Year 12 Overview

English International School

	Autumn	Spring	Summer
English	**Writing** -Write for a specific audience and purpose (short text and reflective commentary) - Select and produce an appropriate structure especially for longer pieces of writing - Demonstrate appropriate and effective use of paragraphs and specific effects	**Reading** -Identify and comment on characteristic features of texts relating these to the audience, context and purpose of the texts - Compare linguistic elements and style of own writing with those of a given text -Read a given text and write a directed response using quotations and evidence to produce accurate and meaningful commentaries -Recognise the importance of audience and the effect of context, genre and purpose with regard to meaning of texts -Select and define words and phrases with accuracy and care	**Language Analysis** -Evaluate and respond to given transcript (featuring language spoken between certain ages) - Analyse how language is used (in the transcript) -Relate observations to ideas and examples from deeper and wider study of language acquisition
Mathematics	**Pure Mathematics 1** **Quadratics** - Completing the square - Solve quadratic equations and quadratic inequalities	**Mechanics** **Statics** - Resolve forces into orthogonal components - Calculate the magnitude and direction of the 'Resultant'	**Pure Mathematics 2** **Algebra** - Modulus functions - Working with polynomials - Factor theorem and remainder theorem

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	- Solve by substitution a pair of simultaneous equations **Functions** - Understand the terms function, domain, range, one-one function, inverse function and composition of functions - Illustrate in graphical terms the relation between a one-one function and its inverse - Understand and use the transformations of the graph **Coordinate geometry** - Find the equation of a straight line when given sufficient information - Understand the equation of a circle and how to find the coordinates of its centre and radius r **Circular measure** -Understand the definition of a radian, and Use the relationship between radians and degrees	- Calculate the magnitude and direction of the 'Resultant' - Use Newton's laws to solve statics problems **Kinematics** - Understand that 'Displacement' is a vector quantity, and that 'Distance' is the scalar equivalent - Know and understand that 'Velocity' is a vector quantity that is the 'Rate of change of displacement', and that 'Speed' is the scalar equivalent - Solve problems involving constant acceleration using the SUVAT equations - Sketch displacement-time and velocity-time graphs - Linear Momentum - Solve problems involving collisions and explosions **Action of resultant forces** - Use Newton's laws - The concept of Weight and use of the equation $W = mg$	**Logarithms** - Logarithms and powers - Logarithms laws - Solving equations using logarithms **Sequences and Series** - Pascal's triangle - Binomial expansion - Finding terms in binomial expansion - Arithmetic and geometric sequences, finding the nth term and the sum of terms - Convergence and sum to infinity **Trigonometry** - Secant, cosecant and cotangent functions - Double angle formula - Compound angle formula - Solving trigonometric equations - Proving trigonometric identities

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	- Solve problems concerning the arc length and sector area of a circle **Trigonometry** - Sketch and use graphs of the sine, cosine and tangent functions - Find all the solutions of simple trigonometrical equations **Differentiation** - Understand that the gradient of a curve at a point is the limit of the gradients of a suitable sequence of chords - Apply differentiation to gradients, tangents and normals **Integration** - Evaluate definite integrals and use definite integration to find the area of a region bounded by a curve	- Perfect connectors - Coefficient of dynamic friction **Energy, work and power** - Concepts of energy and work - Kinetic energy and potential energy - Solve problems using the conservation of energy - Know and understand that 'Power' is the rate at which work is done	**Differentiation** - Differentiate products and quotients use the derivatives of ln , sin , cos , tan - Find and use the first derivative of a function, which is defined parametrically or implicitly **Integration** - Extend the idea of 'reverse differentiation' Use trigonometrical relationships in carrying out integration - Understand and use the trapezium rule to estimate the value of a definite integral **Numerical methods** - Locate approximately a root of an equation, by means of graphical considerations and/or searching for a sign change - use iterative formula to determine a root of an equation

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Physics	**Newton's Laws** - Understand SI units and multipliers. - Understand errors. - Understand scalars, vectors, components and resultants. - Understand Newton's Laws. - Be able to demonstrate a practical – application regarding the origin of force and Newton's Laws. **Momentum, density and moments** - Understand momentum transfer between bodies. - Understand density. - Understand moments - Be able to demonstrate a practical application of momentum transfer and moments. **Stress, strain and the Young Modulus** - Understand Hooke's law. - Understand stress, strain and the Young Modulus.	**Electrical current, basic circuits and resistivity** - Understand the nature of electric current. - Understand Ohm's law. - Understand resistivity. - Understand basic circuits. - Understand electromotive force and internal resistance. - Be able to demonstrate a practical application of resistivity and basic circuits. **Nuclear physics, fundamental particles and radioactivity** - Understand basic nuclear physics. - Understand fundamental particles. - Understand the nature of radioactivity. - Understand radioactive decay. - Be able to demonstrate a practical application of fundamental particles and radioactive decay.	**Circular motion and Simple harmonic motion (SHM)** - Understand circular motion. - Understand the nature of SHM. - Understand modelling of SHM. - Understand damping and Resonance. - Be able to demonstrate a practical application of circular motion, SHM and resonance. **Kinetic theory of gases and the ideal gas equation** - Understand kinetic theory of gases. - Understand the ideal gas equation. - Be able to demonstrate a practical application of kinetic theory and the ideal gas equation. **Revision of AS level syllabus and examination preparation.**

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	- Understand the different classes of Materials. - Be able to demonstrate a practical application of Hooke's law, stress, strain and the Young Modulus.		
Biology	**Biological molecules** - Understand water and inorganic mineral ions. - Understand monomers and polymers. - Understand the function of carbohydrates. - Understand the role of proteins. - Understand the role of lipids. - Understand the role of nucleic acids. - Understand the role of Adenosine Triphosphate (ATP) and Adenosine Diphosphate (ADP) in biology. **Cell ultrastructure** - Understand cells. - Understand the functions of a microscope. - Understand cell division. - Understand cell membranes and transport across cell membranes.	**Disease and immunity** - Understand disease. - Understand immunity. **Genetic information** - Understand DNA and protein synthesis. - Understand genetic diversity. - Understand classification and species diversity.	**Bioenergetics** - Understand respiration. - Understand photosynthesis. **Coordination in organisms** - Understand response to stimuli. - Understand nervous coordination and muscles as effectors. - Understand homeostasis and chemical coordination.

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	Exchange of substances - Understand the exchange of substances between organisms and the environment, - Understand the process of gaseous exchange in animals. - Understand the process of gaseous exchange in plants. - Understand mass transport in animals. - Understand the method of transport in plants. - Understand digestion and absorption.		
Business Studies	**Introduction to business and enterprise** -Examine the purpose of basic business objectives such as: (i) cash flow, (ii) profit, (iii) opportunity cost and growth, (iv) corporate responsibility, and (v) social responsibility. -Describe the role of business objectives at individual, departmental and corporate levels. -Assess the stages of business decision making, including motivations and methods behind their execution. -Explore the reasons influencing success and failures of an early on business.	**Introduction to Marketing** -Compare marketing and corporate objectives. -Examine main factors impacting services of businesses and their consequences. -Examine the role of demand and supply in determining market price. Compare features of different types of market including (i) national, (ii) regional, and (iii) international market. -Explain bases of market segmentation and the limitations associated with them.	**Introduction to Accounting** -Compare the purpose and basic features of working and start-up capital. -Describe features of short term and long term finance. -Examine the significance of work capital in business finance. -Explain the impact of a legal structure on sources of finance. -Explore the features of internal and external sources of finance. -Examine strengths & limitations of contribution, full costing and gross margin.

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	-Describe the role of an entrepreneur in economic growth. -Examine the variations of social enterprise. Assess the different types of profit measures and aims within business. -Determine the motivations and methods involved in the execution of objective decision making. -Discuss major forms of business and their patterns of evolution. -Examine the importance of limited and unlimited liability. -Assess the influence of stakeholders on businesses and the techniques and used for it. -Determine the major methods of measuring the size of a business such as: (i) number of employees, (ii) market share, (iii) turnover, and (iv) amount of capital employed. -Explain the freedom and limitations associated with small businesses within a market. -Discuss the relationship between small and large scale businesses in an industry. **Introduction to Organisational Behaviour**	-Compare primary and secondary research methods. -Examine strengths and limitations of major ways of information gathering and sampling methods. -Examine major types of strategies and promotional methods used in marketing mix model. -Summarise the strengths and limitations associated with main distribution channels. -Examine the role of a limitations and efficient marketing mix in a business. **Introduction to Project and Operations Management** -Compare key types of transformation processes in operation management. -Judge how the impact of operations management overlaps with effectiveness and productivity. -Examine the indicators of effective business operations. -Explore the strengths and limitations of labour and capital intensives.	-Discuss the purpose of income statements and statement of financial position. -Summarise methods of ratio analysis and their role in improving a business. -Evaluate key users of the account and the limitations associated with them. -Examine the purpose and implementation of cash forecasts.

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	-Analyse the purpose of management while exploring Mintzberg's managerial roles. Compare different types of leadership styles such as: (i) democratic, (ii) autocratic, (iii) laissez-faire, and (iv) McGregor's leadership styles. -Examine the role of major leadership roles within a business. -Explain the significance of developed emotional intelligence in leadership. -Summarise key purposes of motivation within a business. -Compare concepts of main motivation theories such as: (i) equity, (ii) reinforcement, (iii) two factor, and (iv) ERG theory. Compare main features of financial vs non-financial motivations. -Investigate the causes of problems arising from poor communication, in an organisation of your choice and recommend possible solutions. -Apply remedial and structural change concepts to any developing organisation of your choice.	-Examine the methods and purpose to control inventory management. -Examine key factors influencing operational based decisions. -Examine the role of flexibility and innovation within operations planning. -Compare major operational planning methods.	

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	Use main methods of measuring employee performance to evaluate given organisation's structure.		
Economics	**Basic economic ideas and resource allocation define Scarcity, choice and opportunity cost** -Explain how opportunity cost results from the need to make choices - Understand Economic methodology - Understand the nature of the four factors of production: land, labour, capital, enterprise - Understand the difference between positive statements and normative statements - Use the term ceteris paribus to describe a situation where 'other things remain equal' or unchanged - Understand division of labour and specialization. ROle of entrepreneur - Understand the roles of government and the market in the three types of economic system: market, planned, mixed - Understand that a production possibility curve (PPC) shows the maximum level of output that an economy can achieve given current resources and state of technology	**Government microeconomic intervention** -Understand the concept of market failure - Explain why governments may intervene in markets to address non-provision of public goods, overconsumption of demerit goods and underconsumption of merit goods - Analyse why governments may set maximum prices or minimum prices in the market - Analyse how indirect taxes and subsidies affect the demand and supply of products in the market - Understand the situations when governments may need to impose maximum and minimum price controls - Analyse the importance of buffer stock schemes in smoothing price rises and falls of products - Describe the difference between income and wealth - Understand that income is flow of the return to factors of production	**Government macroeconomic intervention** -Understand that fiscal policy is the use of taxation and government spending to manage aggregate demand (AD) in order to achieve the government's macroeconomic objectives - Understand that the government's annual budget is a statement of its fiscal policy - Explain that a budget deficit arises when government spending is greater than tax revenue and a budget surplus arises when tax revenue exceeds government spending - Understand that the national debt is total government debt built up over time - Understand that monetary policy seeks to influence aggregate demand (AD) by affecting the price and quantity of money - Explain the main tools of monetary policy: interest rates, money supply, credit regulations - Differentiate between expansionary monetary policy that aims to increase AD and

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	- Explain why production is efficient at any point on the PPC - Classification of goods and services **The price system and the microeconomy** -Describe the market mechanism - Understand that the buying side of the market is demand - Construct a demand curve for an individual firm or for an entire market - Explain the factors that affect demand - Understand that the selling side of the market is supply -Understand the concept of elasticity and the difference between elastic and inelastic demand - Describe price elasticity of demand (PED) and calculate PED - Explain the factors affecting PED - Describe the concept of price elasticity of supply (PES) and calculate PES - Explain the factors influencing PES - The interaction of demand and supply - Consumer and producer surplus	- Understand that wealth is the stock of accumulated assets - Explain that the Gini coefficient can be used to measure the extent of income inequality in an economy - Explain the economic reasons for inequality of income and wealth **The macroeconomy** -Explain that national income statistics measure a country's economic activity in terms of its output, income and expenditure - Understand that gross domestic product (GDP) is the output produced in a country whoever produces it - Understand that gross national income (GNI) is the total income earned by the country's residents wherever they earn it - Understand that net national income (NNI) is GNI minus depreciation - Explain the three methods used to calculate GDP: output method, income method, expenditure method - Describe how the circular flow of income shows how income flows around the economy	contractionary monetary policy that aims to reduce AD or the growth of AD - Define the meaning of supply-side policy in terms of its effects on LRAS curves. - Understand the objective of supply side policies to increase aggregate supply by improving the workings of product and factor markets **International economic issues** -Explain how a country may have absolute advantage when it can produce a product using fewer resources than another country -Explain how a country has a comparative advantage when it can produce a product at a lower opportunity cost -Explain that the terms of trade is a measure of the ratio of export prices and import prices - Explain why the effect of changes in the terms of trade depends on their cause - Consider the limitations of absolute and comparative advantage - Understand that protectionism is when governments seek to protect domestic industries from foreign competition

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		- Explain how income flows between households, firms and the government in a closed economy - Explain that aggregate demand (AD) consists of consumer expenditure (C), investment (I), government spending (G), net exports (X – M) - Identify the determinants that influence the components of AD - Understand that the AD curve slopes down from left to right and shows the different quantities of total demand for the economy's products at different prices - Analyse the causes of a shift to the right in the AD curve - Describe economic growth as a key indicator of macroeconomic performance - Explain how economic growth is measured by changes of GDP - Understand that nominal GDP has not been adjusted for inflation; real GDP has been adjusted for inflation - Understand that unemployment occurs when people who are willing and able to find work cannot find a job	- Analyse the impact of the different tools of protection - Discuss the arguments for and against protectionism - Identify the components of a country's balance of payments - Describe the components of the current account of the balance of payments - Calculate the balance of trade in goods, in services and in goods and services and overall current account balance - Understand that an exchange rate is the price of one currency in terms of a foreign currency - Explain how a floating exchange rate is determined by demand for and supply of the currency - Explain why a depreciation is a fall in the price of a currency whereas an appreciation is a rise in the price of a currency - Explain how fiscal policy tools may be used to reduce a current account deficit on the balance of payments - Explain how monetary policy tools may be used to reduce a current account surplus

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		- Explain the difference between people who are economically active and economically inactive - Explain the difference between the level of employment and the rate of employment - Calculate the rate of unemployment - Understand that price stability occurs when prices rise by only a small percentage and there is an avoidance of fluctuations in the price level - Distinguish between inflation as a rise in the price level, deflation as a fall in the price level and disinflation as a fall in the inflation rate - Calculate the inflation rate using the annual average method and the year-on-year method - Discuss the benefits and disadvantages of inflation.	
Psychology	**Approaches and questions in psychology.** -Explain what is meant by 'behaviour', 'the mind' and 'experience'. -Evaluate whether psychology is a scientific discipline. -Explain the difference between psychology and sociology or anthropology.	**Psychological investigation** -Explain the main features of each research - method. -Explain the difference between internal validity and external validity and generalisability.	**Understand issues and debates in psychology** -Examine the nature/nurture debate in psychology. -Explain what are idiographic and nomothetic approaches in psychology.

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	-Examine the links between psychology with other disciplines. -Explain the principal features the biological, behavioural, cognitive, psychodynamic and humanist psychological approaches. -Evaluate the strengths and weaknesses of the different approaches as an explanation for human behaviour. -Explain how each approach can be applied to aspects of everyday human behaviour. -Evaluate whether key studies illustrate or support each approach. -Explain the principal methods used to investigate each approach. -Examine when and why studying and/or combining different approaches is useful in understanding behaviour. -Explain what the various components of the human brain and central nervous system are. -Explain how the central nervous system and endocrine system operate in the human body. -Evaluate the nature and function of endorphins, serotonin, dopamine, adrenaline, testosterone and oestrogen in the human body.	-Explain what is meant by test-retest reliability, inter-observer reliability and inter-rater reliability. -Evaluate the extent to which each method is reliable and/or valid. -Explain the difference between quantitative and qualitative data. -Evaluate the contribution of each method to the body of psychological knowledge. -Evaluate different types of experimental design (independent measures, matched pairs and repeated measures). -Explain when the use of an experimental design might be appropriate. -Explain the difference between independent variables, dependent variables and extraneous variables. -Examine what the different kinds of variables in a particular experimental design are. -Explain what is meant by operationalisation in respect of independent and dependent variables. -Explain what is meant by controlling variables, uncontrolled variables, participant variables and situational variables.	-Evaluate the extent to which each approach may be described as deterministic or allow for free will. - Evaluate how successful psychologists have been in avoiding cultural or gender bias. -Examine the extent to which each approach may be described as reductionist.

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	-Explain what is meant by transduction and how it applies to human perception.	-Evaluate when and how to use directional (one-tail), non-directional (two-tail) and null hypotheses. -Examine what would be an appropriate hypothesis for a given situation. -Explain the difference between samples and populations. -Evaluate the nature and strengths of opportunity sampling, random sampling and self-selection (volunteer sampling). -Explain the terms 'measure of central tendency' and 'measure of spread.' Evaluate the mean, mode, median and range for a given set of data. -Examine what the *standard deviation* and *normal distribution* in a set of data are. -Examine how to find the data contained in bar charts, histograms and scatter grams. -Explain the core ethical considerations that apply when working with humans and animals. -Evaluate how far psychological studies have complied with ethical guidelines.	
Art	**Personal Portfolio** Students will record ideas, observations and insights relevant to intentions as work progresses. They will be able to:		**Personal Portfolio** Component 1:

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	-Use line to accurately record shape and proportion -Use graduated tone and mark making techniques to describe volume and texture -Create effective compositions by carefully considering the layout of their subject -Use a camera to record a subject with emphasis on technical ability -Record their thoughts and ideas as work develops using subject specific language -Demonstrate skill in recording observations from a variety of relevant sources and show intentions effectively Students will explore and select appropriate resources, media, materials, techniques and processes. They will be able to: -Use artistic processes to develop and extend ideas -Experiment with relevant combinations of media, materials, techniques, processes and compositions -Reflect on their ideas as they develop -Select the most appropriate material for the purpose of their study -Refine their handling of materials as their work progresses -Demonstrate excellent exploration of media, materials, techniques and processes, showing effective selection of relevant sources Students will develop ideas through investigation, demonstrating critical understanding. They will be able to: -Research, record and contribute verbally, their understanding of the work of other artists -Produce transcriptions to show understanding of artists' techniques and methods -Incorporate the style and traditions of their chosen artists into their own work -Use subject specific key words to analyse the work of other artists -Have used the experience of gallery visits (virtual) to contextualise their project	Coursework – 25% Students will independently be choosing a theme to base their portfolio of work. Their choice can be a response from several starting points or based on an area of their own personal interest. Students will work in accordance with the Assessment Objectives 1,2,3 and 4. Through producing observational studies, artist research and developmental studies and finally completing their final piece. The Final piece will be started and completed within the mock exam. This will support and prepare the students for the Externally Set Assignment, where they will have 15 hours to produce their final piece under exam conditions. Component 2: External Assignment (EXAM) Begins in January 25%

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	-Demonstrate excellent development of ideas through investigation, showing effective critical understanding Students will present a personal and coherent response that realises intentions and demonstrates an understanding of visual language. They will: -Produce personalised outcomes that demonstrate clear and effective connections to source materials -Show clear and confident evidence of interpretation of other artists' responses -Appreciate the importance of resolving the project with a final piece or pieces ready for exhibition -Present their work on A2 boards in preparation for external assessment -Apply visual elements as practised in earlier development stages skilfully in final outcomes Demonstrate excellent realisation of intentions, showing effective understanding of visual language.		
Computer Science	**Information and Data Representations** - Understand data representation in the context of binary and character sets. - Understand ways in which multimedia is represented through graphics and sound. - Understand the principles of data compression.	**Hardware and Virtual Machines** - Understand the purpose of computers and their components. - Be able to demonstrate a practical application of hardware and virtual machines**.** **Processor Fundamental** - Understand processor fundamentals. - Be able to demonstrate a practical application of processor fundamentals.	**System Software** - demonstrating a theoretical understanding and practical applications of operating system and language translators. - Understanding the fundamentals of system software. - Be able to demonstrate a practical application of system software. **Security, Privacy, and Data Integrity**

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	- Be able to demonstrate a practical application of information and data representations. - Understand the concepts of user-defined data types - Understand the principles of file organisation and Access - Understand floating-point numbers, representation, and manipulation **Communication and Internet Technologies** - Understand networks including the internet (Introduction to types of networks, hardware, and data transmission) - Understand different communication protocols and their purposes. - Understand the principles of circuit and packet switching		The aim of this subject content is to enable learners to demonstrate a theoretical understanding and applications of data security and data integrity. - Understand the fundamentals of security, privacy, and data integrity. **Ethics and Ownership** **Aim** - demonstrate a theoretical understanding and applications of copyright and artificial intelligence - understand the applications of ethnics and ownership.
Well-being	Unit 4 **Mental and Emotional Health: Stress management, coping strategies, self-care techniques** This unit will help learners explore various stress management techniques, such as	Unit 5 **Mindfulness Practices: Developing self-awareness and focus** The unit will begin by exploring the definition and origins of mindfulness, emphasizing its adaptation in contemporary psychology.	They are writing their AS -Level exams (1st year of A-Level studies) We focus on exam preparations and exam practice. Revision timetables. Question Analysis

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	mindfulness, meditation, and physical activity. They will also learn how to identify stressors in their lives and develop coping strategies to effectively manage and reduce stress levels. Additionally, learners will explore the importance of self-care practices, including healthy habits, relaxation techniques, and positive self-talk. Demonstrate a clear understanding of why positive relationships are important in various aspects of their lives, such as personal relationships, professional relationships, and social connections. Topic 2 Career guidance. They focus on their career choices and which universities they would like to attend. They have practise interviews for these universities. Topic 3 Writing personal statements for UCAS and universities.	Learners will learn about the key principles of mindfulness, such as living in the present moment, non-judgmental awareness, and acceptance of oneself and others. Explore the role of an individual's thoughts, emotions, and reactions in various situations. Unit 6 **Building Resilience - Developing healthy habits, fostering positive relationships** This unit aims to equip learners with the necessary skills and knowledge to navigate the challenges of daily life with confidence and resilience. Learners will learn about the importance of maintaining a balanced lifestyle, including regular exercise, healthy eating habits, and adequate sleep. They will explore the impact of these habits on their physical and mental well-being, as well as their ability to cope with stress and adversity. This unit will also emphasize the importance of fostering positive relationships. Learners will learn how to communicate effectively, resolve conflicts peacefully, and build strong, supportive relationships with their peers and family members. They will also explore the	Exam conditions (how to handle different exam situations.

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		role of empathy, understanding, and compassion in creating meaningful connections with others. Explore ways of building resilience through healthy habits and fostering positive relationships	