

# 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.

