

VICTORIAN CERTIFICATE OF EDUCATION (VCE)
Subject Outline Booklet



BAYSWATER
SECONDARY COLLEGE

VCE SUBJECT DESCRIPTIONS

Biology

Biology is the study of living things from familiar, complex multicellular organisms that live in the many different habitats of our biosphere to single celled micro-organisms that live in seemingly inhospitable conditions. It is a study of the dynamic relationships between living things, and their environment and the challenges of survival.

Unit 1: Unity and diversity

In this unit students study the activities of cells and their structure and function at light and electron microscope levels. The composition of cells and cell replication is linked to type, cell growth and size division. The transport processes across plasma membranes is investigated.

Outcome 1

On completion of this unit the student should be able to design, conduct and report on a practical investigation related to cellular structure, organisation and processes.

Outcome 2

On completion of this unit the student should be able to describe and explain the relationship between features and requirements of functioning organisms and how these are used to construct taxonomic systems.

Unit 2: Organisms and their environment

In this unit students study environmental factors common to all habitats and investigate structural and physiological adaptations of organisms to particular ecological niches. Plant growth responses are also investigated. Behavioural and reproductive adaptations are used to study individual and group behaviour of animals.

Outcome 1

On completion of this unit the student should be able to explain and analyse the relationship between environmental factors, and adaptations and distribution of living things.

Outcome 2

On completion of this unit the student should be able to design, conduct and report on a field investigation related to the interactions between living things and their environment, and explain how ecosystems change over time

Assessment Tasks

- Cell specialisation presentation
- Practical Activities
- Written Tests
- Exam

Unit 3: Signatures of life

Students investigate the significant role of proteins in cell functioning. They explore how technological advances have provided improved knowledge and understanding of the roles proteins play in cell functions. The study of the structure and function of DNA and RNA leads students to investigate the diversity of proteins.



Outcome 1

On completion of this unit the student should be able to analyse and evaluate evidence from practical investigations related to biochemical processes.

Outcome 2

On completion of this unit the student should be able to describe and explain coordination and regulation of an organism's immune responses to antigens at the molecular level.

Unit 4: Continuity and change

In this unit students focus on molecular genetics and investigate individual units of inheritance and the genomes of individuals and species. A study of asexually reproducing and sexually reproducing organisms is included. Students undertake practical investigations that involve the manipulation of DNA and inheritance traits.

Outcome 1

On completion of this unit the student should be able to analyse evidence for the molecular basis of heredity, and patterns of inheritance.

Outcome 2

On completion of this unit the student should be able to analyse and evaluate evidence for evolutionary change and evolutionary relationships, and describe mechanisms for change including the effect of human intervention on evolutionary processes.

Assessment Tasks

- Written report on a practical activity on the movement of a substance across a membrane.
- A summary report of a practical activity related to biochemical process.
- A summary report of a plant or animal response to chemical and/or physical stimuli.
- An oral presentation of one aspect of an immune response.
- A summary report of a practical activity related to a genetic cross using first hand data.
- A summary report of a practical activity on a DNA manipulation technique.
- A written report that demonstrates evolutionary relationships using second hand data.
- A written response to an issue related to an application or gene technology.

Business Management

Business Management examines the ways in which people at various levels within a business organisation manage resources to achieve the objectives of the organisation. Students develop an understanding of the challenges, complexity and rewards that come from business management and gain insight into the various ways resources can be managed in small, medium and large-scale organisations.

Unit 1: Small business management

Small rather than large businesses make up the vast majority of all businesses in the Australian economy. This unit provides students with the opportunity to explore the operations of a small business and its likelihood of success.

Outcome 1

On completion of this unit the student should be able to explain and apply a set of generic business concepts to a range of businesses.



Outcome 2

On completion of this unit the student should be able to apply decision-making and planning skills and evaluate the successful management of an ethical and socially responsible small business.

Outcome 3

On completion of this unit the student should be able to explain and apply the day-to-day activities associated with the ethical and socially responsible operation of a small business.

Unit 2: Communication and management

This unit focuses on the importance of effective communication in achieving business objectives. Students develop knowledge of fundamental aspects of business communication and are introduced to skills related to its effective use in different contexts.

Outcome 1

On completion of this unit the student should be able to explain and apply a range of effective communication methods and forms in business-related situations.

Outcome 2

On completion of this unit the student should be able to apply and analyse effective marketing strategies and processes.

Outcome 3

On completion of this unit the student should be able to apply and analyse effective public relations strategies and tactics.

Assessment Tasks

• Examination and analysis of the characteristics, objectives, performance indicators, sources of support and social responsibility. • The effective planning, operation and evaluation of a school based business with the development of a comprehensive business plan. • Analysis of a case study relating to managing ICT • Communication: Analysis brochure • Marketing: Boardroom presentation on the 4p's of marketing • Public Relations: Campaign Kit

Unit 3: Corporate management

In this unit students investigate how large-scale organisations operate. They develop an understanding of the complexity and challenge of managing large organisations and have the opportunity to compare theoretical perspectives with practical applications.

Outcome 1

On completion of this unit the student should be able to describe and analyse the context in which large-scale organisations operate.

Outcome 2

On completion of this unit the student should be able to describe and analyse major aspects of the internal environment of large-scale organisations.

Outcome 3

On completion of this unit the student should be able to identify and evaluate practices and processes related to operations management.



Unit 4: Managing people and change

This unit commences with a focus on the human resource management function. It then progresses to the analysis of the management of change. Students learn about key change management processes and strategies and are provided with the opportunity to apply these to a contemporary issue of significance.

Outcome 1

On completion of this unit the student should be able to identify and evaluate practices and processes related to human resource management.

Outcome 2

On completion of this unit the student should be able to analyse and evaluate the management of change in large-scale organisations.

Assessment Tasks

- Variety of Case Studies
- Tests
- Revision Summary sheets

Computing Informatics

Computing informatics focuses on the application of a problem-solving methodology, and strategies and techniques for managing information systems in a range of contexts, to create digital solutions that meet specific needs. The study examines the attributes of each component of an information system including people, processes, data and digital systems (hardware, software, networks) and how their interrelationships affect the type and quality of digital solutions.

Unit 1: Computing

In this unit students focus on how data, information and networked digital systems can be used to meet a range of user's current and future needs.

Outcome 1.

On completion of this unit the students should be able to acquire, secure and interpret data, and design and develop a graphic solution that communicates the findings of an investigation.

Outcome 2.

On completion of this unit students should be able to design a network with wireless capability that meets an identified need or opportunity, explain its configuration and predict risks and benefits for intended users.

Outcome 3.

On completion of this unit students should be able to design and develop a website collaboratively with others that presents an analysis of a contemporary issue and the team's point of view on the issue.

Assessment Tasks

- Variety of Case Studies
- Tests
- Revision Summary sheets

Unit 2: Computing.

In this unit students focus on data and how the application of computational, design and systems thinking skills support the creation of solutions that automate the processing of data.



Outcome 1.

On completion of this unit students should be able to design working modules in response to solution requirements and use a programming or scripting language to develop the modules.

Outcome 2.

On completion of this unit students should be able to apply the problem-solving methodology and use appropriate software tools to extract relevant data and create visualization that meets a specific user's needs.

Outcome 3.

On completion of this unit students should be able to apply the problem-solving methodology to create a solution using database management software, and explain the personal benefits and risks of interacting with a database

Unit 3: Informatics.

In Informatics Units 3 and 4 students focus on data, information and information systems. In Unit 3 students consider data and how it is acquired, managed, manipulated and interpreted to meet a range of needs.

Outcome 1.

On completion of this unit students should be able to design a solution, develop it using a relational database management system, and diagrammatically represent how users interact with an online solution when supplying data for a transaction.

Outcome 2.

On completion of this unit students should be able to use a range of appropriate techniques and processes to acquire, prepare, manipulate and interpret complex data to confirm or refute a hypothesis, and formulate a project plan to manage progress.

Unit 4: Informatics.

In this unit students focus on strategies and techniques for manipulating, managing and securing data and information to meet a range of needs.

Outcome 1.

On completion of this unit students should be able to design, develop and evaluate a multimodal online solution that confirms or refutes a hypothesis, and assess the effectiveness of a project plan in managing progress.

Outcome 2.

On completion of this unit students should be able to compare and contrast the effectiveness of information management strategies used by two organisations to manage the storage and disposal of data and information, and recommended improvements to their current practices.

Chemistry

Studying Chemistry can enrich students' lives through the development of particular knowledge, skills and attitudes, and enable them to become scientifically capable members of society. It will also provide a window on what it means to be a scientific researcher, working as a member of a community of practice, including insight into how new ideas are developed and investigated, and how evidence or data collected is used to expand knowledge and understanding of chemistry.



Unit 1: The big ideas of chemistry

The story of chemistry begins with the building of the Periodic Table from speculation, debate and experimental evidence. The Periodic Table provides a unifying framework for studying the chemistry of the elements using their chemical and physical properties to locate their position.

Outcome 1

On completion of this unit the student should be able to explain how evidence is used to develop or refine chemical ideas and knowledge.

Outcome 2

On completion of this unit the student should be able to use models of structure and bonding to explain the properties and applications of materials.

Unit 2: Environmental chemistry

Living things on earth have evolved to use water and the gases of the atmosphere in the chemical reactions that sustain them. Water is used by both plants and animals to carry out their energy-producing reactions, dissolve their nutrients and transport their wastes.

Outcome 1

On completion of this unit the student should be able to write balanced equations and apply these to qualitative and quantitative investigations of reactions involving acids and bases, the formation of precipitates and gases, and oxidants and reductants.

Outcome 2

On completion of this unit the student should be able to explain how chemical reactions and processes occurring in the atmosphere help to sustain life on earth.

Assessment Tasks

• The Periodic Table -Second hand data report / questions • 'Constructing Molecular Molecules' Summary Report • Various Experimental Reports • 'Water' Extended Experimental Investigation • Acid/Base Titration -Practical Report • Boyle's and Charles' Law -Spreadsheet Investigation

Unit 3: Chemical pathways

In this unit students investigate the scope of techniques available to the analytical chemist. Chemical analysis is vital in the work of the forensic scientist, the quality control chemist at a food manufacturing plant, the geologist in the field, and the environmental chemist monitoring the health of a waterway.

Outcome 1

On completion of this unit the student should be able to evaluate the suitability of techniques and instruments used in chemical analyses.

Outcome 2

On completion of this unit the student should be able to identify and explain the role of functional groups in organic reactions and construct reaction pathways using organic molecules.

Unit 4: Chemistry at work

In this unit students investigate the industrial production of chemicals and the energy changes associated with chemical reactions. Students will continue to investigate the



application of principles of green chemistry to chemical processes and use the language and symbols of chemistry, and chemical formulas and equations to explain observations and data collected from experiments.

Outcome 1

On completion of this unit the student should be able to analyse the factors that determine the optimum conditions used in the industrial production of the selected chemical.

Outcome 2

On completion of this unit the student should be able to analyse chemical and energy transformations occurring in chemical reactions.

English/English as an Additional Language (EAL)

English contributes to the development of literate individuals who are capable of both critical and creative thinking. It develops students' ability to create their own texts and analyse the work of others. Students will study texts from the current society and the past, using Australian texts and texts from international authors as they become confident, articulate and critically aware communicators. This study equips students for participation in a democratic society and a global community.

Unit 1

The focus of this unit is exploring how meaning is made in a text. Students will encounter two texts and must identify, discuss and analyse decisions made by the authors including structures and language. Students practice their listening and speaking skills, developing their own ideas and thinking in relation to the texts and develop an ability to respond to texts in different forms. Students must construct two texts; an analytical text that explains how texts present points of view, are influenced by culture and convey meaning and a creative text that explores how purpose and audience affect the choices they make as writers. Students then read media texts that try to influence an audience, explaining how language can be used to persuade.

Outcome 1: Reading and creating texts

On completion of this unit the student should be able to produce analytical and creative responses to texts.

Outcome 2: Analysing and presenting argument

On completion of this unit the student should be able to analyse how argument and persuasive language can be used to position audiences, and create their own texts intended to position audiences.

Unit 2

In this unit students compare the presentation of ideas, issues and themes in two different texts. They explore how features of a text, such as language, reflect and explore human experiences including historical or social contexts. Students discuss similarities and differences between texts as they explore authorial choices. In the second area of study students build on their understanding of argument. They analyse arguments presented in different texts and the use of persuasive language in texts and create their own texts intended to position audiences. In constructing arguments students focus on logical development of their own ideas and use evidence to support those ideas.



Outcome 1: Reading and comparing texts

On completion of this unit the student should be able to compare the presentation of ideas, issues and themes in two texts.

Outcome 2: Analysing and presenting argument

On completion of this unit the student should be able to identify and analyse how argument and persuasive language are used in text/s that attempt to influence an audience, and create a text which presents a point of view.

Assessment Tasks in Unit 1 and 2:

In each unit students need to complete:

- Text response essay
- Creative piece
- Language analysis essay
- Persuasive oral on a current issue in the Australian media
- Three-hour examination:
- Analytical response to one of the texts studied in Unit 3
- Analytical response to one of the texts studied in Unit 4
- Analysis of persuasive language used in an unseen text/s

Unit 3

The focus of this unit is on reading and responding to a range of texts. Students identify, discuss and analyse how the authors of texts create meaning and the different ways in which texts can be interpreted. They will develop and justify their own interpretations of texts and prepare analytical interpretations of the text. Students also present sustained creative responses to selected texts, demonstrating an understanding of how texts construct meaning. They should explore purpose and purpose and make choices about structure and language, developing a narrative voice. Students analyse and compare the use of argument and language in texts that debate a topical issue. They should read and view a variety of forms, including print and non-print and develop their understanding of how language is used to position a reader. Students compare different written texts presenting arguments on a similar issue.

Outcome 1: Reading and creating texts

On completion of this unit the student should be able to produce an analytical interpretation of a selected text, and a creative response to a different selected text.

Outcome 2: Analysing argument

On completion of this unit the student should be able to analyse and compare the use of argument and persuasive language in texts that present a point of view on an issue currently debated in the media.

Outcome 3 (EAL only): Listening to texts

On completion of this unit the student should be able to comprehend a spoken text.

Unit 3 Assessment Tasks: English

- Outcome 1: Analysis of text in written form
- Outcome 1: Creative response to text in written form with a written explanation of decisions made and how they demonstrate an understanding of the text
- Outcome 2: An analysis of the use of language in two-three persuasive texts that address an issue in the Australian media, at least one of which includes a visual

Unit 3 Assessment Tasks: English as an Additional Language (EAL)

- Outcome 1: Analysis of text in written form OR Creative response to text in written form with a written explanation of decisions made and how they demonstrate an understanding of the text
- Outcome 2: Short answer responses and an analysis and comparison of the use of language in two-three persuasive texts that address an issue in the Australian media, at least one of which includes a visual
- Outcome 3: Short answer responses to a spoken text



Unit 4

In this unit students explore the connections between two texts, comparing them to gain a deeper understanding of the ideas, issues and themes that reflect the world. Students discuss similarities and differences between texts as they explore authorial choices. Students build their understanding of the construction of texts that attempt to influence audience. They use their knowledge of argument and persuasive language to construct their own persuasive texts in response to an issue that has appeared in the Australian media. Students will develop and present an oral presentation to position an audience.

Outcome 1: Reading and comparing

On completion of this unit the student should be able to produce a detailed comparison which analyses how two selected texts present ideas, issues and themes.

Outcome 2: Presenting argument

On completion of this unit the student should be able to construct a sustained and reasoned point of view on an issue currently debated in the media.

Unit 4 Assessment Tasks:

- Outcome 1: A detailed comparison of two set texts in written form
- Outcome 2: Persuasive oral on a current issue in the Australian media
- Outcome 2: Written statement of intention to accompany oral presentation
- English end of year examination (three hours)
- Analytical response to one of the texts studied in Unit 3
- Analytical response to one of the texts studied in Unit 4
- Analysis of persuasive language used in an unseen text/s
- EAL end of year examination (three hours)
- Analytical response to one of the texts studied in Unit 3
- Analysis of persuasive language used in an unseen text/s (modified for EAL)
- Listening to texts assessment based on comprehension of unfamiliar spoken texts

Health and Human Development

The study of Health and Human Development provides an opportunity for students to investigate health and human development issues across the lifespan. Students will develop the knowledge, attitudes, values and skills to become actively involved in shaping the influences that determine their own health and development, and the health of their local and global communities.

Unit 1: The health and development of Australia's youth

In this unit students identify issues that impact on the health and individual human development of Australia's youth. Students investigate one health issue in detail and analyse personal, community and government strategies or programs that affect youth health and individual human development.

Outcome 1

On completion of this unit the student should be able to describe the dimensions of, and the inter-relationships within and between, health and individual human development.

Outcome 2

On completion of this unit the student should be able to describe and explain the factors that impact on the health and individual human development of Australia's youth.



Outcome 3

On completion of this unit the student should be able to outline health issues relevant to Australia's youth and, in relation to a specific health issue, analyse strategies or programs that have an impact on youth health and development.

Unit 2: Individual human development and health issues

In this unit students develop an understanding of the health and individual human development of Australia's children. Students study the period from conception to late childhood, as well as the social, emotional and intellectual changes that occur from birth. They also study the individual human development of Australia's adults, including the elderly. They also investigate a variety of health issues which can include human rights and ethics, medical technology, complementary and/or alternative health services, environmental health and the ageing population.

Outcome 1

On completion of this unit the student should be able to describe and explain the factors that affect the health and individual human development of Australia's children.

Outcome 2

On completion of this unit the student should be able to describe and explain the factors that affect the health and individual human development of Australia's adults.

Outcome 3

On completion of this unit the student should be able to analyse a selected health issue facing Australia's health system, and evaluate community and/or government actions that may address the issue.

Assessment Tasks

• Case study for health and development • Written Tests • Case study on challenges that face youth • Data analysis • Exam

Unit 3: Australia's Health

In this unit, students develop an understanding of the health status of Australians by investigating the burden of disease and the health of population groups in Australia. Students examine different models of health and health promotion. They investigate the roles and responsibilities of governments in addressing health needs and promoting health for all through the provision of a national health system and health promotion initiatives.

Outcome 1

On completion of this unit the student should be able to compare the health status of Australia's population with other developed countries, explain variations in health status of population groups in Australia and discuss the role of the National Health Priority Areas in improving Australia's health status.

Outcome 2

On completion of this unit the student should be able to discuss and analyse approaches to health and health promotion, and describe Australia's health system and the different roles of government and non-government organisations in promoting health.



Unit 4: Global health and human development

This unit focuses on the developmental changes that occur as individuals move through the lifespan as well as an exploration of inherited factors that determine developmental potential. There is an analysis of the impact of a range of environmental factors that contribute to variations in health and developmental outcomes both between and within industrialised and developing countries.

Outcome 1

On completion of this unit the student should be able to analyse factors contributing to variations in health status between Australia and developing countries, evaluate progress towards the United Nations' Millennium Development Goals and describe the interrelationships between health, human development and sustainability.

Outcome 2

On completion of this unit the student should be able to describe and evaluate programs implemented by international and Australian government and non-government organisations in promoting health, human development and sustainability.

Legal Studies

Legal Studies provides students with an analytical evaluation of the processes of law-making and the methods of dispute resolution. Students are able to develop an understanding of the impact our legal system has upon the lives of citizens and the implications of legal decisions on the Australian society.

Unit 1: Criminal law and justice

This unit explores the distinction between legal and non-legal rules, the Victorian court hierarchy, and the process of making laws through parliament. It focuses on the role of police, their powers of investigation, the procedures of a criminal trial and an examination of possible sanctions that are available to the criminal courts

Outcome 1

On completion of this unit the student should be able to explain the principles of criminal law and apply them to one or more cases to justify a decision.

Outcome 2

On completion of this unit the student should be able to evaluate the processes for the resolution of criminal disputes and analyse the capacity of these processes to achieve justice.

Unit 2: Civil law and the law in focus

This unit focuses on the effective resolution of civil disputes. It looks at the processes and procedures involved in civil litigation and the possible defenses to civil claims within our legal system available to enforce the civil rights of our citizens. As well as the judicial procedure to resolve civil disputes, the unit also investigates the alternative avenues of dispute resolution and their effectiveness.

Outcome 1

On completion of this unit the student should be able to explain the principles of civil law and be able to apply them to one or more real or hypothetical cases to justify a decision.



Outcome 2

On completion of this unit the student should be able to evaluate the processes for the resolution of civil disputes and analyse the capacity of these processes to achieve justice.

Outcome 3

On completion of this unit the student should be able to analyse contemporary Australian law and assess its ability to reconcile and reflect conflicting attitudes in order to meet the needs of Australian society and contribute to social cohesion.

Assessment Tasks

Some assessment tasks include: • SACs on topics including the principles of criminal law, technology and the law and civil and criminal law in action • Victorian Court visit report • Class tests • Exams

Unit 3: Law-making

The purpose of this unit is to enable students to develop an understanding of the institutions that determine laws and the processes by which laws are made. It considers reasons why laws are necessary and the impact of the Commonwealth Constitution on the operation of the legal system.

Outcome 1

On completion of this unit the student should be able to describe the role and effectiveness of parliament as a law making body, evaluate the need for change in the law and analyse the ways in which change can be influenced.

Outcome 2

On completion of this unit the student should be able to explain the role of the Commonwealth Constitution in defining law-making powers within a federal structure, and evaluate the effectiveness of the Commonwealth Constitution in protecting democratic and human rights.

Outcome 3

On completion of this unit the student should be able to describe the role and evaluate the effectiveness of the courts in law-making and their relationship with parliament.

Unit 4: Dispute resolution

This unit explores the function and jurisdiction of the courts, tribunals and alternative avenues of dispute resolution with a view to comparing and evaluating the operation of the various dispute resolution methods. Students develop an understanding of criminal and civil pre-trial and trial processes and procedures which operate within the Victorian legal system.

Outcome 1

On completion of this unit the student should be able to describe and evaluate the effectiveness of institutions for the resolution of civil disputes and the adjudication of criminal cases and of alternative dispute resolution methods.

Outcome 2

On completion of this unit the student should be able to explain the elements of an effective legal system, and evaluate the processes and procedures for the resolution of criminal cases and civil disputes and discuss their effectiveness.



Assessment Tasks

- Short Answer Test • Folio Exercise • Structured Questions • Extended Response Test

Mathematics

Mathematics is the study of function and pattern in number logic, space and structure. Students will apply mathematical skills to solve standard problems; use mathematics when dealing with real life situations and use technology to support their learning.

Units 1 & 2: Units 3 & 4:

General Mathematics – Further Further Mathematics General Mathematics – Methods
Mathematical Methods General Mathematics – Specialist Specialist Mathematics
General Mathematics –Further

These units are intended for a wide range of students who require a Year 11 Maths or intend to study Further Mathematics at Unit 3 & 4.

Unit 1:

Topics include univariate statistics, algebraic techniques, linear functions and matrices.

Outcome 1

On completion of each unit the student should be able to define and explain key concepts in relation to the topics from the selected areas of study, and apply a range of related mathematical routines and procedures.

Outcome 2

On completion of each unit the student should be able to apply mathematical processes in non-routine contexts, and analyse and discuss these applications of mathematics in at least three areas of study.

Outcome 3

On completion of each unit the student should be able to use technology to produce results and carry out analysis in situations requiring problem-solving, modelling or investigative techniques or approaches in at least three areas of study.

Unit 2:

Topics include bivariate statistics, financial mathematics and trigonometry.

Outcome 1

On completion of each unit the student should be able to define and explain key concepts in relation to the topics from the selected areas of study, and apply a range of related mathematical routines and procedures.

Outcome 2

On completion of each unit the student should be able to apply mathematical processes in non-routine contexts, and analyse and discuss these applications of mathematics in at least three areas of study.

Outcome 3

On completion of each unit the student should be able to use technology to produce results and carry out analysis in situations requiring problem-solving, modelling or investigative techniques or approaches in at least three areas of study.



Assessment Tasks

• Univariate Test • Bivariate Statistics Test • Algebraic Techniques Test • Financial Statistics Analysis Task • Linear Functions Test • Trigonometry Test • Matrices Test

Further Mathematics consists of a compulsory area of study 'Data Analysis' and then a selection of three from five modules in the 'Applications' area of study. The topics for the five modules include number patterns and applications, geometry and trigonometry, graphs and relations, business related mathematics, networks and decision mathematics.

Unit 3

Outcome 1

On completion of this unit the student should be able to define and explain key terms and concepts as specified in the content from the areas of study, and use this knowledge to apply related mathematical procedures to solve routine application problems.

Outcome 2

On completion of this unit the student should be able to use mathematical concepts and skills developed in the 'Data analysis' area of study to analyse a practical and extended situation, and interpret and discuss the outcomes of this analysis in relation to key features of that situation.

Outcome 3

On completion of this unit the student should be able to select and appropriately use technology to develop mathematical ideas, produce results and carry out analysis in situations requiring problem-solving, modelling or investigative techniques or approaches in the area of study 'Data analysis' and the selected module from the 'Applications' area of study.

Unit 4

Outcome 1

On completion of this unit the student should be able to define and explain key terms and concepts as specified in the content from the 'Applications' area of study, and use this knowledge to apply related mathematical procedures to solve routine application problems.

Outcome 2

On completion of this unit the student should be able to apply mathematical processes in contexts related to the 'Applications' area of study, and analyse and discuss these applications of mathematics.

Mathematical Methods

These units are designed to introduce students to mathematical structure in a closely sequenced development of topics. Units 3 & 4 will follow directly from Units 1 & 2 and may be taken alone or together with other mathematics subjects.

Unit 1& 2:

The areas of study for Unit 1 and Unit 2 of General Mathematics are 'Arithmetic', 'Data analysis and simulation', 'Algebra', 'Graphs of linear and non-linear relations', 'Decision and business mathematics' and 'Geometry and trigonometry'.

Outcome 1



On completion of each unit the student should be able to define and explain key concepts as specified in the content from the areas of study, and apply a range of related mathematical routines and procedures.

Outcome 2

On completion of each unit the student should be able to apply mathematical processes in non-routine contexts, and analyse and discuss these applications of mathematics.

Outcome 3

On completion of each unit the student should be able to use technology to produce results and carry out analysis in situations requiring problem-solving, modelling or investigative techniques or approaches.

Assessment Tasks

• Linear Functions assignment • Quadratic Functions test • Cubic Functions test • Exam

Units 3 & 4: Mathematical Methods

Topics include coordinate geometry, circular (trigonometric) functions, calculus, algebra, statistics and probability.

Outcome 1

On completion of each unit the student should be able to define and explain key concepts as specified in the content from the areas of study, and apply a range of related mathematical routines and procedures.

Outcome 2

On completion of each unit the student should be able to apply mathematical processes in non-routine contexts, and analyse and discuss these applications of mathematics.

Outcome 3

On completion of each unit the student should be able to select and appropriately use technology to develop mathematical ideas, produce results and carry out analysis in situations requiring problem-solving, modelling or investigative techniques or approaches.

Physical Education

VCE Physical Education explores the complex interrelationships between anatomical, biomechanical, physiological and skill acquisition principles to understand their role in producing and refining movement, and examines behavioural, psychological, environmental and sociocultural influences on performance and participation in physical activity.

Unit 1: The human body in motion

Outcome 1

On completion of this unit students should be able to collect and analyse information from, and participate in, a variety of practical activities to explain how the musculoskeletal system functions and its limiting conditions, and evaluate the ethical and performance implications of the use of practices and substances that enhance human movement.



Outcome 2.

On completion of this unit students should be able to collect and analyse information from, and participate in, a variety of practical activities to explain how the cardiovascular and respiratory systems function and the limiting conditions of each system, and discuss the ethical and performance implications of the use of practices and substances to enhance the performance of these two systems.

Unit 2: Physical activity, sport and society

Outcome 1.

On completion of this unit students should be able to collect and analyse data related to individual and population levels of participation in physical activity and sedentary behaviour to create, undertake and evaluate an activity plan that meets the physical activity and sedentary behaviour guidelines for an individual or specific group.

Outcome 2.

On completion of this unit students should be able to apply a social-ecological framework to research, analyse and evaluate a contemporary issue associated with participation in physical activity and/or sport in local, national or global setting

Unit 3: Movement skills and energy for physical activity

Outcome 1

Collect and analyse information from, and participate in, a variety of practical activities to develop and refine movement skills from a coaching perspective, through the application of biomechanical and skill acquisition principles.

Outcome 2

Use data collected in practical activities to analyse how the major body and energy systems work together to enable movements to occur, and explain the factors causing fatigue and suitable recovery strategies.

Unit 4: Training to improve performance

Outcome 1

Analyse data from an activity analysis and fitness tests to determine and assess the fitness components and energy system requirements of the activity.

Outcome 2

Participate in a variety of training methods, and design and evaluate training programs to enhance specific fitness components.

Psychology

Psychology explores the complex interactions between biological, psychological and social factors that influence human behavior, thought and emotions. Students apply their learning to everyday situations such as the workplace and gain insight into psychological health issues within society. Students also develop a range of inquiry skills involving practical experimentation and research as they use scientific and cognitive skills to analyse contemporary psychology-related issues and communicate their findings. As well as increased understanding of scientific processes, students develop capacities that enable them to critically assess the strengths and limitations of science and gain an awareness of the ethical, social and political context of scientific endeavours.

Unit 1: How are behavior and mental processes shaped?



In this unit students investigate the structure and functioning of the human brain and the role it plays in the overall functioning of the human nervous system. Students explore brain plasticity and the influence that brain damage may have on a person's psychological functioning. They consider the complex nature of psychological development, including situations where psychological development may not occur as expected. Students examine the contribution that classical and contemporary studies have made to an understanding of the human brain and its functions, and to the development of different psychological models and theories used to predict and explain the development of thoughts, feelings and behaviours. A student-directed research investigation related to brain function and/or development is undertaken in this unit.

Outcome 1: How does the brain function?

On completion of this unit the student should be able to describe how understanding of brain structure and function has changed over time, explain how different areas of the brain coordinate different functions, and explain how brain plasticity and brain damage can change psychological functioning.

Outcome 2: What influences psychological development?

On completion of this unit the student should be able to identify the varying influences of nature and nurture on a person's psychological development, and explain different factors that may lead to typical or atypical psychological development.

Outcome 3: Student-directed research investigation

Students analyse the scientific evidence that underpins the research in response to a question of interest. They then communicate the findings of their research investigation and explain the psychological concepts, outline contemporary research and present conclusions based on the evidence.

Unit 2: How do external factors influence behavior and mental processes?

In this unit students investigate how perception of stimuli enables a person to interact with the world around them and how their perception of stimuli can be distorted, looking at taste and sight. They evaluate the role social cognition plays in a person's attitudes, perception of themselves and relationships with others. Students explore a variety of factors and contexts that can influence the behaviour of an individual and groups.

Outcome 1: What influences a person's perception of the world?

On completion of this unit the student should be able to compare the sensations and perceptions of vision and taste, and analyse factors that may lead to the occurrence of perceptual distortions.

Outcome 2: How are people influenced to behave in certain ways?

On completion of this unit the student should be able to identify factors that influence individuals to behave in specific ways, and analyse ways in which others can influence individuals to behave differently.

Outcome 3: Student-directed practical investigation

On completion of this unit the student should be able to design and undertake a practical investigation related to external influences on behaviour, and draw conclusions based on evidence from collected data.

Assessment Tasks in Unit 1 and 2:



In each unit students need to complete: • logbook of activities • tests comprising of multiple choice, short answer and extended response • investigative poster • essay responding to a case study • lab report of own practical investigation • mid and end-of-year examination containing Multiple choice questions, short answer and extended response

Unit 3: How does experience affect behavior and mental processes?

In this unit students examine both macro-level and micro-level functioning of the nervous system to explain how the human nervous system enables a person to interact with the world around them. They explore how stress may affect a person's psychological functioning and consider the causes and management of stress. Students investigate how models of memory and learning lead to increased knowledge, the development of new capacities and changed behaviours. They consider the limitations of memory and how memory can be improved.

Outcome 1: How does the nervous system enable psychological functioning?

On completion of this unit the student should be able to explain how the structure and function of the human nervous system enables a person to interact with the external world and analyse the different ways in which stress can affect nervous system functioning.

Outcome 2: How do people learn and remember?

On completion of this unit the student should be able to apply biological and psychological explanations for how new information can be learnt and stored in memory, and provide biological, psychological and social explanations of a person's inability to remember information.

Unit 4: How is wellbeing developed and maintained?

In this unit students examine the nature of consciousness and how changes in levels of consciousness can affect mental processes and behaviour. They consider the role of sleep and the impact that sleep disturbances may have on a person's functioning. Students explore the concept of a mental health continuum and apply a biopsychosocial approach, as a scientific model, to analyse mental health and disorder. They use specific phobia to illustrate how the development and management of a mental disorder can be considered as an interaction between biological, psychological and social factors. Students examine the contribution that classical and contemporary research has made to the understanding of consciousness, including sleep, and the development of an individual's mental functioning and wellbeing.

Outcome 1: How do levels of consciousness affect mental processes and behavior?

On completion of this unit the student should be able to explain consciousness as a continuum, compare theories about the purpose and nature of sleep, and elaborate on the effects of sleep disruption on a person's functioning.

Outcome 2: What influences mental wellbeing?

On completion of this unit the student should be able to explain the concepts of mental health and mental illness including influences of risk and protective factors, apply a biopsychosocial approach to explain the development and management of specific phobia, and explain the psychological basis of strategies that contribute to mental wellbeing.

Outcome 3: Practical investigation

On completion of this unit the student should be able to design and undertake a practical investigation related to mental processes and psychological functioning, and present methodologies, findings and conclusions in a scientific poster.



Unit 3 and 4 Assessment Tasks:

• Annotations of activities in logbook • Tests incorporating multiple choice, short answer and extended response • Visual presentation • Report of investigation • Structured scientific poster • Media response • End-of-year examination incorporating multiple choice, short answer and extended response

Studio Arts

VCE Studio Arts encourages and supports students to recognise their individual potential as art makers and presents a guided process to assist their understanding and development of art making. The study establishes effective art practices through the application of an individual design process to assist the student's production of a folio of artworks.

Unit 1: Artistic inspiration and techniques

This area of study focuses on the development of individual ideas and the identification of sources of inspiration to be used as starting points for making art. Students explore art making practices that use a variety of methods to communicate and develop ideas.

Outcome 1

On completion of this unit the student should be able to source inspiration, identify individual ideas and use a variety of methods to translate these into visual language.

Outcome 2

On completion of this unit the student should be able to explore and use a variety of materials and techniques to support and record the development of individual ideas to produce artworks.

Outcome 3

On completion of this unit the student should be able to discuss how artists from different times and cultures have interpreted sources of inspiration and used materials and techniques in the production of artworks.

The assessment task for Outcomes 1 and 2 is:

• a selection of exploratory work showing sources of ideas and inspiration translated into visual form through the use of a variety of materials and techniques.
Assessment tasks for Outcome 3 are: • an extended response • short-answer responses • Exam

Unit 2: Design exploration and concepts

This unit focuses on students establishing and using a design process to produce artworks. Students also develop skills in the visual analysis of artworks. Artworks made by artists from different times and cultures are analysed to understand the artists' ideas and how they have created aesthetic qualities and identifiable styles.

Outcome 1

On completion of this unit the student should be able to develop an individual design process, including visual research and inquiry, in order to produce a variety of design explorations to create a number of artworks.

Outcome 2

On completion of this unit the student should be able to analyse and discuss the ways in which artists from different times and cultures have created aesthetic qualities in artworks, communicated ideas and developed styles.



Assessment Tasks

The assessment task for Outcome 1 is: • a folio including design explorations and artworks.
Assessment tasks for Outcome 2 are: • an extended response; • short-answer responses • Exam

Unit 3: Studio production and professional art practices

This unit focuses on the implementation of an individual design process leading to the production of a range of potential directions and solutions. Students develop and use an exploration proposal to define an area of creative exploration. They plan and apply a design process to explore and develop their individual ideas. Analysis of these explorations and the development of the potential directions is an intrinsic part of the design process to support the making of finished artworks in Unit 4.

Outcome 1

On completion of this unit the student should be able to prepare an exploration proposal that formulates the content and parameters of an individual design process, and that includes a plan of how the proposal will be undertaken.

Outcome 2

On completion of this unit the student should be able to present an individual design process that produces a range of potential directions, which reflects the concepts and ideas documented in the exploration proposal.

Outcome 3

On completion of this unit the student should be able to discuss art practices in relation to particular artworks of at least two artists and analyse ways in which artists develop their styles.

Unit 4: Studio production and art industry contexts

This unit focuses on the production of a cohesive folio of finished artworks. To support the creation of the folio, students present visual and written documentation explaining how selected potential directions generated in Unit 3 were used to produce the cohesive folio of finished artworks. These artworks should reflect the skilful application of materials and techniques, and the resolution of ideas and aesthetic qualities.

This unit also investigates aspects of artists' involvement in the art industry, focusing on a variety of exhibition spaces and the methods and considerations involved in the preparation, presentation and conservation of artworks. Students examine a range of environments for the presentation of artworks exhibited in contemporary settings. Students are expected to visit at least two different exhibition spaces in their current year of study.

Outcome 1

On completion of this unit the student should present a cohesive folio of finished artworks, based on selected potential directions developed through the design process, that demonstrates skilful application of materials and techniques and that realises and communicates the student's ideas.

Outcome 2

On completion of this unit the student should be able to provide visual and written documentation that identifies the folio focus and evaluates the extent to which the finished artworks reflect the selected potential directions, and effectively demonstrate a cohesive relationship between the works.



Outcome 3

On completion of this unit the student should be able to examine and explain the preparation and presentation of artworks in at least two different exhibition spaces, and discuss the various roles, processes and methods involved in the exhibition of artworks.

