forces | electromagnetism | | |

## *KS4 Curriculum for Separate Science*

In KS4 our students study an extended range of topics to further develop the fundamental knowledge and enhance their scientific understanding through experimental work leading to a practical endorsement of their skills, boost their mathematical and scientific literacy and then be able to confidently apply their knowledge to unfamiliar scenarios whilst linking key ideas together

| | **Half-term 1** | **Half-term 2** | **Half-term 3** | **Half-term 4** | **Half-term 5** | **Half-term 6** |
|---|---|---|---|---|---|---|
| Year 10 Biology | Diseases | Preventing and treating disease | Non-communicable diseases | Photosynthesis | Respiration | Human nervous system |
| Year 10 Chemistry | Chemical structure | Bonding | Electrolysis | Energy changes | Rates of reaction | Equilibrium |
| Year 10 Physics | Energy transfer | Energy resources | Electrical circuits | Electricity in the home | Nuclear Radiation | Nuclear Radiation |
| Year 11 Biology | Hormonal coordination | Variation, genetics and evolution | Adaptations and ecosystems | Biodiversity | | |
| Year 11 Chemistry | Quantitative chemistry | Crude oil and chemical analysis | The Earth's atmosphere | The Earth's resources | | |
| Year 11 Physics | Waves | Electromagnetic spectrum | Balancing forces | electromagnetism | | |
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***KS5 Curriculum for* Advanced Science**

In our sixth form our students study an extended range of topics in much greater depth to deepen their learning of our world and beyond. This is enhanced through individual experimental work leading to a practical endorsement of their kinaesthetic skills, boost their mathematical, academic and scientific literacy. Students will be able to confidently apply their knowledge to many novel scenarios whilst linking critically knowledge together.

| | **Half-term 1** | **Half-term 2** | **Half-term 3** | **Half-term 4** | **Half-term 5** | **Half-term 6** |
|---|---|---|---|---|---|---|
| **Year 12 Applied science** | Unit 1: Principles and Applications of Biology | Unit 2: Principles and Applications of Chemistry | Unit 4: Practical Scientific Procedures and Techniques. TASK A: Testing for Purity and Standard solution. | Unit 3: Principles and Applications of Biology | Unit 4: Practical Scientific Procedures and Techniques. TASK 2 Investigating concentration and distribution of biological components | Unit 4: Practical Scientific Procedures and Techniques. TASK 3&4<br><br>Personal Development |
| **Year 12 Biology** | Cell biology | Biological Molecules | Organisms Exchange substances with their environment | Genetic information and variation | Ecosystems | Relationships between organism |
| **Year 12 Chemistry** | Atomic structure<br><br>chemical Bonding | Amount of substance<br><br>Kinetics | Energetics<br><br>Organic chemistry and alkanes | Redox and inorganic chemistry groups<br><br>Halogenoalkanes and alkenes | Le Chatelier's principle<br><br>Alcohols | Gaseous equilibrium<br><br>Organic analysis |
| **Year 12 Physics** | Electricity<br><br>Measurement and their errors | Waves<br><br>Materials | Mechanics<br><br>Particles | Energy and momentum<br><br>Quantum physics | Practical physics | Periodic motion<br><br>Circular motion |
| **Year 13 Applied science** | Planning investigation | Recording and interpreting data | Analysing findings | Evaluating findings | | |
| **Year 13 Biology** | Energy transfers in | Organisms respond to changes in their | Genetics, populations, evolution | Control of gene expression | Health and physiology | |

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|---|---|---|---|---|---|---|
| | and between organisms | internal and external environment | and ecosystems | | | |
| **Year 13 Chemistry** | Acids and Bases<br><br>Rate Equations | Thermodynamics<br><br>Organic Oxygen compounds | Electrode potentials<br><br>Organic rings and nitrogen compounds | Transition metal chemistry<br><br>Organic synthesis, NMR and chromatography | | |
| **Year 13 Physics** | Thermal physics<br><br>Fields | Nuclear physics<br><br>Capacitance | Nuclear energy<br><br>Magnetic fields | Optional module | | |