Science

The Futures Community College 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.

Success is celebrated regularly in the Department. Each class has a “Scientist of the Week” award which is given for excellence demonstrated in any of the skills required to achieve success within science. Every winner of this is then eligible for the “Scientist of the Year” award that is presented at the end of the summer term.

Key Stage 3

The committed Science Department at Futures Community College 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 Futures 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 “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 regularly. 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 will be set. These are designed specifically to allow students to develop their knowledge at their own pace to their own level.

Themed weeks, local and national competitions and links with other subjects and schools through STEM (Science, Technology, Engineering and Maths) 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 year.

Year 7 Topics

- Tissues and transplants
- Acids and Alkali
- Ecology Matters
- Forces and their Effects
- Bubbles, Bands and Burning
- Sex and Science
- Classified
- Materials from the Earth
- Energy with sustainable resources
- The Solar System and Beyond
- What a Waste

Year 8 Topics

- Food Glorious Food
- Doctors and Diseases
- Water
- All that Glitters
- Heat Transfers
- Sound and Hearing
- Going for Gold
- The way of the Dodo
- Materials and Recycling
- Explaining the Earth
- Forces and Transport
- Light

Year 9 Topics

- Science and Fiction
- Building for the Future
- Buying Energy
- Record Breakers
- Crime Scene Investigations
- Flying Materials
- Satellites and Space

Key Stage 4

The GCSE syllabus begins during the summer term of Year 9, building upon the skills developed by the students 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 recently been changed and students are examined in ‘terminal exams’ - this means that the majority of students will study Core Science during year 10 and

Additional Science during Year 11 but 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 2 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.

Practical coursework accounts for 25% of the overall GCSE grade with the remaining 75% comprising of terminal examinations in Biology, Chemistry and Physics. The practical coursework is completed during a 2 week period of either the autumn or spring term and students are informed of the dates prior to this time.

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.

Year 10 Topics

Biology

- Classification, variation and inheritance
- Responses to a changing environment
- Problems of, and solutions to a changing environment

Chemistry

- Earth's sea and atmosphere
- Fuels
- Obtaining and using metals
- Materials from the Earth

  Acids

Physics

- Visible light and the Solar System
- Waves and the Universe
- The electromagnetic spectrum
- Waves and the Earth

Year 11 Topics

Biology

- The building blocks of cells
- Common systems
- Organisms and energy

Chemistry

- Atomic structure and the periodic table
- Groups and the periodic table
- Ionic compounds and analysis
- Covalent compounds and separation techniques

- Chemical reactions
- Quantitative chemistry

Physics

- Static and current electricity
- Controlling and using current electricity
- Motion and forces
- Momentum, energy, work and power
- Nuclear fusion and nuclear fission
- Advantages and disadvantages of using radioactive materials

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 Futures 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 M O'Flaherty
Email: moflaherty@futures.uk.com
Head of Science