



THE COTSWOLD SCHOOL

THE SCIENCE DEPARTMENT

We have the ambition to provide all students with an engaging knowledge-rich Science curriculum that helps them think critically and become scientifically literate adults.

We have fantastic science teachers at The Cotswold School; they are caring and compassionate towards their students, and want them to achieve their potential.

Curriculum:

We have built a bespoke KS3 Science curriculum to meet the needs of our students.

During their time with us, students are introduced to 'big ideas' in Science, these are developed throughout the curriculum helping build students' understanding. We weave scientific investigation and written skills into the big ideas so that students can go on to achieve academically and become scientifically literate adults, who can think in a critical and in a considered way about the world around them. Numeracy, literacy and careers are embedded into our curriculum to ensure wider skills are learnt.

We have tailored our Key Stage 3 curriculum to make Science relevant to our students, focusing on the nature and minerals around them in the Cotswolds. Additionally, we seek to make them global citizens with links to science around the world, such as how animal conservation is carried out in China and Costa Rica. We ensure we cover all elements of the national curriculum.

In Year 7 students start by studying CSI Bourton, learning investigation skills to solve crimes around the school. Students continue to study topics in themes such as rocket science and kitchen chemistry.

Moving onto Year 8, key knowledge that students are introduced to is built on with topics such as 'bonfire night' focusing on chemical reactions and 'sports science', building on ideas about force that were introduced in the rocket science topic in Year 7. We finish Year 8 with our STEM topic allowing a real

focus on practical skills in context, for example building mousetrap cars then carrying out alterations to test for top speeds.

In Year 9, the big ideas are developed further during the first term when we give students the chance to investigate some big questions in science such as, “how related to bananas are we?” and, “how quickly can humans accelerate?”. We have a particular focus on literacy in this part of the curriculum when students’ extract knowledge from texts from a variety of sources.

Before Christmas in Year 9, every student will take part in [Fame Lab](#), where they talk about a science subject they are interested in. The winners from each class will go into a school competition and the school winners take part in the competition at Cheltenham Science Festival, and can potentially add to The Cotswold Schools’ success, with 3 previous winners of the Gloucestershire event.

At GCSE, students take AQA Trilogy Science. Students are either entered for combined science worth two GCSE’s or triple science worth three. In both courses there is an equal split between Chemistry Physics and Biology. These courses help students to become scientifically literate adults and both give them the chance to go onto study A Levels in Science.

At A Level, we offer OCR Biology A and Physics A and AQA Chemistry. Our A Level students have the chance to take part in a range of practical work, as well as other opportunities such as national Olympiads run in each subject. We have a consistent conversion rate in sending our best and brightest students to Russell Group Universities to study Science, Medicine and Engineering Degrees. Students have the opportunity to become subject ambassadors promoting and supporting younger students in Science.

Approaches to Learning and Assessment

In our Science classrooms we use a wide variety of approaches to make all learners successful. We use investigation skills in a number of ways, sometimes to confirm concepts that have been taught, at other times to develop practical skills such as the use of microscopes.

For example in Year 7 students complete a practical to see the amount of energy that is released from different breakfast cereals, in Year 10 students use pond weed to investigate the factors that affect photosynthesis.

We are lucky enough to have a class set of data logging equipment. Students can, for example, run experiments in the labs overnight and see how the temperature of a chemical reaction has changed. We have two class sets of iPads that are regularly used by teachers to show students simulations that deepen their understanding and students take assessments that can automatically generate feedback.

To help our students build knowledge over time we use regular low stakes tests via online platforms; this enables students and their teachers to see progress and help address knowledge gaps. Each topic completed has a summative end of unit test that students will reflect on afterwards to see what improvements can be made.

We work closely with other departments around the school to make cross-curricular links such as with the Maths Department where we use common language and teach skills in a joined up manner, such as a common approach and language around graphs. We also work the Geography Department – after students learn about tectonic plates in Geography, in Science they learn about how electricity is generated from the heat produced at plate boundaries.

Supporting Individual Students

Our lessons are differentiated to support the needs of all learners and support sessions are provided to help students make more progress. We also stretch our students with regular opportunity homework and extension tasks in lessons.

Extra-Curricular Opportunities

The Science Department offer the broadest range of extra-curricular opportunities of any subject in the school. These include events for Science Week such as the very popular 'Science is Fun for Parents too'- 40 families joined us after school last year to have a Science "lesson" with their children, building rockets and mixing chemicals. We also have outside speakers such

as; last year's Science Christmas Lecture from a former pupil who has become a helicopter pilot. We have lunch time and after school clubs such as Robotics and STEM; trips such as all of Year 7 attending the 'Big Bang' event in Birmingham, Year 8 and 10 trips to the Cheltenham Science Festival, and a Sixth form Physics trip to the Large Hadron Collider in Geneva, as well as many more.

We work closely with our primary feeder schools to help students transition to secondary and have an Ogden Trust Grant to help support them with Science teaching. Our staff and students regularly go on outreach to help them; for example in Science Week we visited local primary schools and delivered a session on heart dissections, which proved very popular with Year 6!