

Departmental Curriculum Statement 2022-23 SCIENCE

Curriculum Intent Statement

Science, by its nature, is changing daily. At Cowley International College we recognise that the pupils of St. Helens live nestled within the Northern Powerhouses of Manchester and Liverpool – both of which are hubs for Scientific research and technological development. It is our intent to harness and develop the potential of all our students, regardless of background or personal circumstance, and mould them into Cowleian Scientists. Cowleian Scientists have our school values at their core, they demonstrate a considerate and conscientious approach to the natural world, they communicate their ideas with eloquence, they are independent and inquisitive thinkers and aspirational in their career destinations when they leave us in Year 13.

Our Science curriculum across KS3, KS4 and KS5 meets and exceeds the breadth and depth of the National Curriculum and is supplemented with frequent updates to keep pace with new scientific discoveries - giving students the opportunity to become compassionate learners, who develop into informed citizens. Post SARS – 2 Covid return to College in September of 2021 will require a focus on oracy across the curriculum

Curriculum Implementation Statement

Key Stage 3 Science

Our Key Stage 3 Science programme at Cowley International College is a three-year long learning journey encompassing Biology, Chemistry and Physics, which are all studied as separate topics throughout Years 7, 8 and 9. Our rigorous and broad KS3 curriculum is mapped and aligns with the KS3 Science National Curriculum. In addition to this, we promote the development of Cowleian Scientists, who have our school values at heart. In KS3 Science we focus on developing inquisitive young minds, fostering a love of Science and developing practical skills so that our students are adept at making evidence-based conclusions. Where applicable, we also shine a spotlight on the future job market, by linking related Scientific Careers into our lessons, in the hopes to inspire our students to pursue scientific careers in the future.

Key Stage 4 Science

Two curriculum routes are available to KS4 students at Cowley. Students can opt to study Separate Sciences (3 GCSEs -GCSE Biology, GCSE Chemistry and GCSE Physics) or Combined Sciences (2 GCSEs in Combined Science (Double Award)).

Key Stage 5 Science

Biology, Chemistry and Physics are available to study at AS and A2 Level at Cowley Sixth Form. BTEC Science (Level 3) is also available.

In all key stages there have been recent changes in the sequence of the content delivered. Reasons for this include: –

- Improved flow of content from topic to topic to enable a spiralled curriculum and emphasis on knowledge and retrieval.
- Removal of duplicated material students mastered at earlier Key Stages
- Reorganisation of content to ensure the maturity of students matches the difficult nature of some subjects (E.g. Long term illness, cancer, IVF, fertility)

- Reorganisation of curriculum content following cross curricular talks with other departments to promote cohesion and cross curricular links between subjects.
- Our schemes of work for all key stages have a range of pedagogical approaches to meet the needs of all students, this is evidenced through both work scrutiny, departmental monitoring procedures and student voice surveys.
- Independent work is set to enhance knowledge centric learning and the development of understanding. As a department, we encourage staff to use a range of techniques to enhance knowledge recall, skills analysis, interpretation of data and application of Scientific concepts. Homework is routinely set to promote knowledge retention and is differentiated to meet the needs and abilities of all students at Cowley.

Curriculum Beyond the Classroom

We have a very active Science Club delivered by our KS3 co-ordinator. Each week they meet and students are engaged with a wealth of experiments and activities to expand upon their scientific studies and foster a love of learning. Eco club, run by the College's Sustainability Co-ordinator and supported by the Science faculty, is an additional way for students to develop their environmental awareness. Eco Club has recently been recognised by TES as fundamental in making an impact on the College's conscientious attitude to environmental issues. We have been a participant in the Royal Society of Chemistry's 'Chemistry for All' project –boosting students' love of Chemistry -this has involved frequent trips to John Moores University along with lecturers visiting college to deliver inspirational sessions.

Close links with Manchester Metropolitan University has led to KS5 visits to undertake DNA Technology sessions involving undergraduate teaching sessions.

Other Science Trips include: -

- Science Live speakers and Chester Zoo with an entire Year Group
- Salters Festival of Chemistry
- Liverpool John Moores Chemistry visit to teaching laboratories (Year12 Applied Science)
- Medical Mavericks – for 250 students expressing careers intention in the Health Care Industry.
- Planetarium visits (Liverpool)

Subject Expertise

As a department we collaborate with The Institute of Physics giving insight into the delivery and language to be used, with classroom delivery strategies to be in line with new Physics specification.

Using the examination board the department has obtained feedback from the new linear examination in 2018 and how our delivery can be adjusted (to be repeated 2019).

We are an active part of the Teacher Support Network (St.Helens / Liverpool) – which uses regular meetings on key issues E.g Maths in Science.

The Head of Department / assistant Head Of Department attend AQA HUB meetings termly – which are then disseminated and best practise shared to the faculty at departmental meetings.

Several staff mark Summer GCSE and A-Level examinations and feedback from Team Leaders/ Principal examiners on expectations and key points.

KS5 delivered by subject experts – to specific first-degree capabilities. We have no non-experts in the department.

KS4 teachers meet regularly to discuss practise and share resources to benefit the learning of pupils

Destinations

We are proud that large numbers of students leaving Cowley Sixth Form with Science qualifications go on to study Science based University degrees. Throughout all Key Stages students are exposed to external agencies and further education opportunities through a series of designed activities.

The Science Department delivers “taster” sessions to new students in the Summer term of KS2. An introduction to a Science Classroom Laboratory, with elements of practical science safety.

The Head of Department discusses Separate Sciences as a GCSE option to students prior to GCSE options being made, to encourage those with a love of the subject to pursue it further.

External college activities are planned to support transition including; Big Bang Fair - organised by STEM in Liverpool M and S Arena (Attended annually – with links to many STEM based organisations).

Operating Theatre Live visits for future medics as a programme starting in Year 10. Visiting academics speak to small groups of students and we regularly visit Daresbury laboratories to engage in aspects of Physics and Chemistry careers.