

Year 11 & 12 TSFX Winter School 2020

What Will be Addressed at the Unit 2 & Unit 4 Head Start Lectures?

Accounting (Unit 4)

Topics include: Treatment of non-current assets involving cash acquisition, different depreciation methods and disposal. Revenues and expenses for accruals and prepayments, treatment of doubtful debts and bad debts, the preparation of Balance Sheets, Income and Cash Flow Statements, evaluating profitability, liquidity, efficiency and stability of a business.

Biology (Unit 4)

Topics include: Changes in the genetic makeup of a population, changes in biodiversity over time, determining relatedness between species, human change over time, DNA manipulation, biological knowledge and society and the Practical Investigation.

Business Management (Unit 4)

Topics include: Business change; key performance indicators (KPIs) as sources for change and driving and restraining forces; Theories on change (Lewin and Porter); leadership in change management; management strategies to respond to KPI's; the need to review KPI's during a period of change and corporate social responsibility.

Chemistry (Unit 2)

Topics include: Structure, bonding and properties of water, solubility tables and curves, specific heat capacity, latent heat, writing balanced equations, gravimetric, acid-base and redox reactions, concentration and unit conversions, the pH scale and colorimetry.

Chemistry (Unit 4)

Topics include: IR and NMR spectroscopy, acid-base and redox titrations, properties and reactions of key organic families, IUPAC naming, structural isomers, reaction pathways, structure and bonding of the major biochemical groups, enzymes, food and calorimetry.

English (Unit 2)

Topics include: Reading and Comparing Texts: You will explore the ways authors convey ideas, issues and themes in texts and the features of comparative analysis. Analysing and Presenting Argument: Learn how to dissect and analyse the ways authors try to influence audiences (including logic, reasoning and persuasive language) and how to write controlled, high quality responses that present arguments and points of view that employ language specific to the assessment criteria.

English (Unit 4)

Part 1: Writing Comparative Text Responses

This lecture will focus on the mechanics of writing sophisticated, high grade comparative text responses. You will discover what the assessors are looking for, investigate tools for comparative analyses, learn how to unpack and respond to the different types of comparative prompts in the exams, and cover the questions that should be considered when comparing texts. The features of comparative analysis: structure, conventions and language, including relevant metalanguage will also be discussed. A detailed foolproof checklist will be provided to students. We strongly recommend that students attending Part 2 also attend this lecture.

Part 2: Analysis of Text Pairs

You will explore the meaningful connections between your chosen pair of texts, and compare the features of the texts on which comparisons are based, while learning how to correctly use textual evidence to support comparative analysis. We will discuss important similarities and differences, and explore how the texts deal with similar or related ideas or themes from different perspectives to reflect particular values. You will also learn how to analyse the interplay between character and setting, voice and structure, and how ideas, issues and themes are conveyed.

Health & Human Development (Unit 4)

Topics include: Health, well-being and human development in a Global context, factors

contributing to global health inequalities and burden of disease differences across the globe, changes in burden of disease over time, sustainability, human development, health implications of; globalisation, climate change, digital technologies, world trade and mass migration, global action to improve health by focusing on the work of the WHO and UN's Sustainable Development Goals.

Legal Studies (Unit 4)

Topics include: Law-making by parliament and courts; division of law-making power; the Australian Constitution and its role as a check on law-making; the role of the High Court; changing law-making powers and protecting rights; statutory interpretation; factors affecting parliament and courts in lawmaking; sources of law reform including the VLRC, Royal Commissions and parliamentary committees.

Maths Methods (Unit 2)

Topics include: Exponential, logarithmic, circular and inverse functions, finding derivatives by rule and by first principles, applications in differentiation, integration techniques and definite integrals.

Maths Methods (Unit 4)

Topics include: Anti-differentiation techniques, integration by recognition, definite integrals, areas under and between curves, the probability, mean, median, variance and standard deviation for binomial and normal distributions.

Physics (Unit 4)

Topics include: Waves and their properties, wave interactions and standing waves. The development of the wave theory for light and the photon model (including Young's double slit experiment, Planck's and de Broglie's work), wave interference and diffraction, photoelectric effect, matter waves, atomic absorption and emission spectra, energy levels and the photon model for light. The quantum nature of light and Heisenberg's Uncertainty Principle.

Psychology (Unit 4)

Topics include: The nature of consciousness, the importance of sleep, effects of sleep disturbances and possible treatments, defining mental health, application of a biopsychosocial approach to explain specific phobia, maintenance of mental health, and a practical investigation based on research methodologies.

Specialist Maths (Unit 4)

Topics include: Setting up, solving and verifying solutions of differential equations, direction (slope) fields, Euler's method (first-order approximation), kinematics, vector calculus and Newtonian mechanics.



Year 11 & 12 TSFX Winter School 2020

What Will be Addressed at the Unit 3 Exam Revision Lectures?

Accounting (Unit 3)

Topics include: The application of Accounting Assumptions and Qualitative Characteristics to recording and reporting financial information. The double entry recording of cash and credit transactions into the General Journal and Ledger accounts, including the GST Clearing ledger. Inventory recording using the FIFO and Identified Cost methods, distinguishing between product and period costs and the application of the Lower of Cost and Net Realisable Value rule. Preparing the Income Statement, Balance Sheet and Statements of Cash Flows. Ethical considerations and financial analysis.

Biology (Unit 3)

Topics include: Plasma membranes, nucleic acids and proteins, gene structure and regulation, structure and regulation of biochemical pathways, photosynthesis, cellular respiration, cellular signals, responding to antigens and immunity.

Business Management (Unit 3)

Topics include: Businesses and their objectives; stakeholders; management responsibilities, styles and skills, corporate culture; managing employees and business objectives; motivation theories and strategies; training, performance management, termination, workplace relations and dispute resolution; the link between managing operations and business objectives; operations systems and strategies; corporate social responsibility and global considerations in operations management.

Chemistry (Unit 3)

Topics include: Fossil fuels, biofuels, energy transformations, enthalpy, thermochemical equations, the Universal Gas Equation, comparison of fuels, stoichiometry of combustion reactions, specific heat capacity of water, galvanic, fuel and electrolytic cells, reaction rates and equilibrium.

English (Unit 3)

Part 1: Analysing Argument in Exams

You will extend on your ability to dissect and present your analysis about how points of view are presented and learn how to write controlled, high quality responses which present arguments and points of view using language that is specific to the exam assessment criteria.

Part 2: A+ Exam Text Responses

You will refine the skills you've developed in Area of Study 1 – Reading & Creating Texts and perfect the art of writing structured and sophisticated arguments that use detailed analysis of the key elements of text.

Part 3: Individual Text Analysis Lectures

Each 2 hour session will explore the context, themes, plots, characters, settings and language style of each individual text. You will also be shown how to use specific evidence from the text in your response, and participate in a detailed examination of all key passages of the text.

Further Maths (Unit 3)

Topics include: Data analysis (data distributions two variable associations, modelling linear associations and time series data). Recursion and financial modelling (using first-order linear recurrence relations to model, analyse and solve problems involving appreciation, depreciation, compound interest investments and loans, reducing balance loans, annuities, perpetuities and annuity investments).

Health & Human Development (Unit 3)

Topics include: The complex, dynamic and global nature of health and wellbeing, Australia's health status data, variations in health status, changes to public health approaches, improvements in population health over time and an evaluation of health promotion strategies.

Legal Studies (Unit 3)

Topics include: Principles of justice; Victorian criminal and civil justice systems; court hierarchy; responsibilities of key personnel in trials; the rights of the accused and victims; referendums; pre-trial procedures; sanctions and remedies; dispute resolution methods; factors that affect the ability of justice systems to achieve the principles of justice; reforms to the criminal and civil justice systems.

Maths Methods (Unit 3)

Topics include: Solving systems of simultaneous linear equations with infinite, unique or no solutions, transformations and graphs of harder functions, functional equations, circular, exponential, logarithmic and inverse functions, sums, differences, products and composite functions, differentiation techniques and select applications in differentiation.

Physical Education (Unit 3)

Topics include: Development and refinement of movement skills through the application of biomechanical and skill acquisition principles, systems and mechanisms associated with the production of energy, factors contributing to fatigue and recovery strategies used to return to pre-exercise conditions.

Physics (Unit 3)

Topics include: Straight-line, projectile, circular and orbital motion; inclined planes; Newton's Laws of Motion; momentum and impulse; kinetic, gravitational and elastic potential energy; special relativity; electrical, magnetic and gravitational fields; generation, transmission and use of electricity; electric motors, generators, alternators and transformers; magnetic forces, induced voltage (Faraday's Law), transformers, power loss, DC motors and generators.

Psychology (Unit 3)

Topics include: Nervous system functioning, stress as an example of a psychobiological process, the neural basis of learning and memory, models to explain learning, the process of memory, the reliability of memory and research methodologies.

Specialist Maths (Unit 3)

Topics include: Restricted circular functions and their inverses; reciprocal, absolute value, rational and other simple quotient functions; partial fractions; complex numbers; vectors (algebra, linear dependence and independence, resolving vectors into rectangular components and vector proofs), advanced calculus techniques and applications.



“
Getting another perspective on challenging concepts really helped me understand them in ways that I wouldn't at school.
Student – Xavier College
”