



Science

The Southchurch High School Science Department endeavours to promote a stimulating, engaging, fun and successful learning environment. The use and development of literacy and numeracy skills of students is always at the forefront of our lesson planning and as a Department we strive to use a range of teaching techniques with a focus on practical investigations that encourage student engagement and allow students to discover the wonderful Universe that science helps them understand.

Skills developed by students in the Science Department such as investigative and communication skills, modelling and problem solving help prepare them for the workplace, whilst at the same time showing the relevance of Science to everyday life, linking its historical context to the present day.

Key Stage 3

The committed Science Department at Southchurch High School begin the Key Stage 3 experience at the Summer School preceding the students' September start. This enables them to familiarise themselves with the facilities and equipment used during lessons.

Once students have begun their school career at Southchurch they will embark on a comprehensive skills development course that lasts 2 weeks to build on the science skills they bring from primary school. This gives them the best possible chance of progressing quickly in their development as a budding scientist.

From the start students will have the opportunity to study core topics in Biology, Chemistry and Physics. To support these studies we follow the new KS3 National Curriculum guides using the outline from "Exploring Science" scheme of work, this scheme having been chosen very carefully due to its emphasis on practical and investigative work.

Homework tasks will be set weekly in line with school policy. These tasks are structured to allow further development of learning that happens in the classroom and as such every piece of homework matters. At regular intervals more complex project based homework tasks could be set. These are designed specifically to allow students to develop their knowledge at their own pace to their own level.

Through the use of STEM (Science, Technology, Engineering and Maths) the department hopes to promote an enthusiastic view of Science within the School and beyond.

Assessment takes place at the end of each topic in order to regularly monitor the progress of students. In order for students to perform to the best of their ability in these and all other assessments revision sessions will be organised in class but students are also expected to prepare in the appropriate manner at home. A formal examination also takes place at the end of each term.

Year 7 Topics

- Introduction to Science Skills
- Cells
- Variation
- Solids, Liquids and Gases
- Energy and Energy transfers
- Chemicals and their reactions

Year 8 Topics

- Earth and its atmosphere
- Electricity and Magnetism
- Feeding and Movement
- Ecological relationships and microbes
- Elements
- Forces

Key Stage 4

Due to the increased curriculum detail and expectation, the new GCSE syllabus begins from the start of Year 9, allowing the students extra time to build upon the skills developed over their Key Stage 3 experience. Students will be studying the EDEXCEL GCSE course and details of the contents of the course can be found on the EDEXCEL website.

As with Key Stage 3 an investigative approach is taken as it encourages Key Stage 4 students to explain, elaborate and challenge in order to form their own conclusions and therefore build a more robust understanding of the subject matter they will ultimately be examined on during June of year 11.

The examination structure has also been changed and students are now examined purely in 'terminal exams'. This means that the majority of students will study topics from paper 1 during year 9 and 10 and Topics from paper 2 during Year 10 and 11, but they will only be examined formally on what they learned during both years at the end of Key Stage 4 (i.e. at the end of year 11).

Assessment is extremely important during these 3 years as it informs and guides teaching in the Department and allows us to support individual students more effectively. Due to this, students will be assessed formally at regular intervals and it is expected that students will use the revision sessions organised within the Department and personal home study to prepare for these examinations.

We are committed, as with parents and guardians, to the success of our students. Working together, we can support these young people as they strive to reach their potential.

Paper 1 Topics

Biology

- Key Concepts
- Cells and Control
- Health, Disease and the development of Medicine
- Genetics
- Natural Selection and Genetic Modification

Chemistry

- Key Concepts in Chemistry
- States of matter and mixtures
-
- Chemical Changes
- Extracting metals and equilibria

Physics

- Key Concepts in Physics
- Motion and Forces
- Light and the EM spectrum
- Conservation of energy
- Waves
- Radioactivity

Paper 2 Topics

Biology

- Plant structure and their functions
- Animal coordination, control and Homeostasis
- Exchange and transport in animals
- Ecosystems and material cycles

Chemistry

- Groups in the periodic table
- Rates of reaction and energy change
- Fuels and Earth science

Physics

- Energy and forces doing work
- Forces and their effects
- Electricity and Circuits
- Magnetism and the motor effect
- Electromagnetic induction
- Particle Model
- Forces and Matter

Promoting Modern British Values and SMSC

In Science lessons students will learn about the contribution British scientists have made to understanding the world we live in, they will also get the opportunity to study the questions that some very famous British scientists are still asking about the origins of the universe. During the study of science at Southchurch, students will consider the beauty of the natural world and the place of humans in it with the aim that they become aware of the importance of their place in the world and the responsibility we all have to protect it.

Staff Contact:

Mr W Harding

Email: wharding@southchurchschool.com

Department Head of Science
