

More Able in Science

In class

In all years and sets the focus is on engaging and inspiring students through challenging work with a strong emphasis on allowing students to deepen their science knowledge, understanding and application kinaesthetically through practical activities.

Due to an eclectic range of teaching strategies and task variety peppered throughout our hand tailored schemes of work there is excellent provision to challenge, develop and support students through a variety of learning styles.

Students are immersed in a range of topics that, where possible, make real world links that enable students the opportunities to conduct their own research outside of the classroom and ask questions within the lesson.

We use the National Curriculum grade descriptors and through regular consistent feedback effectively communicate to students where they are working at and what they need to do to progress. More able students are also given opportunities to teach other students within their class, thus cementing their own understanding further and developing their tools of communicating difficult concepts to allow others to understand to the level they do.

In year 7 and 8 our more able students will be taught GCSE level concepts and have access to examination questions to allow students to apply their understanding and use of scientific vocabulary and concepts.

In year 9 we begin the GCSE course and continue this throughout year 10 and 11. The more able students will be stretched through exposure to grade 8 and 9 questions and also links to A-level standard work, thus inspiring them to continue their learning beyond key stage 4. Year 11 students are also invited to take part in A-level taster days to be able to see the challenge and level of understanding and application required to be successful at this next step in education.

For our more able year 12 and 13 students, those aiming for Oxbridge have been given Chemistry Olympiad questions. These are high level questions outside the scope of the A-level specification and are aimed at testing and developing application of current knowledge and scientific comprehension skills.

At key stage 5 differentiation is an integral part of the lessons. We use final paper exam questions to test and stretch more able students even as early as the first term in year 12. In addition we use tasks and questions that contextualise the science so that students are better prepared for the synoptic questions that are in the paper 3 of each science A-level. This means that several different specification areas are integrated into one question or task. This also helps to develop the evaluative and application skills that the students need to achieve the higher grades and to prepare them where appropriate for studying a science at university. In addition year 12 more able students help to support teachers and students during the A-level taster days working through practical activities and helping develop the prospective year 12s application and awareness of what it is like to take part in a typical A-level lesson.

Educational Visits & Trips

In years 7 and 8, more able students have the opportunity to attend the Science museum and at KS4 our more able students are exposed to more refined experimental methodology at the Big Bang Fair. In addition, year 12 and 13 Biology students go beyond the scope of the specification and attend University style lectures relating to conservation at the London Zoo whilst Chemistry students visit a University Chemistry department, attend lectures and use Chemistry equipment only available in laboratories at the edge of current scientific discovery.

Extra-curricular

Students have the opportunity to channel their enthusiasm for science by attending after school science club. This exposes students to project work in science developing their ability to research a concept or learn how to work as part of an effective team to answer a question or hypothesise an observation they have made linked to real world scenarios.

In addition an exciting new project using guest speakers is available to all our students, but tailored for our more able cohort. Guest speakers from various scientific fields, such as a Vet, have come in to speak to our students to motivate and inspire them to look to the future of a career within science. The talks are in many cases hands on, such as the opportunity to see a dissection and also treat injuries. We have many more guest speakers to come this year and more opportunities for our students to be exposed to the range of scientific fields they could be part of developing in the future.

We also tailor our revision to match the needs of our students providing five different rooms for revision for our GCSE students. Three rooms have specialist teachers equipped to deliver grade 8 and 9 questions to challenge students, whilst also offering support to develop our grade 6 and 7 students for separate sciences. The other two rooms have specialist teachers who deliver grade 5-9 level questions and concepts to our combined students ensuring these students also have the ability and opportunity to continue to develop and follow a route in higher education scientific study.

Useful websites:

Excellent video clips explaining concepts within and beyond the specification (Key stage 3 to 4)

<https://tutorful.co.uk/blog/insanely-awesome-science-websites-and-resources-that-will-expand-your-mind>

An excellent collection of journals for students to read linking to current research and problems facing the modern world and how science is helping to reduce and prevent further damage to our planet, as well as the future of space travel and technology (Key stage 3 and 4).

<https://ysjournal.com/read/>

<https://www.sciencejournalforkids.org/>

<https://www.scienceinschool.org/2006/issue2/web>

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