

### Overall intent statement

Our ambitious, knowledge-rich and engaging science curriculum will support a knowledgeable, highly skilled science learning community enriched by opportunity and the development of character.

Students will develop a comprehensive understanding of phenomena through the use of scientific models, mastery of scientific vocabulary and a range of exciting practical activities. Students will develop the self-belief to make predictions, test hypotheses, devise questions and construct complex explanations. At every opportunity theory is linked to real-life applications and scientific careers to develop curiosity and ambition for our subject. A comprehensive extra-curricular offer provides further opportunity to develop character and will enable students to be the best they can be as a science student, as a citizen in their community and in their future.

### Intent statements by Key Stage

	Subject-based curriculum
Key Stage 3	<p>The intention of our engaging Key Stage 3 curriculum is to ensure that all students have a detailed scientific vocabulary, master the 10 big science ideas and work like scientists through practical activities that nurture passion, enthusiasm and curiosity for science.</p> <p>Practical activities allow students to collect data, analyse patterns, draw conclusions, test hypotheses, estimate risk and examine consequences. Mastering understanding of big ideas including forces, reactions and ecosystems will allow students to start to see the world analytically, to explain phenomena and make predictions – all essential skills needed to advance successfully into GCSE.</p>
Key Stage 4	<p><b>Physics</b></p> <p>The intention of our engaging physics Key Stage 4 curriculum is to ensure all students advance their depth of understanding and practise application of the big science ideas. Key scientific ideas including the use of models, as in the particle model of matter, allow students to explain complex phenomena of the natural and man-made world. Lessons are relentlessly linked to real-life applications and careers. Activities including the building of electric motors and learning the science in their engineering fascinate students and builds an eagerness to understand more. Students will become expert analysts by refining their math skills, interpreting graphs and drawing conclusions to complex situations - skills that will serve students well across many subjects and situations in their futures.</p> <p><b>Chemistry</b></p> <p>The intention of our engaging chemistry curriculum at Key Stage 4 is to develop students' knowledge acquired in Key Stage 3 study, increase the depth of their understanding and their ability to articulate increasingly complex chemical concepts such as the nature of chemical bonding.</p> <p>There continues to be a focus on investigative approaches with the students engaged in six required practical activities which help to build understanding by, for example,</p>

	<p>allowing the students to see how increasing temperature increases the speed of a reaction. Students are also encouraged to consider ethical, economic, and environmental impacts of chemistry within each topic area, giving students the platform to develop coherent and developed arguments for and against a topic.</p> <p><b>Biology</b> The intention of our engaging biology curriculum at Key Stage 4 is to study living organisms including animals, plants, fungi, microorganisms and their interactions with each other and the environment.</p> <p>Throughout the course we aim to give students an understanding of the key biological concepts, building from their Key Stage 3 knowledge and understanding whilst developing the cognitive skills required at Key Stage 5. The development of scientific knowledge, enquiry and conceptual understanding is weaved throughout the teaching of the course. Students are taught about working scientifically through varied practical investigations, developing key practical skills such as use of microscopes, investigation design, statistical analysis and evaluation skills. Social, moral and religious considerations of today's modern biological advancements are also addressed.</p>
<p>Key Stage 5</p>	<p><b>Chemistry</b> The intention of our engaging chemistry curriculum at Key Stage 5 is to be a challenging dive into a selection of in-depth chemical ideas, stretch the most astute scientific thinkers.</p> <p>Students will consider how a career in pharmaceuticals or the development of clean alternative fuels might be an exciting career prospect. The curriculum builds on knowledge and skills acquired earlier in students' chemistry education. Breadth and depth of knowledge is significantly increased, delving deeper into how and why chemicals react at a molecular level. There's a strong investigative approach through 12 required practical activities including making aspirin in the lab. Students are encouraged to consider how modern chemistry shapes and influences our changing world from drug development to chemical innovation.</p> <p><b>Physics</b> The intention of our engaging physics Key Stage 5 curriculum is to ensure all students delve into deeper understanding of the natural and man-made world, developing mastery in scientific knowledge and skills.</p> <p>Students will start at the forefront of modern physics with a particles and radiation unit. They will be in awe, learning about modern particles including Gluons and Neutrinos. Practical activities are at the heart of the course, linking theory through 12 required practicals that make sense of phenomena. Students will become master analysts, building mathematical skills including algebra, handling data, graphs, geometry and trigonometry. Exciting option units including astrophysics and engineering allow students to specialise in their passions and direct their studies towards an exciting future in physics.</p>

**Biology**

The intention of our engaging biology Key Stage 5 curriculum is for students to draw upon their knowledge gained at Key Stage 4 and apply this at an advanced level whilst covering new material including epigenetics and gene technologies.

Application, synthesis, evaluation and advanced practical skills are weaved throughout the study of the living world, populations, organisms both at cellular and molecular levels and the fundamental similarities and differences between plants, animals and microorganisms. Appreciation of sustainability of all aspects of biological development is also considered. Students will leave the course with the credentials for success for life, primarily centred, but not wholly around aspirational progression onto university and the wide range of careers in the field of biological sciences.