



Haydock High School Science Department – Curriculum

Aims of the Department

The Science department at Haydock high school is a vibrant, exciting place where students can freely explore their understanding of the world around them. Science allows them to explore their thinking around a range of issues and factors that affects them and our world in the present, it also offers them the opportunity to be creative, and with their enquiring minds come up with solutions to some of the challenges that we will face in the future, for example climate change.

The department is staffed by an enthusiastic and experienced team of subject specialists who are experts in their respective fields of Biology, Chemistry and Physics. They are passionate about their specialisms and foster a love of their subject, 'every day is a school day' for the staff too and they love to discover and share developments in their subjects. The staff plan and deliver rich learning experiences that are awe inspiring, engaging and fun. Their enthusiasm is evident in every lesson.

Students are encouraged to develop an enquiring mind and get to explore their ideas in lab based practical activities. Through practical collaborative activities students develop a wealth of skills that are highly transferrable to lab based careers in Science, for example biochemistry, analytical chemistry, and pharmacy.

Curriculum Ethos

The curriculum at Haydock allows the students to develop their scientific 'mastery' skills, through our collaboration with local primary schools, staff have a good understanding of the starting points in Year seven and build upon the investigation skills and prior learning in key stage two. Key stage three aims to be challenging, practical and engaging, building on prior learning whilst developing the specialist subject knowledge, practical, and application skills that students will need to excel in their next stage of learning in Key stage four.

In Year seven students study fundamental topics in Biology Chemistry and Physics, this includes cells, atomic structure and forces. Throughout the year students develop and apply their learning to new concepts and also get to extend their thinking and build on prior learning. There is regular spiralling of learning, where topics are regularly revisited to develop and maintain good subject knowledge.

In Year eight the curriculum is also designed so that students of all abilities make good progress in developing skills, whilst forming and maintain robust and solid subject knowledge.

From Years nine to eleven students study either AQA Combined Science Trilogy or AQA Separate Sciences. Both courses cover Biology, Chemistry and Physics with Combined Science leading to two GCSE grades and Separate Science leading to three GCSE grades. The KS4 course builds upon and develops the learning from KS3 where again the fundamental topics are studied, but to a deeper level, there is also a very big emphasis on practical skills, which were developed throughout KS3 and application. Mathematical skills and literacy skills are developed through the course, and students get to utilise many of the skills learnt in Mathematics and English in Science. The curriculum is



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bespoke and with the support and guidance from the Science department it prepares the students very well for the rigor of the GCSE examinations.

Teaching and learning

Studying Science is a five Year journey at Haydock High School, our aim is for all students to develop a love of the subject and become independent, critical learners who have excellent subject knowledge, scientific investigation skills and can apply their learning in a whole range of contexts. We want our students to experience the ‘awe and mystery’ of Science and definitely experience the ‘wow factor’ for example the first time students look down a microscope and see their very own cells. In all lessons staff try to highlight to the students the real life jobs and applications of the Science being taught, and that not all Scientists wear white coats and work in laboratories. The curriculum which the students follow prepares them very well for many careers including medicine, veterinary Science, pharmacy and the nuclear industry.

Being a practical subject, most lessons include some form of practical work, where students get to work independently and develop those essential practical investigations skills. Excellent teaching facilitates excellent learning and our approach is to challenge the students to answer their own questions, plan their own investigations, solve problems, critically think and apply their learning to a range of situations. Ultimately becoming secure and robust learners ready for the rigour of examinations and careers in Science.

Beyond the classroom

Students in KS3 have the opportunity to attend a weekly science club where they can test out their questions and further hone their practical skills. In KS4 we have weekly study support sessions to assist the students with their independent learning outside of the classroom. We also host Holiday learning; as a department we also have excellent STEM links and have hosted events like the Science 2 You show which is very popular with students, we also invite STEM colleagues to school so that students can speak to colleagues who are experts in their respective fields and can inspire the students with first-hand accounts of their professions. Additionally, we have excellent links with the prestigious Institute of Physics.

Homework

Home learning is in many forms and includes the use of the Educake website where students can apply their learning to a range of questions, this is excellent as it provides immediate feedback to the students and is an opportunity for interleaving where students can review work from previous lessons, thus developing good subject knowledge. Students are also set independent revision to complete from the revision guides and websites such as BBC Bitesize. There is a plethora of resources, revision videos, exam-style questions and much more on the Science pages on Moodle.



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