

# Year 11 & 12 TSFX Winter School 2019

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

### Accounting (Unit 4) - New Course

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 & society & the Practical Investigation.

### Business Management (Unit 4)

Topics include: Business change; key performance indicators (KPIs) as sources for change & driving & restraining forces; Theories on change (Lewin, Porter & Senge); leadership in change management; employee resistance; change & stakeholders & corporate social responsibility.

### Chemistry (Unit 2)

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

### Chemistry (Unit 4)

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

### English (Unit 2)

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

### English (Unit 4)

The Unit 4 English lectures focus on Area of Study 1 – Reading & Comparing Texts. You will explore the meaningful connections between your chosen pair of texts, & 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 & differences, & 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 & setting, voice & structure, & how ideas, issues & themes are conveyed. The features of comparative analysis: structure, conventions & language, including relevant metalanguage will also be discussed.

### Health & Human Development (Unit 4)

Topics include: Health, wellbeing & human development in a global context, how factors such as physical conditions, socio-economics, sustainability, globalisation & climate change contribute to health, global action to improve global health by Governments & non-Government organisations (UN & WHO) & Sustainable Development Goals.

### Legal Studies (Unit 4)

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

### Maths Methods (Unit 2)

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

**"TSFX is fantastic, I don't know how I would have made it through Year 12 without them."**

Student, Firkbank Grammar School

### Maths Methods (Unit 4)

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

### Physics (Unit 4)

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

### Psychology (Unit 4)

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

### Specialist Maths (Unit 4)

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



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

### Accounting (Unit 3) - New Course

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 & proteins, gene structure & regulation, structure & regulation of biochemical pathways, photosynthesis, cellular respiration, cellular signals, responding to antigens & immunity.

### Business Management (Unit 3)

Topics include: Businesses & their objectives; stakeholders; management responsibilities, styles & skills, corporate culture; managing employees & business objectives; motivation theories & strategies; training, performance management, termination, workplace relations & dispute resolution; the link between managing operations & business objectives; operations systems & strategies; corporate social responsibility & 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 & electrolytic cells, reaction rates & equilibrium.

### English (Unit 3)

These important lectures will focus on the skills & techniques you'll need to achieve high marks in the Unit 3 component of the VCAA examination. You'll also be shown how to add "flair" to your writing so your exam responses stand out above student papers.

#### Part 1: Analysing Argument in the Exams

You will extend on your ability to dissect & present your analysis about how points of view are presented & learn how to write controlled, high quality responses which present arguments & 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 & perfect the art of writing structured & 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 & language style of each individual text. You will also be shown how to use specific evidence from the

text in your response, & 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 & time series data). Recursion & financial modelling (using first-order linear recurrence relations to model, analyse & solve problems involving appreciation, depreciation, compound interest investments & loans, reducing balance loans, annuities, perpetuities & annuity investments).

### Health & Human Development (Unit 3)

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

### Legal Studies (Unit 3)

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

### Maths Methods (Unit 3)

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

techniques & select applications in differentiation.

### Physical Education (Unit 3)

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

### Physics (Unit 3)

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

### Psychology (Unit 3)

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

### Specialist Maths (Unit 3)

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



**"An excellent and thorough presentation and set of notes! I feel like I've been armed with a secret weapon for exams."**

Student – Braemar College