



WINCHESTER COLLEGE

THE WINCHESTER COLLEGE CURRICULUM

Summary

The academic curriculum at Winchester College is designed to provide as broad an education as possible, combined with specialist study in chosen examination subjects. We offer much flexibility in the choice of GCSE/IGCSE subjects and advanced courses (in Years 12 & 13 pupils take the Cambridge Pre-U examinations instead of A-levels), as well as a varied programme of non-examined study known as Div (or Division).

Div is at the heart of a Winchester education and is taken very seriously. Div throughout the lower part of the school is a general course in History, English, Divinity and PSHEE, taught by a mixture of specialists and non-specialists. For pupils in Years 12 and 13, the purpose of Div is to complement the specialised Pre-U teaching and to give pupils some understanding of British, European and world history and culture.

Pupils take nine GCSEs/IGCSEs. These include English, Mathematics, French or German, Latin and two or three Sciences. To these may be added: Geography, History, additional foreign languages and creative subjects (Music, Art, Design), up to a total of nine subjects. Some pupils take an additional qualification in Mathematics. GCSEs/IGCSEs are taken at the end of Year 11. Pupils then take three, four or five Cambridge Pre-U subjects in the sixth form.

Further information about the curriculum will be provided at annual Parents' Evenings, well in advance of any choices having to be made. There will also be many opportunities to consult Heads of Departments and subject teachers about the content of particular courses in advance of these being chosen. The Deputy Head (Academic) sends regular communications and keeps parents informed.

Careers advice is available at all stages but formal work with pupils will start with ISCO testing in Year 11, supplemented by further testing and opportunities for more detailed consideration of future career pathways and higher education choices in Years 12 and 13. The Careers and Higher Education Library and staff are resources that pupils are strongly encouraged to make use of, particularly when making exam subject and university choices. The Careers and Higher Education department also keeps full information about work experience and other external opportunities. The school also makes use of BridgeU, an online platform designed to help students make informed choices about university courses which also streamlines the application process itself.

Assessment of pupils for special educational needs takes place in the early part of the first term of a pupil's time at the school, and further assessments will take place later on if concerns have been raised, either by parents or teachers. Pupils with Statements of Need/EHCPs are reviewed according to the circumstances by the Special Educational Needs Coordinator or SENCO, parents/guardians, pupil and relevant outside agency. The SENCO is responsible for ensuring that special provisions contained within the Statement/ECHP are communicated and implemented. Pupils who need additional assistance with EAL will, in Year 9, be placed, as appropriate in the Division of a teacher with specific experience of teaching pupils with EAL issues. There may additionally be one-to-one assistance for pupils in any year group with EAL. Pupils are also prepared separately by the Head of English for IELTS if required for university entrance.

Year 9

The following subjects are taught to all:

Division (Classical History, English, RS, PSHEE, study skills)	5 x 35 minute lessons
Mathematics	5 x 35 minute lessons
Latin	4 x 35 minute lessons
Foreign Language 1 (see below)	4 x 35 minute lessons
Foreign Language 2 (see below)	4 x 35 minute lessons
Physics	4 x 35 minute lessons
Chemistry	4 x 35 minute lessons
Biology	4 x 35 minute lessons
Geography	4 x 35 minute lessons
2 of Music, Art or Design	4 x 35 minute lessons
Physical Education	2 x 35 minute lessons

Before joining the School, new pupils will be asked to express a preference for each of the two Foreign Language blocks:

- Foreign Language 1: French or German
- Foreign Language 2: French (if not already chosen for FL1), German (as French), Russian, Ancient Greek, Spanish and Chinese.

They will also be asked to select two subjects from Music, Art and Design.

The final decision as to subject is made by the School, but preferences and comments are sought from pupils and their parents and every attempt made to accommodate these.

Years 10 and 11

Towards the end of Year 9, pupils are given a further opportunity to express their preferences for GCSE study. Pupils take 10 subjects in total (including Division).

The compulsory and optional elements of the Year 9 and 10 curriculum are as follows:

Compulsory:

Division	6 x 35 minute lessons
English	5 x 35 minute lessons
Mathematics	5 x 35 minute lessons (4 in Year 11)
Latin	4 x 35 minute lessons
Foreign Language 1 (French or German)	4 x 35 minute lessons
2 or 3 of Physics Chemistry Biology	4 x 35 minute lessons

Optional:

0, 1 or 2: Foreign Language 2 (see below)	4 x 35 minute lessons each
0, 1 or 2: History, Greek, Music, Geography	4 x 35 minute lessons
0, 1 or 2: Art or Design	4 x 35 minute lessons

- FL2: French (if not chosen for FL1), German (as French), Spanish, Chinese, Russian (0, 1 or 2 to be studied) 4 lessons.

Pupils and parents are always advised further at the time these allocations and decisions take place.

9-1 grading at GCSE & IGCSE

Following recent government reforms, GCSEs are moving to a numerical grading system, whereby 9 is the new top grade. The rationale behind this is that nine levels of performance rather than eight (A*-G) will offer greater differentiation of the ablest pupils, with grade 9 introducing a grade above A*.

The International GCSEs set by Cambridge International Examinations (CIE) account for the majority of subjects taken by our pupils at Winchester. In order to provide comparability with the reformed GCSEs, CIE is now also offering the 9-1 grading system to their UK schools, but without any change in syllabus content. We therefore plan to continue to offer CIE qualifications and we will be adopting their 9-1 graded exams as soon as they become available.

Both grading systems will run in parallel over the next few years until the process is complete: as a result, pupils will have a mixture of the two types of grades in their GCSE profiles. This will be a widespread feature among their generation of pupils in all sectors; it will not, in spite of looking like a potentially confusing mixed economy, be disadvantageous to them when they come to apply to university. A timetable outlining the introduction of 9-1 graded GCSEs and IGCSEs is below, as well as an explanation of the new grading structure.

9-1 grading at GCSE & IGCSE

We are adopting 9-1 graded syllabuses as follows:

<i>First exam:</i>	<i>Subject:</i>	<i>Qualification:</i>
2017	English language	IGCSE
2018	Biology	IGCSE
	Chemistry	IGCSE
	Physics	IGCSE
	Geography	IGCSE
	Latin	GCSE
	Greek	GCSE
2019	Mathematics	GCSE
	French	IGCSE
	German	IGCSE
	Spanish	IGCSE
	Russian	GCSE
	Chinese	GCSE
	History	IGCSE
	Music	IGCSE
	Art	IGCSE
	Design & Technology	GCSE

Conversion chart

<i>New grade</i>	<i>"Old money"</i>
9	A* +
8	A*
7	A
6	B
5	B
4	C
3	D

Sixth form/Years 12 & 13

Pupils in our sixth form ordinarily study three subjects (Cambridge Pre-U Principal Subjects). Those who are considered suitable to do so may be able to take either Mathematics (Accelerated) at the end of Year 12 or Mathematics/Further Mathematics (combined) and may take an additional optional subject to make four Pre-U classes in total. Those who choose both Latin and Greek may take four subjects.

Division

Division (Div) is a compulsory element in the Winchester College curriculum. It is taken in addition to specialist subjects.

Division is at the heart of the education we offer. Material is drawn from two extended historical periods. Six lessons are given each week. These provide an opportunity to:

- examine subjects not covered by Pre-U syllabuses, for example: scientific ideas, philosophy, politics, European and non-European civilisations, literature, art and music;
- examine the interrelationship between different branches of knowledge;
- develop skills of communication through essays, discussions, debates, role-playing and creative writing;
- explore intellectual ideas and develop tolerance of others' opinions;
- engage in aspects of PSHEE, as appropriate, through talks and classwork

An essay of about 1000 words, is set regularly and each pupil is expected to read a certain amount each week.

Above all, Div is the forum in which pupils and teachers share enthusiasms and interests. The work is rigorous, but it is not constrained by the requirements of public examinations.

SUBJECTS in the sixth form/Years 12 & 13

Art

The programme of study we follow is the Cambridge Pre-U certificate in Art and Design. The course is relevant to those pupils who intend to enter higher education courses in Art, Design and Architecture. It is also suitable for those who are planning careers for which a background in art and design would be useful or for those who simply wish to pursue their interest in art and culture. The nature of the course fosters creativity to give a rounded and balanced educational experience, encouraging visual literacy. There are opportunities to work with an artist in residence, for gallery visits, talks by artists, artists' workshops, student-led shows and trips abroad.

Art School offers a wide range of disciplines to study: drawing, painting, multi-media, photography, printmaking, ceramics and sculpture. Initially, pupils are encouraged to experiment with a range of different media and skills, focusing on a particular discipline as the course develops. The course encourages an independent and personal approach and comprises of three components, the first two are marked internally and moderated externally and the last is externally examined.

- Component 1: A practical portfolio completed in the first year
- Component 2: Critical and contextual study, a written submission that examines the themes and ideas introduced in Component 1.
- Component 3: A practical project that is completed in the second year and assimilates all the ideas investigated in Components 1 & 2.

The course is followed in timetabled hours and involves studio time on Wednesday evenings. It allows pupils to develop their intellectual, imaginative, problem-solving, creative and intuitive skills. It requires investigative, analytical, experimental, practical, technical and critical judgement, and expressive techniques. It encourages pupils to reflect on their own work and on the work of other artists and designers.

Classics

Greek and Latin

The Pre-U examinations in Greek and Latin are identical in structure, so our courses are very similar. In both years of the sixth form, each set is taught by two teachers, one for language and one for literature. Small sets enable us to give attention to individual pupils. We start by reading a variety of ancient literature, both prose and verse, chosen to give a foundation for studying the set texts. Through this reading the pupils develop their skills in literary analysis, understand the cultural and historical contexts in which the authors were writing, and appreciate the influence of the classical world on later European culture. They develop the linguistic facility and clarity of thought required for this through continuous work on language, based on translation both from and into Latin and Greek. Towards the end of Year 12, work starts on the set texts, one prose and one verse, prescribed for the final examination. That is taken at the end of Year 13 and comprises four papers: two on the set texts and two on language. There is no coursework.

Greek and Latin may be studied together for university entrance, or singly in combination with other subjects. They are regarded by universities as rigorous academic subjects, and support

applications for both humanities and science courses. Several pupils each year go on to read Classics (on its own, or in combination with other subjects), the majority at Oxbridge.

Design

The majority of pupils taking Design in our sixth form go on to study Engineering, Computer Science, Architecture, or another design-related subject at University. Design neatly complements both science and arts subjects and enables pupils to develop transferable skills relevant to careers involving technology, creativity and entrepreneurship.

Pupils enjoy tremendous freedom to experiment with, and utilise, a range of cutting-edge design tools, materials, manufacturing processes and technologies relevant to their interests in one or more of the following: engineering, architecture, vehicle design, robotics, furniture and product design. It is an outward-looking course that encourages all pupils to tackle important real-world issues involving technical, human and social parameters.

Working individually and in teams, pupils undertake investigative research, experimentation, problem solving, prototyping and design communication. The course fosters a collaborative approach, taking advantage of the department's strong links with industry academia, including the Dyson School of Design Engineering at Imperial College and the Royal College of Art. Trips, guest lectures and museum visits are key components of the course and expose candidates to a breadth of creative and technical influences.

The first two terms of the course are devoted to the creation of a portfolio of short projects, after which pupils choose between a Pre-U or A-level route. Those taking Pre-U (Art & DESIGN) will complete a critical and contextual study (Unit 2), and a major project (Unit 3) in addition to the portfolio (Unit 1), all ultimately examined in the form of a multimedia exhibition. Those opting for the A-level (OCR DT: Design Engineering) will complete a major project (50% of the final assessment) and sit two written examinations involving applied maths, physics and technical problem solving techniques (50%).

For pupils wishing to develop a portfolio of both design and fine art, possibly out of an interest in architecture, there is scope to work in both Mill and Art School whilst studying for the Pre-U.

Economics

The course covers the main areas of the subject: consumers, firms, government, banks, finance, labour markets and foreign trade. It includes the study of markets, government intervention in the economy and analysis of policies related to a wide range of practical issues. We develop the theoretical side of the subject: pupils learn to apply economic theory to the UK economy and to global economic problems. This is particularly true in Paper 3 where our specialist topic is currently China and the Global Economy. The course is contemporary, fresh and encourages pupils to have an economic perspective on their place in the world.

Economics appeals to pupils who are anxious to learn more about how the world works. Those who are strong in History, Science or Mathematics usually do well in the subject. The course requires the ability to write concisely and with insight: a good grade in IGCSE English is a good indicator of suitability for the subject. Equally, a poor pass in IGCSE Mathematics may be an indication that a pupils will find the theoretical side of the subject difficult.

Economics, while making an important contribution to general education, is also relevant for a wide range of university courses such as Law, Business Studies, History, Politics, Geography, Engineering and International Affairs.

English

"While thought exists, words are alive and literature becomes an escape, not from, but into living."
(Cyril Connolly)

English at Pre-U is Literature in English. We study a range of genres: prose, drama and poetry and through this explore narrative method, social context, and critical opinions. Pupils will need to enjoy engaging with ideas and exploring culture. This is a subject that will stand them in good stead considering the importance we place on academic acumen, sophisticated discussion, and writing skills.

Pupils will need to like reading, not just the main texts, but also wider critical and contextual works that will illuminate their understanding. We encourage independence of thought and wish to foster creativity as well as close analytical skills.

The linear nature of the Pre-U assessment allows us to spend a year reading as widely as possible, without the pressure of external assessment. Part of the year is devoted to teaching academic research, leading to a practice Personal Investigation.

In Year 13, we tackle the examination texts: a twentieth-century novel and a pre-twentieth-century poet; Shakespeare and Beckett are studied for the drama component. There are three papers at the end of the year, of which one involves close analysis of unseen passages and poems. Pupils will also complete their Personal Investigation (a coursework essay of about 3,500 words) on a topic or author of their own choice.

Geography

Geography at Pre-U builds on the core writing and interpretive skills developed during the IGCSE course, whilst offering new topics and a greater depth of view in both the human and physical disciplines. Candidates will study, amongst other things: patterns and causes of inequality and poverty, disease, migration, glaciation, and tectonic hazards. The course encourages initiative and curiosity, and candidates should develop a confident grasp of global issues, appreciating their impacts and considering possible solutions. Key transferable skills are rapidly acquired, especially those relating to essay writing, research, practical enquiry, numeracy and ICT.

During the course, pupils will attend a variety of field days in the local area and a field study course, currently in South Wales. We also run international trips to varied destinations including Iceland, the Azores and Sicily.

Geography is highly regarded by Russell Group universities and it complements a variety of other subjects, both arts and sciences; as a result, it can pave the way to a wide range of courses at university. A high proportion of our candidates choose to study Geography at university and we have an excellent record at Oxbridge.

History

Pre-U candidates will study medieval, early modern or modern history, both British and European, and will specialise in one area in the document-based special subject. They will also write a 3-4,000 word coursework essay (Personal Investigation) on a topic arising from their historical studies.

Any pupil who likes to read widely, is reasonably fluent on paper and has an interest in people and the past is a potential student of History at Pre-U level. There are no minimum entrance requirements for History Pre-U but it does require a willingness to read and write extensively: hard work outside the classroom will be essential to success.

History combines well with most subjects in the sixth form. An advanced qualification in History is a good grounding for a degree in most non-scientific subjects. Pupils who are considering to study the subject at university may like to consider choosing a modern language, or Latin, alongside History. Moreover, History encourages regular and independent work habits and critical thought, and helps to develop literary skills which, valuable in themselves, are also highly appreciated in many careers.

Art History

Art History is an academically rigorous essay-based discipline that teaches visual literacy for life. The Cambridge Pre-U syllabus provides opportunities for candidates to learn about the development and significance of the traditions of both Western Art and non-Western Art. Paper 1 is the study of a canon of 40 works in the four areas of painting, sculpture, architecture and works on paper. Through these case studies, a grounding in art history is established. Paper 2 is composed of historical topics spanning the Italian Renaissance, the Baroque and Modern art. Paper 3 is a thematic topic in which we study the city of Florence. Paper 4, the Personal Investigation, is an independent study on a topic chosen by the candidate. This is one of the most academically challenging parts of the course. Uniquely in Pre-U, it has a *viva voce* exam with an external examiner.

There are study visits to museums and galleries in the UK. Recent trips abroad have been to Florence, Rome, Venice, Barcelona, Paris, Amsterdam and New York. The Kenneth Clark Society organises a variety of events such as lectures and visits to exhibitions.

The subject is inherently interdisciplinary. It complements other humanities, languages and sciences. It is particularly appropriate for those wishing to read Architecture. Former pupils have studied the subject at Cambridge, UCL, the Courtauld Institute and Edinburgh.

Mathematics

Mathematics is an essential qualification for university courses in Engineering, Economics, Architecture, the Sciences and, of course, Mathematics itself; and for others (e.g. Law, Linguistics, Medicine) it is strongly valued. Prestigious universities may additionally require Further Mathematics for some courses. Beyond university it is a qualification highly respected by many employers. Although mathematical techniques constitute a central component in the applied sciences, the discipline is above all else aesthetic; pupils who successfully negotiate Mathematics in the sixth form are those who are broadly sympathetic with this view.

There are four pathways (please see below) of Mathematical study in the sixth form.

- 1) a two-year course with 8 lessons per week leading to Pre-U Mathematics (**Mathematics**);
- 2) a one-year course with 9 lessons per week leading to Pre-U Mathematics at the end of Year 12 (**accelerated Mathematics**);
- 3) a two-year course with 12 lessons per week leading to Pre-U Mathematics and Pre-U Further Mathematics (**Further Mathematics**);
- 4) a two-year course with 9 lessons in Year 11 and 10 lessons in Year 12 leading to Pre-U Mathematics and Pre-U Further Mathematics (**accelerated Further Mathematics**).

All pupils take IGCSE at the end of Year 11. The top three sets will take as well the OCR FSMQ. In the last four weeks of Mathematics lessons in the summer term are devoted to extending the mathematical experience of all pupils who express interest in continuing with the discipline in the sixth form.

For the Mathematics course, we expect at least a grade A in IGCSE. It is our experience, however, that pupils in the lower sets in Year 11, who achieve a grade A in IGCSE and embark upon Pre-U Mathematics, tend to find the course challenging.

For accelerated Mathematics and Further Mathematics, we expect a grade A* in IGCSE and a grade A in OCR FSMQ.

For accelerated Further Mathematics pupils need first to be in one of the two highest sets in Year 11 and secondly to achieve a grade A* in IGCSE and a grade A in OCR FSMQ.

Modern Languages: French, German, Spanish and Russian

The study of Modern Languages is a demanding and rewarding academic discipline. Those who choose to study a language in depth will be introduced to the literature, culture and ideas of a foreign country. They will learn to communicate effectively and accurately in writing and in the spoken language.

The Pre-U course consists of four units. Reading, writing, listening and grammar are tested in two units, and the spoken language and culture/literature in the other two.

Pupils are encouraged to use the library and online resources to improve their knowledge of literature and contemporary culture, and must attend conversation classes weekly to practise the spoken language. They should also plan to spend at least two weeks in a country in which their language is spoken.

The Head of French runs an annual exchange for pupils in the sixth form with a school in Bordeaux. There is a biennial study visit to Russia for those in Years 12 and 13, and an annual exchange with a school in St Petersburg. Visits to Latin America are organised from time to time, sometimes jointly with another department. The German Department organises a sixth form

exchange to Vienna in December with the prestigious Vienna Business School to hone pupils' oral proficiency before the January mocks and oral exams.

Those in Year 12 must enter for a prize exam on a set text. They may participate also in a speech competition for recitation in the foreign language. These competitions are held in the first term of the top year.

Every year approximately six pupils go on to read Modern Languages at university. Pupils who may be thinking of studying the subject at a university where the course is likely to have a significant bias towards literature (as opposed to a joint honours course in, say, Spanish and Business) are strongly advised to take English Literature Pre-U alongside their language Pre-Us.

Chinese is not offered for study in the sixth form.

Music

Music can fit with almost any combination of subjects, and because many music graduates opt for employment outside the subject, Music is not seen as an entirely specialised vocational study.

The Cambridge Pre-U course in Music is assessed through four components. A special feature of the Pre-U is that while it covers the three key activities of composing, listening and performing, it also enables candidates to specialise in the areas which particularly interest them. The compulsory components consist of (1) Listening, Analysis and Historical Study (including a study of historically informed performance practice through the comparison of different performances of the same work), (2) Performing (coursework and recital), and (3) Composing (stylistic exercises based on Bach chorales and Haydn or Mozart quartets, and a commissioned composition in a style of the candidate's choice). The fourth component gives pupils the opportunity to explore one of these areas in greater depth, writing a dissertation, a free composition, creating two music technology projects or giving an advanced recital. There is also flexibility in the nature of the performances assessed for the recital and coursework, which can include improvisation, playing or singing as a soloist, as an accompanist, or in a duet or as a member of an ensemble.

In the Listening, Analysis and Historical Study paper candidates study two compulsory areas – the Symphony in the Classical Period (c.1740–c. 1802), and Orchestral Music in the Nineteenth Century (c. 1803–1900) – and a third topic chosen from various options which change from year to year. These last components include the study of a set work as well as placing the topics within a broader cultural history. The paper also gives candidates the opportunity to write in greater depth about general musical matters and to form connecting links between any of the music studied for the examination as a whole.

Candidates who wish to obtain a high grade for Pre-U Music do not need to have studied Music at IGCSE, but must be advanced performers on at least one instrument (Grade 7 minimum) and possess sophisticated listening and writing skills which they can apply across a wide range of Western Classical music. The most successful candidates are those who learn several instruments, and are immersed in a wide range of practical music (through participating in ensembles, orchestras, and choirs), and who demonstrate a passionate curiosity about the subject, attending concerts and listening to a variety of repertoire.

Philosophy and Theology

What can I know? How should I live? What can I hope? These are the three fundamental questions of life asked by the great German philosopher Immanuel Kant. If these kinds of questions interest you, you might consider studying Pre-U Philosophy and Theology. The subject asks pupils to think rigorously about fundamental questions of truth and understanding, and is intended to introduce pupils to the academic study of the shared heritage of philosophy and theology. The course begins with a good foundation in the Western philosophical tradition and a primer in Ethics. It then develops to include questions concerning the nature and existence of God; psychological and sociological interpretations of religion; the problem of evil; the relationship between science and religion; the free will debate; existentialism; normative ethical theories and their application to such issues as abortion, euthanasia, war, and the environment.

The Pre-U specification encourages the critical examination and evaluation of evidence and arguments, and aims to develop the ability to construct, develop and maintain a clear and coherent argument through discussion, debate, essay writing and textual analysis. For this reason it is a very valuable subject for a variety of university degree courses including Theology, Philosophy, Law, History, English, Politics, Economics, Psychology and even Medicine. The weight of material on the relationship between science, religion, and ethics makes it an interesting foil if you are considering other science subjects.

Sciences

All three sciences pursue the Cambridge Pre-U course, which is designed to be a more rigorous preparation for university study in these subjects than the A-level courses. However, this is not to disadvantage those who intend to combine one or more sciences with non-science subjects. It is difficult to study science at this level without mathematics and, at university, pure science (but not always medicine) will require it.

Studying the sciences need not lead to subject specialisation at university. Many university science and engineering degree courses are now very broad and contain a wide variety of options studied in combination with the main subject. Science and engineering degrees are more vocational than arts subjects but science graduates are not locked into research or industrial careers: many end up transferring to law or entering the financial world.

Most universities adopt a flexible entry policy for science courses, many of which are undersubscribed. Certain combinations are required for some subjects, for instance Chemistry and, often, Biology for medicine; and Physics and Mathematics for engineering. Pupils who are thinking of studying Engineering at university are strongly encouraged to take Pre-U Design or A-level Design Engineering (see pp 5-6) as one of their course options. Pupils interested in Medicine must bear in mind that more than 3 Pre-U's may be demanded, and so they will need to check carefully the course requirements. Many university courses cross the traditional school subject divides: Materials Science (Physics and Chemistry), Biophysics, and Biochemistry.

Biology

The unlocking of DNA's structure by Watson and Crick was the catalyst for an explosion of biological exploration that has fundamentally altered the scientific landscape. Biology is unquestionably a subject that affects us all, whether socially, ethically or economically.

The Biology Pre-U course extends the interesting components of the IGCSE syllabus to satisfy more fully the intellectual curiosity of our pupils. For those looking to supplement their

Humanities education with a challenging alternative, Biology is highly regarded when offered in support of university applications to non-Science courses. The syllabus contains sufficient diversity to interest all. The core components of molecular biology, biochemistry, genetics and biotechnology will appeal to the technically minded pupil, whilst at the same time supplementing the interest of a natural historian. Those considering Medicine or Veterinary Science at university will also benefit enormously by learning physiology and histology far beyond that offered by other Biology qualifications.

The Pre-U course is well supported outside the classroom, with a wide range of activities available, including: Journal Club, Dissection Club, Medic Society, the British Biology Olympiad, IDEAS Society and field studies trips.

Chemistry

Pupils in Year 11 who continue with Chemistry will pursue the Cambridge Pre-U course. The course contains some higher level material than the A-Level and so pupils electing to pursue Chemistry will need to have a good grounding in the subject – ideally an A* at (I)GCSE, although an A grade will also be acceptable.

Chemistry is a useful partner to Mathematics, Physics or Biology and is a requirement for Medicine and useful for Engineering. Chemistry is also highly valued in research, insurance, consultancy and many other careers because of its training of analytical and problem-solving skills. About a quarter of the course is dedicated to laboratory work, developing the practical skills that a chemist needs. At the end of the second year there will be a laboratory practical exam. Pupils will need to be comfortable with equations in physical chemistry, and so will be at an advantage if they are also pursuing a maths course, although post-GCSE Maths is not a requirement.

The synthesis, structure and symmetry of organic molecules are studied in detail, and skills to understand novel contexts are developed. The three-dimensional nature of molecules and lattices is pursued in detail in both the organic and inorganic fields.

Physics

Many are inspired by the “big science” of the Big Bang or the Higgs boson, but Physics is involved in understanding the universe at every scale, from the flame of a candle to the nuclear fires of a star. The careful, precise thought and mathematical competence demanded by the subject make it a highly respected qualification for any university course; it is essential for the study of Physics and Engineering at university and is very useful for any course involving Maths or Science.

A degree in Physics or Engineering is obviously necessary for a specialist career in these fields, but leaves options open to take any path after graduation. In particular, the physicist’s habit of developing mathematical models of the world has provided a fine grounding to many pursuing careers in computing or finance.

All pupils follow the Cambridge Pre-U course, with a single set of exams at the end of a two-year course. The course is mathematically rigorous: we would expect those taking Physics to be studying Maths in the sixth form and to have an A* in Physics IGCSE. It also involves a considerable amount of experimental work culminating in a 4-week Personal Investigation (externally moderated) worth 15% of the marks available.