

 RYDAL PENRHOS SCHOOL

SIXTH FORM CURRICULUM BOOKLET
ACADEMIC YEAR 2012/13

PART II: A-LEVEL & NATIONALS CURRICULUM



This is part II of our three part Sixth Form Curriculum booklet. In this section, we look in detail at the A-level curriculum offered at Rydal Penrhos School.

- Part I. The Sixth Form
- Part II. The A-level curriculum (including Nationals)
- Part III. The International Baccalaureate Diploma curriculum

All three parts are published only in electronic form on our website at:
http://rydalpenrhos.com/academic/senior_school_curriculum/

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The A-level Curriculum

Thank you for taking an interest in the A-level curriculum for the Sixth Form at Rydal Penrhos. For those who are not entirely familiar, I shall begin by outlining the structure and background of A-levels.

A-levels were overhauled in the year 2000. Specifications for all subjects were re-written, changing some of the content, but more importantly breaking the course in to two halves - AS and A2 - intended to be studied in most cases one in each year. In addition all courses became modular: this means that the course can be studied in smaller sections and examinations may be sat either in January or June at any stage throughout the course.

In the Lower Sixth (Year 12) pupils will follow AS courses, each usually consisting of two modules. This may be seen as the compulsory first half of a two-year Sixth Form course, or as a one-year self-contained qualification. Modules in some subjects may be examined in January of the Lower Sixth; all are examined in June. Pupils would normally expect to study four AS subjects in the first year. Additionally, pupils can study extra courses - some examined, others not - in our 3 period per week enrichment option, block E. Pupils receiving additional support from either the Learning Support or the English as a Foreign Language Departments may experience a reduced A-level programme.

In the Upper Sixth (Year 13) students will study A2 courses, each usually consisting of two modules. A2 courses build on and develop the knowledge and skills gained at AS. The majority of students will study 3 A2 courses. However, it is also possible to pick up a new AS or, in worst cases, re-sit an AS course in the Upper Sixth year. The A-level programme allows for this mix-and-match approach. Progression into the Upper Sixth to study the A2 component is subject to a satisfactory pass grade being achieved at the end of the Lower Sixth.

In the remainder of this part of the booklet, you will find details of A-level courses offered. If any further explanation is needed, or advice wanted, please do not hesitate to contact me or the relevant Head of Department, whose contact details are included.

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ART & DESIGN: Fine Art or Textiles

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The A-level Art courses offer a wide range of opportunities: painting, drawing, printmaking, textiles, fabric design, sculpture and ceramics are all available and taught by specialist members of staff. We offer two endorsements: Fine Art or Textiles. The courses are the same in structure but offer an opportunity to display abilities in a variety of artistic disciplines and demonstrate their understanding of these contexts.

Why study Art & Design?

Picasso once said: “...*the world is open before us, everything is still to be done and not be done over again*”. This famous statement draws our attention to the important features inherent to all creative work; that it is in some way different, original or distinctive and not a mere copy of what has gone before. If this sounds interesting then read on.

Course content

AS Art will consist of set briefs which will enable you to discover new techniques and methods of working, together with the opportunity to develop your own expertise and personal interests in terms of approach. They will be concerned with observing, recording and drawing - basic skills which students should try to master in the early part of the course. Personal interests and expertise will be actively encouraged during the A2 phase of the course when you will be expected to develop a more individualistic high level approach to subject matter and handling. In each module the quality of your preparatory work will be the key to success.

Preparation

The sketchbook is an invaluable tool for artists and designers as a device for formulating and recording ideas and indeed for stimulating the imagination. Use your sketchbook primarily for collecting, collating and analysing information. The merit of any particular page will obviously vary but the main point is that each drawing should be as clear and precise as possible. Clarity is important for processing thoughts and ideas. The sketchbook can contain drawings in a full range of mark making media, colour work, collage, montage, photographs, notes about textures and so on. Above all, the sketchbook is a record of your ability to observe, select and develop subject-matter and as such is of primary importance in relation to the assessment criteria of the course. The quality of what you produce will depend on your equipment as well as the depth and range of your preparation. Equip yourself with a good range of tools in order to do justice to your ideas and to enable you to work independently in your study periods and outside the art studios.

Need to add something about charging for materials?

Assessment

The coursework modules of the AS-level in Art & Design are subject to end of course assessment. The examinations are internally marked and externally moderated. It is important to work hard from the outset and to gradually increase your output and expand your range of skills and expertise throughout the course in order to satisfy the demands of the syllabus.

Unit	Topic		AS	A-level	AS/A2
1	Coursework portfolio		60%	30%	AS
2	Controlled assignment	5hr	40%	20%	AS
3	Personal investigation			30%	A2
4	Controlled assignment	15hr		20%	A2

Examination board: **OCR**



BIOLOGY

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Why study Biology?

Biology A-level is a popular qualification useful for students preparing for further courses and careers in medicine, nursing, veterinary science, dentistry, agriculture, forestry, horticulture, animal science, plant science, biochemistry, pharmacy, marine biology, microbiology, food and dairy technology, conservation and many other biological pursuits, including the rapidly expanding genetic technology industries. Biology is also a subject that will complement many other subjects, whether they are sciences or arts. Biology is rapidly becoming the science of the future, as our ability to manipulate DNA will fundamentally change many of the ways in which we live and work.

Course content and methodology

The organisms studied in the A-level course include the human, a few other mammals, aquatic and terrestrial vertebrates, unicellular and multicellular invertebrates, flowering and non-flowering plants, bacteria and viruses. Attention is given to recent advances in cell biology, the discovery and operation of the genetic code, enzyme activity, energy conversions in respiration and photosynthesis, antibodies and the immune response, hormonal control of growth and reproduction, the physiology of muscle contraction and nerve impulse transmission, regulation of water, mineral salt and sugar balance in animals and plants, transport systems and mechanisms, evolution and genetic engineering.

Practical work involves the student both inside and outside the laboratory. Normal practical work will regularly complement the teaching of individual theory topics. They will be assessed on key skills during these sessions. Pupils will be expected to write an extended report during the AS year on either a visit to a site of biological interest or on a particular issue, they find interesting in biology. Pupils will be expected to design and conduct their own individual projects in the A2 year. These may take the form of intensive field work projects, or be laboratory based developing ideas such as microbiology or food science.

Students will be expected to develop their independent learning skills and will have the support of the Biology website to reinforce their study skills and knowledge base.

A disciplined approach is needed for A-level work. Industry, attitude and academic potential will be assessed in both years of the course for the purpose of university and other applications.

Assessment

Unit	Topic	Time	AS	A-level	AS/A2
1	Lifestyle, transport, genes, and health; Biochemistry; Genetics; Circulation and health	1h 15			AS
2	Development, plants and the environment; Cells; Stem cell research; Biodiversity; Plant science	1h 15			AS
3	Practical and research skills: report of between 1500 and 2000 words on a biological issue of choosing or on a visit of biological significance				AS
4	The natural environment and species survival; Photosynthesis; Ecology; Evolution; Genetic engineering; Immunology	1h 30			A2
5	Energy, exercise and coordination; Respiration; Homeostasis; The nervous system; The impact of exercise on the body; Human genome project	1h 30			A2
6	Practical biology and investigative skills: written report of an experimental investigation, which they have devised and carried out.				A2

Examination board: **Edexcel**



BUSINESS STUDIES

Mr John Matthews

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Why study Business Studies?

The course offers an opportunity for both those wishing to continue their business education and to newcomers. In either case, the enhanced appreciation of the business world will be an invaluable and interesting skill that can be used in future careers, including self-employment.

Business Studies students develop an understanding of the integrated nature of Business Studies and an ability to apply understanding to the real world. If you are looking for a course which will challenge you, complement many other courses, and open up new avenues, Business Studies is for you!

The course is not intended to be vocational; however it is attractive to employers since the skills learned are useful to many careers such as general management or finance. It is also an excellent vehicle in terms of delivering key skills, which are now recognised by many university admissions tutors.

Business Studies has, in recent times, developed into one of the most popular areas of study in higher education. Many different single honours and joint degrees are now being offered, combining business or management with another subject such as languages, sciences or other humanities e.g. Law. This reflects the changing scene across the globe and the changing demands being made by employers.

Course content and methodology

The course is based on analysis of problems and on problem solving and is designed to emphasise:

- the diverse nature of the business enterprise;
- the ever-changing character of business;
- the interdependence of the various parts of the business world and of business itself with society and economies both, national, and international.

The course follows a broad range of topics and covers most areas of the business world, allowing students to evaluate businesses in a 'critical' manner, and to assess their role in modern society. The main topics covered are: Types of Organisations; Communications Systems; People in Organisation; Finance; Marketing; Business in its Economic Environment; Business Law; and Social and Ethical Issues in Business.

Various resources will be used to facilitate the learning process including textbooks, newspapers and journals such as the Business Review, news programmes, TV documentaries and other audio-visual materials. Every attempt will be made to foster realism and understanding of the business world with a variety of visits to firms and lectures to hear the views of leading economists, successful entrepreneurs, managers and employees.

Assessment

The emphasis is on both, literary and numerical skills, which are tested via case study and data-response questions and essays. The course takes students on a journey: Planning and financing a business; managing a business to cope with growth; developing strategies for success in the national market; and managing the global business environment and change.

Unit	Topic	Time	AS	A-level	AS/A2
1	Planning and financing a business	1h 15	40%	20%	AS
2	Managing a business	1h 30	60%	30%	AS
3	Strategies for success	1h 45		25%	A2
4	The business environment and managing change	1h 45		25%	A2

Examination board: **AQA**

Course requirements

There are no specific requirements in terms of GCSE qualifications, although a degree of competence in Mathematics and English language is desirable. This will allow students to cope with the varied and interesting forms of study and the general demands of A-level work.



CHEMISTRY

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Why study Chemistry?

- to stimulate and sustain interest in and enjoyment of Chemistry;
- to stimulate and sustain capacity for learning in general;
- to develop problem solving, data-handling, evaluative thinking and practical abilities;
- to show some of the social, economic and environmental significance and consequences of chemistry;
- to provide a body of knowledge and understanding suitable for those who will go on to study chemistry and pharmacy at higher education and for those who will study medicine, dentistry, veterinary science, biochemistry, geology or environmental science.

Course content and methodology

The Salters course is very different from the regular A-level courses in that it starts from the application and then you discover the chemistry behind the use.

This is a course designed for students who:

- Have an interest in and enjoyment of Chemistry
- Have a capacity and willingness to learn a significant amount of detailed information
- Can handle data and apply concepts
- Can handle competently basic mathematical processes (cross-multiplication, standard form)

The types of activities will include:

- Individual practical work
- Teacher presentations of information and class discussions
- Tasks for the individual requiring application and transfer of information and ideas
- Written tasks (tests to exercise and diagnose knowledge and understanding)
- ICT tasks

Dictation of information is very rarely used: in preference, students are provided with printed booklets containing a timetable of all work due in the topic, all the practical worksheets and the syllabus for the topic as well as the two textbooks. Students should regard the timetabled sessions as the core of their course and should expect from the outset to invest on average four to six hours per week of extra time to consolidate and extend this core.

Assessment

Unit	Topic	Time	AS	A-level	AS/A2
1	Chemistry for life	1h 15	30%	15%	AS
2	Chemistry of natural resources	1h 15	50%	25%	AS
3	Chemistry in practice	In lesson	20%	10%	AS
4	Chemistry of materials	1h 30		15%	A2
5	Chemistry by design	1h 30		20%	A2
6	Chemistry individual investigation	In lesson		15%	A2

Examination board: **OCR (B) Salters**

Course requirements

At least grade B at GCSE dual award Science or GCSE Chemistry, although students with grade B will find the course difficult.



DESIGN TECHNOLOGY

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Why study design & technology?

This is perhaps one of the most apt and all-embracing subjects on offer at one level or another. Nothing which we use has been unaffected by man, the production and use of resources is one of the main themes of the course. The course itself is based on the problem-solving approach, the solution is realised in its entirety, as a model or in graphical format.

A career path involving Design Technology can lead into a wide range of rewarding degree courses such as Architecture, Civil Engineering, Computer Design, Education/Teaching/Lecturer, Electrical Engineering, Industrial Design, Mechanical Engineering and Product Design. All of these professions are ideally suited for the person who wants a creative, imaginative and technically challenging career. A-level Design Technology will provide you with the skills needed to embark on a career in the world of design.

Course content and methodology

The syllabus covers a wide range of topics in the field of Product Design. Within these areas you will study, discuss and evaluate issues that concern the world. A high standard of graphical and practical ability is required as well as evidence of research and in-depth investigation. You will be expected to handle and evaluate given information, and use your originality, ingenuity and inventiveness to tackle open-ended design problems. The subject content is listed under the assessment objectives of Designing and Making as follows:

A Designing	B Making
Product analysis	Materials and components
Designing & application	Industrial and commercial practice
Human responsibility	Production systems and control
Public interaction	Processes

Coursework / Projects

There are 4 units in all: 2 for the 'AS' and a further 2 for the full A-level course. The focus area will be Product Design, which offers suitable progression for candidates who have worked in Graphic Products, Resistant Materials Technology or Textiles Technology at GCSE.

A design-and-make task forms part of the 'AS' scheme of assessment. The requirements of this component have been formulated to offer flexibility for the 'AS' and A-level candidate.

A-level candidates undertake a substantial design-and-make project within the full A-level, lists of questions for these projects are supplied by the exam board.

Success depends on your commitment, willingness and ability to work independently, without direct supervision as well as in a group; it is therefore not suited to all.

Note : there will be charges made for materials used on the course, which will also include one or two field trips.



DRAMA & THEATRE STUDIES

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Why study Drama and Theatre Studies?

Drama & Theatre Studies is an innovative course which has been carefully designed to combine the theoretical and practical aspects of the subject. It provides an interesting and challenging course, which prepares students for higher education.

Drama and Theatre Studies will appeal to anyone who wants to involve themselves actively rather than passively in learning. It is not a course for those who wish to sit inertly and be told what to do. It has been conceived to develop a student's individual skills and their ability to work with others. It must be emphasized, however, that the course is not just for those who wish to pursue further training in the Theatre. The course may help you to acquire transferable skills which could be suitable in such diverse careers as the civil service, business, administration, social work, marketing, public relations, teaching, journalism and law.

The overall aim of the course is to integrate practical and academic work. This allows the candidate to study the dramatic text and then develop this understanding through performance. This combination of theory and practice provides an opportunity to consider a play not only as literature, but also as a vehicle for presentation. Plays are also studied in the light of their historical background and the cultural conditions of their production and presentation.

There will be opportunities to see live theatre during the year and you should want to participate in theatre trips and all practical aspects of the course.

ASSESSMENT

Module	Topic	AS	A-level	Paper
1	Exploration of Drama and Theatre Study of two plays 3,000 word portfolio 1,000 word theatre evaluation Practical workshops	40%	20%	AS
2	Theatre Text in Performance Monologue or duologue 500 word written concept Group performance	60%	30%	AS
3	Exploration of Dramatic Performance Devised drama Written portfolio		20%	A2
4	Theatre Text in Context (2.5 hr written exam) Study of a play from a director's perspective Research into the original performance conditions of a play Exploration of a live performance		30%	A2

Examination Board: **Edexcel**



ECONOMICS

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Why study Economics?

Economics is a Social Science that involves the study of how individuals, firms, governments and economies attempt to solve their economic problems. It will also incorporate some study of social and political issues. The skills learned and concepts studied by economists, will prove of vital importance in their future development as employees and citizens of a society, which will continue to broaden its horizons into the global economy of the new millennium in terms of social, technological, political and economic thought.

The topics covered should leave the students with an excellent overview of Economics. A study is made of how consumers, firms, governments and whole economies make their economic decisions and should leave the student with an ability to apply understanding to the real world. Assessment, which is based on understanding application and evaluation of literary and numerical information is achieved via multiple choice questions, data response questions and essays. The economic context of the questions will be European as well as global!

One of the most striking features of Economics is that it is studied with a wide variety of other subjects as it forms a strong bridge between all arts and sciences. This allows 'economists' to keep their choices open as far as careers are concerned, which is vital to young adults. However, there are many careers in the financial world for which Economics is vital such as banking, insurance, accountancy or general management. Moreover, a qualification in A-level Economics will make students, in certain cases, exempt from components of some professional and vocational examinations.

In conclusion, one of the most interesting aspects of Economics is that it is topical and has vitality. There is a genuine attempt to apply understanding of basic principles to the world in which we live, a world that is always changing, a fact of which we are constantly reminded in our everyday lives. If you are interested in a subject which incorporates academic challenge, vitality and an appreciation of that world, Economics is for you!

Course content and methodology

The following represents a snapshot of topics studied: operation of markets; living standards; third-world; international trade; inflation; development; unemployment; social issues; environment; economic growth; taxation; government spending; financial institutions; transport economics; sport & leisure; competition; industrial relations; housing; European Union; and industrial development.

Various resources will be used to facilitate the learning process including textbooks, newspapers and journals such as the Economist, news programmes and tv documentaries and other audio-visual materials. In addition, every attempt will be made to foster realism and understanding of the business and political world with a variety of visits to firms and lectures to hear the views of the leading politicians, economists, manager and workers.

Assessment

Unit	Topic	Time	AS	A-level	AS/A2
1	Markets and market failure	1h 15	50%	25%	AS
2	The national economy	1h 15	50%	25%	AS
3	Business economics and the distribution of income	2h		25%	A2
4	The national and international economy	2h		25%	A2

Examination board: **AQA**

Entry requirements

There are no specific requirements in terms of GCSE qualifications, although a degree of competence in Mathematics and English language is desirable. This will allow students to cope with the varied and interesting forms of study and the general demands of A-level work.



ENGLISH LITERATURE

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Why study English literature?

The English A-level course provides training in reading, talking and writing about literature. English is an extremely stimulating subject to study; it offers an inexhaustible wealth of subject matter and encourages you to think critically for yourself about literature and life. The course will encourage you to read widely and to think critically about what you have read. It is a subject which demands constant commitment to improving both your reading and your writing skills. This examination gives excellent training in confident and effective communication in both speech and writing. It is generally agreed that English studies help to develop an individual's powers of analysis, intellectual argument and independent judgement. It is not surprising, therefore, that this a-level is a favourite for students who wish to pursue careers ranging from journalism, broadcasting and publishing to teaching, the civil service and law.

Reading English literature is a personal and entertaining voyage of discovery into human experience and imagination as it has been expressed in written form over many years. English is an academic discipline where personal response, and the sharing of that response in discussion, is valued. It is not a subject for someone who finds discussion intimidating; in fact, what makes English enjoyable and interesting is the exchange of ideas, opinions and interpretations. You should never accept inertly received ideas, but be prepared to share your own viewpoint and respond to new perspectives that other readers suggest. You should, therefore, be someone who enjoys reading and talking about what you have read and the effect it had on you. If you have not read much at this point, it does not matter, but you should be willing to start!

Course content

Candidates are required to study twelve texts: six for AS and an additional six in A2. Texts of different types and periods are covered in AS and in A2. Each of the four units offers a choice of books for study.

Assessment

Unit	Topic	Time	AS	A-level	AS/A2
1	Explorations in prose and poetry	2h 15	60%	30%	AS
2	Explorations in drama	Coursework	40%	20%	AS
3	Interpretations of prose and poetry	2h 45		30%	A2
4	Reflections in literary studies	Coursework		20%	A2

Examination board: **Edexcel**

Pre-entry requirements

If you are thinking of English literature seriously, then you should start to do some reading to discover if you have the enthusiasm that will be essential for success. You could, for instance, read a novel by any of the following modern authors: Iain Banks, Tracey Chevalier Boyd, Margaret Atwood, A.S. Byatt, Alice Walker, or Ian McEwan.



ENGLISH AS A FOREIGN LANGUAGE (EFL)

Ms Jane Simpkins

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A-level pupils for whom English is not their first language will not always study the full range of subjects in the Sixth Form curriculum. A decision about their individual curriculum will be based on the results of the Placement Test that they sit when they first arrive in the school. As their language ability improves, their curriculum is reviewed by the Head of EFL in consultation with their tutor, Houseparent and Deputy Head (Academic).

In some cases, foreign pupils do not receive EFL lessons either if the parents have requested this, or it is felt that they can fully access the curriculum without the support of the Department. It is always possible for these pupils to be supported by the Department should the need arise.

When a pupil's entry into the school has been confirmed, the school may require him or her to follow an intensive programme of English study if their level of English is considered to be weak. Following the Placement Test, the pupil's score is taken into consideration when determining which subjects he or she will be capable of studying. The aim is to target pupils' English in order to improve it enough to cope with the subjects that they do study.

In order to satisfy the University Entrance General Requirement fully, foreign pupils must have an acceptable English language qualification. If foreign pupils have not attained Grade C or above in GCSE English they will need to follow the IELTS course in the Sixth Form. There is an additional charge for this course.

IELTS, the International English Language Testing System, is designed to assess the language ability of candidates who need to study or work where English is used as the language of communication. It is recognised widely as a language requirement for all courses in further and higher education.

Candidates at Rydal Penrhos follow the Academic Module, which assesses whether a candidate is ready to study or train in the medium of English at an undergraduate or postgraduate level. Admission to undergraduate and postgraduate courses is based on the results of this module.

If further EFL support is required alongside the core IELTS course, this can be arranged on a one-to-one or small group basis. However, there will be a charge in addition to the core IELTS course for these more intensive lessons.



GEOGRAPHY

Mrs Sally Harding

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Why study Geography?

Firstly perhaps because it encompasses a knowledge and understanding of the world around us, both in terms of the physical and the human. In terms of difficulty, Geography is in the middle of a wide range of subjects, and it fits in well with many other subjects. It is regarded very highly by universities and is valuable for entry to a wide range of courses. Geography graduates from university are much in demand because they are highly employable with a wide range of practical skills and they can take an overview of wide ranging data.

Geography fits extremely well with both science and arts subjects and the range of sensible groupings is wide. Here is a compelling argument for a student wanting a science-based career to widen his or her studies by incorporating Geography. We are enthusiastic about the course we run. We are committed to getting you the best result possible and have an enviable record in achieving this.

Course content and methodology

The AS course has two papers. In the physical paper there are four sections comprising coasts, rivers, cold environments and desert and semi-desert environments. These four topics are studied not only from the point of view of their landforms but also with regard to management issues. The human paper covers managing urban and rural change, the energy issue and the growth of tourism.

A2 also comprises two papers; the first of these is an option based paper entitled global issues; the topics which can be studied here are earth hazards, ecosystems under threat, climatic hazards, population and resources, globalisation and development and inequalities. As the department specialises in physical geography, two of the three topics chosen will be from this section. The second paper is entitled geographical skills; the foundation of this course will be taught during fieldwork; this will be written up and ideas from this will be used in the examination. The content will involve data presentation techniques, interpretation of data and statistical analysis.

Coursework and fieldwork

The Geography department has been running residential field courses for many years. International field work usually plays an important role in the course.

Assessment

Unit	Topic	Time	AS	A-level	AS/A2
1	Managing physical environments	1h 30	50%	25%	AS
2	Managing change in human environments	1h 30	50%	25%	AS
3	Global issues	2h		30%	A2
4	Geographical skills	1h 30		20%	A2

Examination board: OCR



HISTORY

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Why study History?

'Historians are dangerous people. They are capable of upsetting everything.' (Nikita Khrushchev)

Are you a dangerous person? Do you question people and values? Do you have your own opinions and stand up for them? If so, then A level History is for you. History teaches and refines the skills of argument and analysis based on actual human experience. The Historian deals with actual events and real people and an understanding of our past is fundamental when dealing with present day problems and conflicts. It gives us an insight into the development of our societies beliefs and foundations.

Has History any use? The answer has to be yes. The History student learns to collect, collate, order, analyse and evaluate information; to present a case, to criticise and compile a report. These are very important skills, applicable in many walks of life, such a Law, Civil Service, Journalism, Armed Forces and Business. History students rarely end up as History teachers!

This is an exciting, modern, flexible and varied course, which we believe, caters for all historical tastes and abilities. If you have any further questions or queries, please come and talk to us.

Course content and methodology

The theme for our selections is The Nature of Dictatorship. We examine the reigns of James I, Charles I and Peter the Great and elements of 20th Century history including China, Fascist Italy and Russia. Much of the time and emphasis is placed on individual study and reading in preparation for seminars, discussion, source based work and essay writing and reasonable basic literacy is necessary.

As part of the course we attend two conferences each year in Manchester.

Examination board: **OCR**



MATHEMATICS

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Mathematics is offered a single A-level, **Mathematics**, or as double A-level, **Double Mathematics**, when combined with the study of Further Mathematics (see below). To choose single Mathematics, please select Mathematics in sector A.

Course content

In the Sixth Form, Mathematics is studied in a series of units covering aspects of Pure Mathematics, Mechanics, Statistics, and Decision Mathematics.

PURE MATHEMATICS. Here you will continue the study of algebra, trigonometry and geometry though it ought to be said that, following some reminders of what you ought to know already, these topics take on a new meaning. Algebra becomes much more rigorous and to be successful you will need to be able to use it confidently in various situations; trigonometry is generalised and ceases to be concerned with finding the height of a tree across a river (!); whilst a level geometry is tackled mainly using an algebraic approach.

To these are added calculus (the mathematics of movement and change), one of the most important topics in advanced mathematics. In fact any situation involving a rate of change is described mathematically in the language of calculus and knowledge of this topic is a basic necessity for a scientific education . . . and a pre-requisite for a serious study of the physical sciences or engineering.

MECHANICS. We are all familiar with and experience motion in a variety of ways as a feature of everyday life . . . The motion of a vehicle on the road, the waves on the seashore, a bird in the air, a rugby ball gliding between the posts for two more points or the impact of a hockey ball as it rebounds off the wall at the back of the net etc. In this course you will learn how certain systems move and why they move in that particular way . . . You will investigate how various forces interact in order to cause something to move (dynamics), or indeed how they behave in order to prevent an object from moving (statics). Many of the techniques learned in pure mathematics are used to help in the solution of mechanics problems.

STATISTICS. “The art of decision making in the face of uncertainty”. As with many words in our English language, ‘statistics’ has different meanings to different people. Some people, on hearing this word, think of tables of births, deaths, car accidents or points scored for or against. But “statistics” is also the name given to a branch of applied mathematics. It has its own terminology, content, notation, rules and techniques and this course seeks to help the student to master some of these techniques. The course goes into the theory of frequency distributions and, after a deeper study of probability; you should be able to draw sensible conclusions about data. You will then be able to make sensible judgements in situations where there is not enough information available to be certain about what will eventually happen, and the methods you study here can be applied in many areas of Geography, Economics, Biology, or Psychology.

DECISION MATHEMATICS. Decision Mathematics studies methods commonly used in business such as critical path analysis, linear programming and flows in networks.

Assessment

Unit	Topic	Time	AS	A-level	AS/A2
C1	Pure Mathematics 1	1h 30	33.3%	16.7%	AS
C2	Pure Mathematics 2	1h 30	33.3%	16.7%	AS
C3	Pure Mathematics 3	1h 30		16.7%	A2
C4	Pure Mathematics 4	1h 30		16.7%	A2
S1	Statistics 1	1h 30	33.3%	16.7%	AS
M1	Mechanics 1	1h 30		16.7%	A2

Examination board: **Edexcel**



Entry requirements

The recommended entry requirement is GCSE mathematics, grade A*, A, or B (obtained after following a higher tier course). Students with grade C or who have followed the foundation GCSE course have tended to find these courses extremely challenging and pupils in this position are strongly advised to give very serious thought prior to selecting this subject. It is vitally important that prospective A-level mathematicians should realise that they need to be interested in the challenge the subject offers as well as being mathematically competent. Although the amount of ‘reading around the subject’ is small when compared with other subjects, you must be prepared to allocate a vast amount of private study time to solving mathematical problems – this is the only way to ensure eventual success.



DOUBLE MATHEMATICS

Dr Paula Rowlands

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Mathematics is offered a single A-level, **Mathematics** (see above), or as double A-level, **Double Mathematics**, when the study of Further Mathematics is included. You should choose 'Double Mathematics' in both sectors, A and B.

Why study Double Mathematics?

Further mathematics allows able mathematicians to really stretch themselves; it provides an opportunity for intellectual challenge. It is also recognised as excellent preparation for mathematical or scientific studies at degree level.

Course content

Courses offered: A-level Mathematics and A-level Further Mathematics; or A-level Mathematics and AS-level Further Mathematics.

The **Further Pure Mathematics** core syllabus includes more advanced methods and applications of differentiation and integration, an introduction and analysis of complex numbers, further work on vectors and the investigation of matrix algebra. The solution of differential equations (which commonly arise in scientific and physical situations) are studied, the properties of the curves of ellipses, parabolae, hyperbolae and an introduction to hyperbolic functions are also key components of the course.

Mechanics units involve the study of kinematics, centre of mass, collisions, work and energy, elastic strings and springs, further dynamics and motion in a circle.

Statistics units examine sampling methods, statistical models and hypothesis testing.

Decision Mathematics studies methods commonly used in business such as critical path analysis, linear programming and flows in networks.

Assessment

MATHEMATICS

Unit	Topic	Time	AS	A-level	AS/A2
C1	Pure Mathematics 1	1h 30	33.3%	16.7%	AS
C2	Pure Mathematics 2	1h 30	33.3%	16.7%	AS
C3	Pure Mathematics 3	1h 30		16.7%	A2
C4	Pure Mathematics 4	1h 30		16.7%	A2
S1	Statistics 1	1h 30	33.3%	16.7%	AS
M1	Mechanics 1	1h 30		16.7%	A2

FURTHER MATHEMATICS

Unit	Topic	Time	AS	A-level	AS/A2
FP1	Further pure mathematics 1	1h 30	33.3%	16.7%	AS
FP2	Further pure mathematics 2	1h 30		16.7%	A2
FP3	Further pure mathematics 3	1h 30		16.7%	A2
D1	Decision mathematics 1	1h 30	33.3%	16.7%	AS
S2	Statistics 2	1h 30	33.3%	16.7%	AS
M2	Mechanics 2	1h 30		16.7%	A2

examination board: **Edexcel**

Entry requirements

The recommended entry requirement is GCSE mathematics, grade A*, and with the go-ahead of the Head of Mathematics. It is vitally important that prospective A-level double mathematicians should realise that they need to be interested in the challenge the subject offers as well as being more than mathematically competent.



PHYSICAL EDUCATION

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Why study Physical Education?

This subject offers an exciting and interesting academic study that facilitates learning in a practical and proactive way. This syllabus provides contemporary and challenging qualifications, relevant to today's higher education and job opportunities. The subject constitutes an excellent combination of scientific or sociological study, in addition to a career in the growth area of recreation and leisure. The diverse nature of the subject material provides students with an excellent foundation for a wide range of careers and further study including physiotherapy, business management, teaching, sociology, psychology and journalism and medicine.

Physical Education is the ideal choice for students who are interested in sport, although, excellence in performance is not essential. The developmental nature of the subject delivers the key skills recognised by UCAS namely communication, improving learning and performance, problem solving and working with others through this up-to-date vibrant subject.

From 2012 there will be three routes for those wishing to study Physical Education. The current AS/A2 route will remain but in addition there will be two new qualifications on offer, they will run over two years as the A Level but offer a different assessment method. The OCR Certificate and Diploma Courses are both use internal assessment along with external moderation instead of the classic terminal examination. Each Unit is taught and then assessed immediately, there are 6 Units of Study for the Certificate [3 in each Year].

AS/A2

Unit	Topic	Time	AS	A-level	AS/A2
1	Opportunities for and the effects of leading a healthy and active lifestyle	2h	50%	25%	AS
2	Analysis and evaluation of physical activity as a performer and/or in adopted role		50%	25%	AS
3	Optimising performance and evaluating contemporary issues within sport	2h		30%	A2
4	Optimising practical performance			20%	A2

Examination board: **AQA**

OCR National Certificate/Diploma Level 3

Unit	Topic	Certificate	Diploma
1	The Sport Industry	16.7%	8.3%
2	Sport and Society	16.7%	8.3%
3	Career Planning for the Sports Industry	16.7%	8.3%
4	Principles of Sports Coaching	16.7%	8.3%
5	Sport in the UK	16.7%	8.3%
6	Technology in Sport	16.7%	8.3%
7	Nutrition for Sport and Exercise		8.3%
8	Sport and Exercise Psychology		8.3%
9	Anatomy for Sport and Exercise		8.3%
10	Injury in Sport		8.3%
11	Health and Safety in Sport		8.3%
12	Training and Fitness		8.3%



PHYSICS

Mr David Robson

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Why study Physics?

Physics provides a route into many careers. These prospects are not only confined to research – they extend into a wide range of industries, into food, medicine, finance, marketing, business, law and management; anywhere that might be call for an ability to analyse and model complex situations. A decisive factor in choosing physics at a level should be whether the GCSE course has been found to be interesting and enjoyable, although there is a major change of emphasis from largely factual knowledge at GCSE, to a requirement for much greater understanding and problem-solving ability at A-level.

Unit	Topic	Time	AS	A-level	AS/A2
1	Motion, Energy & Charge	1h 15	40%	20%	AS
2	Waves & Particles	1h 15	40%	20%	AS
3	Practical Physics Experimental tasks performed under controlled conditions.	In lesson	20%	10%	AS
4	Oscillations & Fields	1h 15		18%	A2
5	Electromagnetism, Nuclei and Options Questions on the compulsory content of the unit. Case Study based upon open-source material distributed by the board. Options: Alternating Currents, Revolutions, Materials, Medical Physics, Energy.	1h 45		22%	A2
6	Experimental Physics An experimental task and a data-analysis task	In lesson		10%	A2

The Institute of Physics lists 6 particular attributes that should be possessed by a physicist:

1. **Mathematical ability** – physicists describe events in precise, mathematical terms, rather than broad generalities.
2. **An enquiring mind** – physicists are interested in discovering how things work, and in understanding the underlying principles.
3. **Adaptability** – physicists need a readiness to learn new skills throughout their careers to cope with advances in science and technology.
4. **Social skills** – physicists need to talk and discuss with colleagues, supervise assistants and communicate their ideas clearly.
5. **Practical ability** – physicists design and build apparatus to explore and exploit properties of the physical world.
6. **Good powers of observation** – physicists need to look at events objectively and record observations accurately.

Examination board: **WJEC**



RELIGIOUS STUDIES

Mrs Shona Brummitt

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Why study Religious Studies?

The aim of the course is to encourage students to develop their interest and enthusiasm for a study of religion and relate it to the wider world. Students will develop their knowledge and understanding and develop an enquiring and reflective approach; they will develop their own ideas and opinions in the light of their learning.

The course involves critical academic study, which should challenge the believer and the sceptic. The syllabus is deemed to be accessible to students of any faith or none, and is open to any student who has demonstrated a reasonable level of ability in GCSE in subjects such as English literature or history. Students entering the Sixth Form who have not done religious studies at GCSE are welcome.

Religious Studies is a very good academic qualification when applying to universities for a wide range of courses. It is also a useful qualification when applying for jobs which involve working with people, such as law, police, banking, journalism, nursing, civil service, teaching and many businesses. It provides an excellent opportunity to develop skills like analytical, logical thinking, to write lucidly and coherently, to develop an argument, to evaluate ideas, to grapple with some of the 'big' issues. Religious Studies seeks to develop an enquiring mind and an ability to come to informed decisions with opportunities to think at some depth about ethical issues as well as questions of belief.

Course content

WORLD RELIGIONS – BUDDHISM. This will be an introductory study of Buddhism, its foundations, central concepts and religious practices and their significance. Concepts to be studied will include: the cycle of rebirth; the goal of Buddhism; is there an end to suffering?; lifestyle of Buddhists; morality and its importance; and the community of Buddhists.

RELIGION, PHILOSOPHY AND SCIENCE. This includes: different understandings of miracles, and the implication of god interacting in the world; and the concept of creation, including the scientific views of the creation of the universe (e.g. the big bang theory and evolution) and the religious beliefs about the creation of the world, including the origin of human beings and the relationship of God with the created world; are these view in conflict or complimentary?

PHILOSOPHY OF RELIGION. This builds on some concepts from the AS unit of religion, philosophy and science. It will explore: arguments for the existence of God, and the relationship between reason and faith; the problems of religious language; can we talk meaningfully about God?; the nature of personal identity – the existence of soul and body; do we continue after death? Do peoples' near death experiences show that we continue after death?; and the problem of evil – why is there suffering in the world? What reasons have philosophers given?

RELIGION AND HUMAN RESPONSIBILITY – LIFE, DEATH AND BEYOND. This unit pulls together issues raised from other areas of study but the key areas include: the nature and value of life; religious and secular teachings about the importance of this life and life after death; beliefs about life after death, both religious and non-religious; and beliefs about judgement and the future life.

Assessment

There is no coursework at AS or A-level.

Unit	Topic	Time	AS	A-level	AS/A2
1	World religions : Buddhism	1h 15	50%	25%	AS
2	Religion, philosophy and science	1h 15	50%	25%	AS
3	Studies in religion : philosophy of religion	1h 30		25%	A2
4	Religion and human experience : life, death and beyond	1h 30		25%	A2

Examination board: **AQA**



RUGBY ACADEMY

Mr Mike Leach

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This programme is run by the Welsh Rugby Union (WRU) for aspiring National level rugby players. It is timetabled as an academic subject so that the demanding commitment of study and training can be dovetailed effectively. It displaces one A-level choice and is a required choice for the Enrichment Block. The weekly programme includes contact, gym and analysis sessions, amongst others.



NATIONALS

SPORT

Mr Phil Mather

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The OCR National in Sport is available in two forms; the Certificate and the Diploma. They are both two year courses; the Certificate requires the study of six Units of work and the Diploma twelve units.

The courses are designed to recognise pupil's skills, knowledge and understanding of sporting activities, environments and operations. It also requires them to carry out a range of tasks that have been designed to recognise their achievement in a modern practical way that is relevant to the workplace.

The Units studied are varied; there is a Central Bank of 10 Units; 4 of these are mandatory and encompass

- The Sports Industry
- Sport and Society
- Principles of Sports Coaching
- Sport in the UK

The above are studied in both Certificate and Diploma. There are then 19 other Options Units to choose from, they include such units as:

- Anatomy and Physiology
- Career Planning in the Sports Industry
- Injury in Sport
- Nutrition for Sport and Exercise
- Training and Fitness
- Sport and Disability

Assessment is completed using varied styles of assessment at the end of each Unit; there are no examinations. Each Unit is assessed individually and the points for the units are added together to provide the final grade.

Grades are awarded as Fail, Pass, Merit or Distinction; the latter is the equivalent of 120 UCAS points i.e. an A grade at 'A' level. The Diploma allows access to 240 UCAS points if two distinctions are secured; the equivalent of 2 A grades at 'A' Level.



TRAVEL AND TOURISM

Mrs Sally Harding

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The Travel and Tourism National has a very similar structure to that of Sport; the assessment is at the end of each unit and there are no examinations. The final grading is also the same with Fail, Pass, Merit or Distinction being the outcome. The Distinction is the equivalent of an A Grade at 'A' Level and secures 120 UCAS points.

There are four Mandatory Units:

- The travel and tourism industry
- Travel locations worldwide
- Marketing travel and tourism
- Customer service and selling skills in travel and tourism

The Optional Units are very varied and cover many branches of tourism; some examples are

- Planning and managing a tourism event
- Living and working overseas
- The cruise market
- Business travel operations
- UK heritage tourism
- Airlines, airports and their impacts

Methods of assessment can be very interesting and varied from presentations, to role play to written assignments.



ENRICHMENT BLOCK SUBJECTS

Mr Julian Noad

Deputy Head (Academic)

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The Enrichment Block provides an opportunity for pupils to study a subject in addition to their main A-level choices. These courses will not necessarily be examined.

Confirmed options for 2012:

Astronomy with Mr Parri – the group are currently restoring the school's own observatory and following some of the material for Astronomy GCSE

Critical Thinking with Mr Lee-Browne – a course which encourages reasoning, debate and analysis of arguments. Following the AS course but not necessarily heading for examination

English as a Foreign Language (EFL) with Mrs Simpkins – see page 12 above -

Geology with Mrs Harding – making the most of our natural surroundings; a chance to find out more of what is below our feet

Rugby Academy – see page 20 above – is compulsory for all WRU Academy players

Possible options for 2012:

Government & Politics (tbc) – AS or A level on a reduced timetable

Spanish for Beginners (tbc)

ICT (tbc) – improve your IT skills and secure an industry-standard qualification, the European Computer Driving Licence (ECDL)

Extended Project (tbc) – much like the IB Extended Essay, a chance to research a topic in depth to produce a 3000 word report. An AS-level qualification.

