Curriculum Intent: Science

Subject vision:

We strive to ensure all students make outstanding progress in Science. Students will be equipped with the knowledge and skills to understand the world they live in and we are dedicated to turning students into global citizens who can improve the world they live in, using science as a tool to do so.

We want students to be inspired by science and motivated to succeed, as such practical work with a strong knowledge base is at the heart of learning.

We deliver our curriculum intent on a subject level by:

KS3 - The course is a knowledge-rich course with a focus on embedding core concepts so that students can access and apply the key skills needed to enjoy and succeed in their study of science. They follow the AQA KS3 syllabus which also fully covers the KS3 Programmes of Study.

The AQA KS3 syllabus is structured in a way that secures the knowledge needed to access the subject skills and to apply this knowledge. Concepts are structured into the Big Ideas (Harlen, 2009), ensuring that they are delivered in a coherent way, helping students to grow a connected body of knowledge for each subject discipline.

KS4 - The KS4 course follows directly on from the KS3 studies further embedding the knowledge and understanding gained. Practical skills are enhanced with a series of required practicals, further developing the students' skills and confidence. Students also develop their mathematical skills to enable them to analyse data effectively and draw conclusions.

Students are provided with specialist teachers to ensure they have passionate and knowledgeable teachers who go beyond the syllabus. This enables students to make further progress and develop a love of science.

Students are able to follow two pathways at GCSE level, namely GCSE Separate Science as well as GCSE Combined Science, ensuring all students of all abilities and aspirations are catered for.

KS5 - Science is a hugely popular subject and we strive to ensure that all students who aspire to study science in KS5 can do so. We offer academic and vocational qualifications in the form of Advanced Levels in Biology, Chemistry and Physics as well as BTEC Applied Science, thus ensuring we cater for all types of learner. The subjects are completely independent and the best and most suitable specifications are used to suit each subject separately. The Advanced level Sciences all contain required practical work which is designed to develop the students' skills in this area to an independent and competent level. Application of subject knowledge is essential at Advanced-Level and the curriculum and scheme of learning ensures students gain the skills necessary to become expert problem solvers.

Enrichment

Students from Year 7 and 8 are invited to participate in the CREST Bronze Award where they conduct science practical work in order to complete an investigation. Students in Year 9 are invited to participate in the Unilever Bright Futures Inspire Programme where students are involved with designing their own product - a refillable and reusable shampoo for example.

Students in Year 11 are invited to various revision programmes after school to enrich their learning and support their examination preparation.

In Year 12, students are invited to participate in bronze/silver/gold Industrial Cadets Project working with Inovyn who set a project (for example a sustainable hydrogen powered village).

The Biology Department also offer field work opportunities to support the Advanced Level Biology syllabus.

In the near future, the Science Department intends to offer students further enrichment activities such as a trip to visit Geneva to learn about the particle accelerator at CERN for Advanced Level Physics students and the Gold CREST Award. We also encourage students to take part in National competitions such the British Physics Olympiad competition.

In Science, students '**Achieve success'** by:

Encouraging high aspiration and a love of learning	High expectations of students in class. Lessons that are designed with a variety of learning activities to engage all students. Opportunities for students to apply learning to the world around them.
Maximising progress and potential	The AQA courses aim to secure knowledge before moving on to the next stage of learning – this involves AfL intervention strategies in keeping with Black and Wiliam (1998) and Hattie (2004). Students are continually challenged and moved forward with curiosity and investigation encouraged throughout. The use of Bloom's taxonomy within the assessment framework encourages students to create, evaluate, and synthesise knowledge once secure, all helping to broaden and deepen understanding and embed key knowledge and skills so students can explore the subject fully.
Providing rewarding learning experiences	Variety of learning activities in classroom including practical activities. Tailored learning to individual needs and learning styles. Constant review of activities in lessons to keep them up to date, current and relevant.

	Interactive feedback linking to previous learning. Link learning to real life applications.
Offering diverse opportunities	Opportunities to collaborate with external companies on projects. STEM opportunities. Crest award opportunities. Differentiated tasks and approaches to experiments in lessons.
Recognising and celebrating all achievement	Through the regular communication to home of the successes of our students through assessment, reporting and consultation evenings. Through the selection of our most committed, driven and focussed students to be ambassadors for our subject. Through the display of students work within classrooms and the opportunity for creative and expressive students to participate in the production of their own displays that can help inform others. The provision of names for students to attend reward gatherings with the Headteacher. The use of verbal praise within classrooms to highlight good progress.

In Science, students '**Value Others'** by:

Contributing to a safe school environment	We ensure the safety of our students by highlighting safety rules from year 7 onwards, including a 2 week induction. We ensure safety rules are highlighted prior to practical work and reviewed afterwards. Our practical work is performed in accordance to CLEAPPS. We educate our students in health and safety by getting them to write risk assessments. Technical staff often trial experiments and maintain equipment for future use. All staff are fully trained in safeguarding procedures.
Showing tolerance, respect and fairness	We follow the school's Behaviour Policy. We highlight the importance of tolerance and respect in the teaching of key topics within our curriculum. We have produced displays that highlight the scientific achievements of scientists from a diverse range of backgrounds.
Listening to and respecting others' views	We encourage students to listen to each other through debate and work together collaboratively. Students work together successfully to formulate hypotheses and design methods to test them.

Appreciating and embracing diversity	Within the corridors of the science department there is a wall display celebrating the success of a diverse scientific community for students to view and read whilst waiting outside at the start of lessons. Schemes of work have an element of appreciating diversity of the wider world, with focuses on energy, diet and metal extraction.
Being an active member of our school and local community	Science extra-curricular activities offer our students opportunities to represent our school by working with local organisations. Within the department we have active science ambassadors from our sixth form. During open evenings our students from all years take part to represent our science department.
Co-operating with others	As an essential part of our subject, all students take an active role in group work and practical activities throughout all key stages and all schemes of work.