



UNIVERSITY OF
BIRMINGHAM
SCHOOL

University of Birmingham School Curriculum Outline

Sixth Form



Academic Year 2017/2018

Sixth Form Curriculum Outline 2017-18



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SCHOOL

Year	Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b
English						
Year 12	<p>Teacher A: An introduction to Tragedy Week 1 & 2 then Death of a Salesman</p> <p>Teacher B: King Lear</p>	<p>Teacher A: Death of a Salesman then, Week 8: Introduction to The Great Gatsby</p> <p>Teacher B: King Lear Then Week 7 & 8: Introduction to poetry analysis.</p>	<p>Assessment W/b 8/01 on Lear and Death of a Salesman</p> <p>Teacher A: The Great Gatsby</p> <p>Teacher B: Tragic Poetry (Keats)</p>	<p>Teacher A: Great Gatsby/ Salesman revision</p> <p>Teacher B: Keats, Lear Revision</p> <p>Mock examinations (full paper)</p>	<p>Revision and Exam technique.</p>	<p>The Collector The Critical Anthology</p>
Year 13	<p>TEACHER A: NEA (coursework) and academic writing / Elements of crime, an overview / Working with unseen crime extracts</p> <p>Teacher B: The Murder of Roger Ackroyd - Agatha Christie / Critical Anthology.</p>	<p>TEACHER A: Atonement - Ian McEwan</p> <p>TEACHER B: The Murder of Roger Ackroyd / Crime Poetry Anthology (Crabbe, Browning and Wilde)</p>	<p>TEACHER A: Elements of Crime - Atonement (cont.) / Aspects of Tragedy - revision of King Lear</p> <p>TEACHER B: Elements of Crime - Crime Poetry Anthology (Crabbe, Browning and Wilde)/ Aspects of Tragedy - revision of Keats.</p>	<p>TEACHER A: Revision - Aspects of Tragedy – King Lear Elements of Crime – Atonement / Unseen</p> <p>TEACHER B: Revision – Aspects of Tragedy: Death of a Salesman/ Keats The Murder of Roger Ackroyd / Crime Poetry Anthology (Crabbe, Browning and Wilde) Mock examinations (full paper)</p>	<p>Revision and study leave.</p>	

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Mathematics (& Further Mathematics)						
Year 12	Algebra and number recap and extension. Arithmetic Sequences Representing and summarising data; averages, dispersion etc	Coordinate geometry. Differentiation 1 Integration 1 Probability	Algebra 2 – polynomials Circle equations Trigonometry 1 – GCSE extension Correlation and regression	Trigonometry 2 – radians and solving trig equations Random variables and probability distributions	Logarithms Differentiation 2-stationary points The normal distribution	Integration 2 – area Functions Vectors
Year 12 + FM	Algebra and number recap and extension. Arithmetic Sequences Coordinate geometry Sequences Representing and summarising data; averages, dispersion etc Probability	Differentiation 1 Integration 1 Algebra 2 – polynomials Circle equations Trigonometry 1 – GCSE extension Correlation and regression Random variables Normal distribution Vectors	Trigonometry 2 – radians and solving trig equations Logarithms Differentiation 2-stationary points Integration 2 – area SUVAT equations (kinematics) Dynamics and Statics 1	Complex numbers Numerical solutions Moments Statics 2 Algorithms introduction	Coordinate systems Matrix algebra Series Graphs and networks Algorithms on network	Proof by induction Critical path analysis Matchings Logarithms 2 Route inspection Algebra and functions
Year 13	Algebra and functions Trigonometry 3 – identities Logarithms 2 – the natural logarithm Recap vectors SUVAT equations (kinematics)	Differentiation 3 – product rule, etc Numerical methods Partial fractions Dynamics and Statics 1	Binomial expansion, Differentiation 4 – differential equations Moments	Integration 3 Parametric equations Dynamics and Statics 2	Vectors – scalar product etc	
Year 13 + FM	Trigonometry 3 – identities Differentiation 3 – product rule, etc Numerical methods Partial fractions Binomial and Poisson distributions Continuous random variables	Binomial expansion, Differentiation 4 – differential equations Integration 3 Parametric equations Continuous distributions Sampling and hypothesis tests Projectile motion	Vectors – scalar product etc Complex Numbers 2 – De Moivre Differential equations 1 Moments and centres of mass Work, energy, Power Collisions	Differential equations 2 Maclaurin and Taylor expansion Hyperbolic functions Statics of rigid bodies Inequalities Series 2	Coordinate systems Integration 4 Polar coordinates Vectors 2 – vector product etc	Matrix algebra 2 Vectors 2 continued

Year	Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b
Art						
Year 12	Students are exposed to a wide variety of artists' work and they build up a breadth of knowledge which they can call upon when they begin their subsequent, self-directed work after Christmas alongside a refinement of technical skill		OCR Set Task (100% AS grade) In January, students undertake a thematic 'Set Task' project which is selected from a range of starting points given by the exam board (OCR). This selection is led by the student's personal interests and areas of technical expertise. The project culminates in a 10 hour period for students to complete (or finish) a final outcome.		Submission of Set task projects. Students will have a gallery exhibition of work which parents and friends will receive invites to. This has been really well received during our first few open view exhibitions. Once year 12 return from exams, workshops aimed at encouraging further ambition will be undertaken before students begin to decide on a personal investigation topic. If wished, they can use AS work as a basis to develop from. Students are then able to work on this during Summer holiday in order to get a head-start, before work begins in earnest in September to December of Year 13.	
Year 13	Students set about developing the personal themes decided on at the end of Year 12. They investigate and research ideas, record personal observations and develop their understanding of other artists and cultures which informs their work throughout. A final outcome will be created in a block of time towards the end of December. In recent years, we have managed to secure exhibition space (usually around this time), at The Winterbourne Gardens in Birmingham. This offers the opportunity to display student's work to the public; a great asset to their ALevel experience.		OCR Set Task (100% AS grade) In February, students undertake a thematic 'Set Task' project which is selected from a range of starting points given by the exam board (OCR). This selection is led by the student's personal interests and areas of technical expertise.		The project culminates in a 15 hour period for students to complete (or finish) a final outcome. The date of this is usually just before the main exam period and just after the Easter holidays.	

Year	Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b
Biology						
Year 12	Cells and microscopy. Chemicals for life : biologically important molecules and their reactions	Cell division and cell development. Enzymes and proteins	Mass transport in animals: Exchanging substances with the environment and transport in plants	Communicable disease, disease prevention and the immune system. Evolution and classification Biodiversity	Revision/Exam	Ecosystems Populations
Year 13	Homeostasis: Hormonal and neuronal control Cellular control and patterns of inheritance	Excretion as an example of homeostatic control. Manipulating genomes, cloning and biotechnology	Animal responses and respiration Plant responses and photosynthesis	Pulling it together.... Synoptic review of Y12 and Y13	Revision/Exam	
Chemistry						
Year 12	Amount of substance; Introduction to organic chemistry; Atomic structure; Bonding	Alkanes; Haloalkanes; Redox; Periodicity; Group 2	Alkenes; Alcohols; Group 7; Energetics	Organic analysis; Kinetics; Equilibria *finish AS teaching	Revision and exams	Optical isomerism Kp Start rate equations NMR
Year 13	Aldehydes and ketones; Carboxylic acids and derivatives; Redox equilibria; Rate equations;	Chromatography; Aromatic chemistry; Thermodynamics	Amines; Amino acids, proteins and DNA; Acids and bases	Polymers; Organic synthesis; Transition metals; Reactions of ions in solution *finish A level teaching	Revision and exams	

Year	Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b
Computer Science						
Year 12	Core aspects of programming. One of the key challenges for the first term is to get students who have never coded before to the right standard whilst simultaneously developing the skills of the veteran coders. Variables and expressions, Selection, Iteration, Arrays.	Students will finish their core learning with string manipulation and then start work on developing their computational thinking. Decomposition and thinking ahead are the two main themes of this term.	Students will further develop their computational thinking by exploring and using abstraction. They will also expand their coder's toolset by exploring functions, local and global variables and using an IDE.	Students will further develop their programming by looking at standard algorithms and data structures. They will learn to program them from first principles and use them to solve problems.	In the final term before the exam students will round off their learning with file handling and low level programming in LMC. In this term more emphasis will be placed on exam style coding.	On return after exam leave students will get started on the coursework for year 13. They will pick a project and make good headway into analysis.
	Theory topics Details of the CPU. RISC and CISC Input, output and storage. Binary	Theory topics Boolean algebra. Legal and moral impacts of CS. Operating systems.	Theory topics Networking. Web technologies including HTML, CSS and JavaScript.	Theory topics Databases Stacks Queues Bubble and insertion sort. Binary and linear search.	Theory topics Software methodologies. Revision.	Students will also start to learn object orientated programming .
Year 13	Object orientated programming. Needs to be mastered before coursework coding can start. Complexity theory and algorithms. The new algorithms being introduced are A*, Dijkstra's shortest path, quick and merge sort. Students will also explore bitwise manipulation.	Theory topics Data structures. Uses of hashing. Computer methodologies. Recursion. Boolean algebra, adders and flip flops.	Theory topics Databases. Pipelining. GPU. Thinking concurrently. Caching.	Theory topics Compilers. Addressing modes. Network security and encryption. Server side technologies. Page rank.	Theory topics Floating point addition. Revision.	NA

Year	Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b
	Coursework Focus will be on design and starting the first prototype.	Coursework Students will complete the coding and write up for the first prototype. The second prototype will be started and worked on over Christmas.	Coursework Students will complete prototype 2 and get started with prototype 3.	Coursework Students will complete prototype 3 and then work on the Evaluation. The final deadline for the coursework will be immediately after Easter.	Coursework Coursework will be submitted to the exam board.	
DT						
Year 12	Topic 1: Materials Topic 2: Performance Characteristics of Materials Topic 3: Processes & Technique	Topic 3 continued; Potential hazards and risk assessment / year 12 mock examination preparation.	History of Design Theory (one week to each movement) a-g Design skills: approaches to designing, modelling, presentation Design and make assignment, Designing a prototype, Making a final prototype.			
Year 13	Development of final Design ideas and manufacture / part list. Start making final major project Unit 3 – industrial and commercial practice.	Cutting and preparation of parts for manufacture. Unit 4 – commercial design / manufacture.	Assembly of parts and completion of project. Final finishing / finishing touches to design and make project.	Preparation for the examination and techniques. Past papers and mock tests.	Preparation for examination. Theory lessons and examination techniques. Past papers and mock tests.	

Year	Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b
	1. Information and communication technology (ICT) 2. Biotechnology 3. Systems and Control 4. Design in Context 5. Sustainability	1. Selection of Design and make task 2. Client or user group 3. Sustainability and the environmental impact. 4. Industrial applications and commercial working practice				

Year	Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b
Geography						
Year 12	Tectonic Processes and Hazards Tectonic hazards – earthquakes, volcanic eruptions and secondary hazards such as tsunamis – represent a significant risk in some parts of the world. This is especially the case where active tectonic plate boundaries interact with areas of high population density and low levels of development. Resilience in these places can be low, and the interaction of physical systems with vulnerable populations can result in major disasters. An in-depth understanding of the causes of tectonic hazards is key to both increasing the degree to which they can be managed, and putting in place successful responses that can mitigate social and economic impacts and allow humans to adapt to hazard occurrence.*		Landscape Systems, Processes and Change: Coastal Landscapes and Change Coastal landscapes develop due to the interaction of winds, waves and currents, as well as through the contribution of both terrestrial and offshore sources of sediment. These flows of energy and variations in sediment budgets interact with the prevailing geological and lithological characteristics of the coast to operate as coastal systems and produce distinctive coastal landscapes, including those in rocky, sandy and estuarine coastlines. These landscapes are increasingly threatened from physical processes and human activities, and there is a need for holistic and sustainable management of these areas in all the world's coasts. Study must include examples of landscapes from inside and outside the UK.*		Revisions and exams	Non-Examined Assessment (NEA) (A2)

Year	Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b
	Globalisation Globalisation and global interdependence continue to accelerate, resulting in changing opportunities for businesses and people. Inequalities are caused within and between countries as shifts in patterns of wealth occur. Cultural impacts on the identity of communities increase as flows of ideas, people and goods take place. Recognising that both tensions in communities and pressures on environments are likely, will help players implement sustainable solutions.*		Shaping Places: Regenerating Places Local places vary economically and socially with change driven by local, national and global processes. These processes include movements of people, capital, information and resources, making some places economically dynamic while other places appear to be marginalised. This creates and exacerbates considerable economic and social inequalities both between and within local areas. Urban and rural regeneration programmes involving a range of players involve both place making (regeneration) and place marketing (rebranding). Regeneration programmes impact variably on people both in terms of their lived experience of change and their perception and attachment to places. The relative success of regeneration and rebranding for individuals and groups depends on the extent to which lived experience, perceptions, and attachments to places are changed.*			Begin Year 13 topic: The Carbon Cycle and Energy Security
Year 13	The Carbon Cycle and Energy Security A balanced carbon cycle is important in maintaining planetary health. The carbon cycle operates at a range of spatial scales and timescales, from seconds to millions of years. Physical processes control the movement of carbon between stores on land, the oceans and the atmosphere. Changes to the most important stores of carbon and carbon fluxes are a result of physical and human processes. Reliance on fossil fuels has caused significant changes to carbon stores and contributed to climate change resulting from anthropogenic carbon emissions. The water and carbon cycles and the role of feedbacks in and between the two cycles, provide a context for developing an understanding of climate change. Anthropogenic climate change poses a serious threat to the health of the planet. There is a range of adaptation and mitigation strategies that could be used, but for them to be successful they require global agreements as well as national actions.*		The Water Cycle and Water Insecurity Water plays a key role in supporting life on earth. The water cycle operates at a variety of spatial scales and also at short- and long-term timescales, from global to local. Physical processes control the circulation of water between the stores on land, in the oceans, in the cryosphere, and the atmosphere. Changes to the most important stores of water are a result of both physical and human processes. Water insecurity is becoming a global issue with serious consequences and there is a range of different approaches to managing water supply.*			
	Superpowers		Global Development & Connections: Migration, Identity and Sovereignty			

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	<p>Superpowers can be developed by a number of characteristics. The pattern of dominance has changed over time. Superpowers and emerging superpowers have a very significant impact on the global economy, global politics and the environment. The spheres of influence between these powers are frequently contested, resulting in geopolitical implications.*</p>		<p>Globalisation involves movements of capital, goods and people. Tensions can result between the logic of globalisation, with its growing levels of environmental, social and economic interdependence among people, economies and nation states and the traditional definitions of national sovereignty and territorial integrity. International migration not only changes the ethnic composition of populations but also changes attitudes to national identity. At the same time, nationalist movements have grown in some places challenging dominant models of economic change and redefining ideas of national identity.</p> <p>Global governance has developed to manage a number of common global issues (environmental, social, political and economic) and has a mixed record in its success in dealing with them. It has promoted growth and political stability for some people in some places whilst not benefiting others. Unequal power relations have tended to lead to unequal environmental, social and economic outcomes.</p>			

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History						
Year 12	King John & Nicholas II Students will explore competing historical interpretations for why John lost control of Normandy, analyse the extent to which John's relationship with the Church changed and assess John's reputation for Unit 1. For Unit 2 students will evaluate the causes of the 1905 Revolution, examine the extent to which Russia was on the verge of Revolution in 1914 and reach a judgement on the main reason Nicholas II abdicated in 1917.	Henry III & the Provisional Government. Students are going to analyse the role played by William Marshal in the victory over Louis of France, to assess the reasons for unrest during the minority and evaluate the extent of success that Henry achieved during his personal rule for Unit 1. For Unit 2 students will evaluate the claim that the Provisional Government was doomed from the start, reach a judgement on the relative importance of causes of the October Revolution and examine the effectiveness of the methods used by Lenin to keep hold of power.	'Mad Parliament' and the rule of Lenin. Students are going to assess the reasons for the 1258 coup before moving on to evaluate the reforms introduced for their radicalness. Then students will explore the reasons for the continual shifts in power until 1263 for Unit 1. For Unit 2 students will explore the reasons why the Bolsheviks won the Civil War, will analyse the extent to which Lenin was a dictator and reach a judgement on the main reason that Stalin rose to power.	De Montfort's fall and Stalin Students will use the available material to explore de Montfort's motivations, to analyse the efforts to achieve reconstruction and reconciliation and to evaluate the impact of Magna Carta for Unit 1. For Unit 2 students will assess Stalin's responsibility for the adoration and terror of his rule before assessing the effectiveness of his economic and social policies.	EXAMS	Henry VII and Introduction to Coursework Research Students will explore Henry VII's reign to assess if dynastic rebellions were more threatening than economic ones for Unit 3. For Unit 4 students will create their coursework question and then develop their note-taking and research skills.
Year 13	Henry VIII and Writing a coursework factor Students will evaluate how far the most threatening rebellions were religious and explore the interpretations of historians of the Pilgrimage of the Grace for Unit 3. For Unit 4 students will use their notes to write their first coursework factor to their question.	Edward VI, Mary I and Completing our coursework. Students will assess how threatening rebellions motivated by social conditions and dynastic were and explore the interpretations of historians of Western Rebellion. For Unit 4 students will complete their coursework by introducing their argument, presenting their argument through a range of factors and then reaching a compelling conclusion in a fully referenced essay.	Elizabeth the First and Refreshing our memory of our topics from last year Students will analyse the threat posed by economic, religious and dynastic rebellions to Elizabeth the First. Students will explore historians' interpretations of Tyrone's Rebellion. Students will refresh their memory with a summary of the central topics studied in Units 1 and 2.	How to answer Unit 1, Unit 2 and Unit 3 A-Level Questions Students will develop their awareness at answering the A-Level version of the Unit 1 and Unit 2 questions in preparation for their Mock Examination.	EXAMS	

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Modern Languages						
Year 12	Aspects of French-speaking society: current trends La famille en voie de changement	Aspects of French-speaking society: current trends La « cyber-société »	Aspects of French-speaking society: current trends Le rôle du bénévolat	Speaking exam preparation AS Level speaking examination (Paper 3)	Revision and exam preparation AS examinations (Paper 1, Paper 2)	Individual research project
	Artistic culture in the French-speaking world La musique francophone contemporaine Mathieu Kassovitz, <i>La Haine</i>	Artistic culture in the French-speaking world Le septième art Mathieu Kassovitz, <i>La Haine</i>	Artistic culture in the French-speaking world Une culture fière de son patrimoine Mathieu Kassovitz, <i>La Haine</i>	Essay and exam skills Mathieu Kassovitz, <i>La Haine</i>	Revision and exam preparation AS examinations (Paper 1, Paper 2)	An Introduction to studying Albert Camus' <i>l'Etranger</i>
Year 13	Aspects of French-speaking society: current issues: Les aspects positifs d'une société diverse Albert Camus, <i>L'Etranger</i>	Aspects of French-speaking society: current issues: Quelle vie pour les marginalisés? Albert Camus, <i>L'Etranger</i>	Aspects of French-speaking society: current issues: Comment on traite les criminels Albert Camus, <i>L'Etranger</i>	Individual Research Project	A Level Examinations Paper 1: Listening, Reading and Writing Paper 2: Writing	A Level Examinations Paper 1: Listening, Reading and Writing Paper 2: Writing
	Aspects of political life in the French-speaking world: Les ados, le droit de vote et l'engagement politique	Aspects of political life in the French-speaking world: Manifestations, grèves – à qui le pouvoir?	Aspects of political life in the French-speaking world: La politique et l'immigration	Speaking Exam Preparation A Level speaking examination (Paper 3)	Revision of all Year 12 and Year 13 topics Revision of literature and film: <i>L'Etranger</i> and <i>La Haine</i>	A Level Examinations Paper 1: Listening, Reading and Writing Paper 2: Writing

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Music						
Year 12	Intro to music history Set works 1-4	Composition 1 with Young Composers Set works 5-8	Set works 9-12	Composition 2 with Young Composers Final recital (March) Coursework deadline (April)	Consolidation, revision and exam preparation	Bach Chorales – theory and practice A2 set work 1/6
Year 13	Bach Chorales Set works 2-3	Composition project with Young Composers Set work 4	Set works 5-6 Bach Chorales	Final recital (March) Bach Chorale exam (April) Composition deadline (April)	Consolidation, revision and exam preparation	
Physics						
Year 12	Electricity		Waves	Quantum physics	Revision	Simple Harmonic Motion
	Nuclear & particle physics	Statics (forces on stationary objects)	Kinematics (motion) Dynamics (forces on accelerating objects)	Energy, momentum & materials	Revision	Circular motion
Year 13	Thermal physics	Thermal & short option	Option topic	Nuclear physics	Revision	
	Gravitational fields Electric fields	Electric fields (continued) Capacitors	Magnetic fields Electromagnetic induction	EM induction (continued) Alternating currents	Revision	

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Religious Studies						
Year 12	Teacher 1 (H173/03) – Augustine, Death and the Afterlife Teacher 2 (H173/01) – Ancient Greek influences, Soul and Body	Teacher 1 (H173/03) – Knowledge of God, Person of Jesus Teacher 2 (H173/01) – Arguments from experience, Arguments from reason	Teacher 1 (H173/03) – Christian moral principles, Christian moral actions Teacher 2 (H173/01) – Religious experience, Problem of Evil	Teacher 1 (H173/02) Natural Law, Situation Ethics, Euthanasia Teacher 2 (H173/02) Utilitarianism, Kantian Ethics, Business ethics		Teacher 1 (H573/02) – Meta-Ethics Teacher 2 (H573/03) – Pluralism and theology
Year 13	Teacher 1 (H573/03) – Pluralism and society, Gender and theology Teacher 2 – Conscience (H573/02), Nature of God (H573/01)	Teacher 1 (H573/03) – Gender and theology, Gender and society Teacher 2 (H573/01) – Religious Language, Via Negativa and Via Positiva	Teacher 1 (H573/03) – Secularism, Liberation Theology and Marx Teacher 2 (H573/01) – Religious Language, 20 th century	Teacher 1 (H573/03) – Liberation Theology and Marx Teacher 2 (H573/02) – Sexual ethics, revise and review ethical theories	Revision and exam preparation	