Lakeside
COLLEGE

YEAR 11 VCE HANDBOOK

2025

Introduction

Lakeside College is a student-focused learning community which develops students in the key competencies of Christ-centred character, citizenship, collaboration, communication, creativity and critical thinking. Our passionate and experienced staff are committed to supporting all students through the provision of quality academic and co-curricular programs. While there is a strong focus on helping our VCE students move from interdependent to independent lifelong learners, partnerships between students, teachers and families are essential for success.

Active participation in the life of the College is strongly encouraged. We know that students who are involved in aspects of community service, sporting and performing arts programs also tend to perform well in their academic studies. Students, especially in Year 12, are also encouraged to make use of careers advice and information designed to improve their results.

This handbook contains general information about the VCE at Lakeside College as well as an outline of the VCE courses offered. We trust that this is a helpful resource and provides an opportunity for families to discuss pathways for the future.

Head of Senior School (Years 10-12)
Mrs Amanda Trewin

Welcome to the Victorian Certificate of Education (VCE) course guide for Lakeside College. This handbook has been prepared to assist students and their families in the selection of an appropriate course of study and to provide information about the VCE and VET subjects offered.

All families are strongly encouraged to study all sections of the course guide. Parents and students are asked to allocate enough time to jointly discuss its contents. Students are encouraged to choose subjects based on their interests, skills and abilities.

Parents and students should understand the prerequisites that may be required for future career or educational pathways. The selection of the appropriate courses for each student is vital and students are encouraged to allocate time to do this properly. Students are also encouraged to:

- Discuss careers options and prerequisites with the Careers Practitioner
- Attend University open days
- Attend the VCE information evening.

VCE Coordinator
Duane Vaughan

VCE CONTACTS

VCE, VET and Distance Education Coordinator

Mr Duane Vaughan

Head of Senior School (Years 10-12)

Mrs Amanda Trewin

Inclusive Education Coordinator

Mrs Deidre Priebbenow

In choosing all studies, students should consider:

- Studies that they like doing and those in which they have an interest
- Studies in which they achieve high grades
- Studies that are pre-requisite studies for their chosen and anticipated tertiary courses

This handbook provides information about pathways in Years 11 and 12 studies and advice on the criteria for the selection of studies. The Study Selection process is organised by both the VCE Coordinator and the Head of Secondary School. Students will complete subject forms and complete preferences online. This handbook provides subject details to assist selecting courses of study

Every effort will be made to meet your choice of studies. The College timetable for 2024 will be constructed on the basis of student choices. The College has made a commitment that if a subject is a prerequisite for a university course the subject will run regardless of numbers. Ultimately, availability of courses will be dependent upon a number of factors, including:

- The number of students selecting a study (sufficient numbers are required for subjects to be timetabled)
- Staffing availability
- Timetabling constraints

It is therefore important for students to carefully submit considered choices; however, the final study program is ultimately at the ability and discretion of the College to offer the individualised program.

Above all, it is imperative that in making study selections, all students discuss their options with their parents/guardians and seek advice from the various teachers and staff available to assist them at school.

At Lakeside College, students undertake more than the minimum requirements to broaden their VCE program and subsequent career and tertiary course options. Furthermore, undertaking six units three and four sequences can help some students gain a higher Australian Tertiary Admissions Rank.

Usually at Lakeside College, students select a total of twenty-three semester length units of study. This involves one VCE Religious Education Unit in Year 11, two VCE English units and ten other units of study. At Year 12 all students will undertake two English Unit 3 and 4 sequences, plus 4 sequences of Unit 3 and 4 studies as well as Unit 2 Religion and Society. However, some students may elect to undertake a Unit 1 and 2 study in Year 10 and a Unit 3 and 4 sequence in Year 11, enabling a sixth Unit 3 and 4 sequence at Year 12 or a University Enhancement study at Year 12. Some students may undertake VET studies in the program.

Grounds for undertaking less than five Unit 3 and 4 , VCE/VET sequences at Year 12 would only exist if students had experienced earlier learning difficulties or have been diagnosed with a disability which impairs their ability to cope with five Unit 3 and 4 studies. Such a request would necessitate counselling and will necessitate an interview with the VCE Coordinator and the Head of Secondary School.

VCE Advanced Placement Program

VCE students may be invited to study at an accelerated level. For Year 10 students the accelerated level is to access a Unit 1 and 2 sequence and for Year 11 students the accelerated level is to access a Unit 3 and 4 VCE sequence, while for Year 12 students an accelerated study may be one of the University Enhancement Subjects. For each year level, an invitation to study at an accelerated level will be based on the following criteria:

- Demonstration of sound background of study and achievement in that area of study
- Evidence of very good overall academic results, based on assessment information
- Evidence of sound study and time management practices

Students will be invited in writing to consider taking part in the VCE Advanced Placement Program. Invitations will be issued after careful discussion and consideration by your child's teachers.

Inclusive Education and planning for senior school

Lakeside College recognises and values the uniqueness of each individual. The senior years of schooling *represent a pathway* for students to follow that will enable them to have the knowledge and skills required when they leave school, and for their future endeavours. There are many aspects and variables to consider in the senior years of schooling.

Inclusive Education supports many students, including those of Aboriginal and Torres Strait Islander descent, students (and their families) who have sought refuge in Australia, students who are living in an Out of Home Care situation.

This pathway can take different forms and requires consideration of what is the "best fit" for an individual. Educational planning conversations will begin as early as Year 9 for students with a disability, and it is vital that both our Inclusive Education Coordinator and Careers Practitioner be involved with educational planning and career conversations.

Students who have an Individual Education Plan prior to their VCE years will continue to be provided with the individual plan and adjustments as identified and required. Some students may need to apply for VCAA Special Examination Arrangements for the completion of their Unit 3 and 4 subjects, and the GAT.

Students with a disability and their families can contact and book meetings to discuss aspects of senior educational planning when required. Please do not hesitate to reach out for further advice or support.

Inclusive Support Coordinator
Mrs Deidre Pribbenow

COURSE OVERVIEWS

Victorian Certificate of Education (VCE)

VCE is a well-recognised and valuable acknowledgement of student achievement. Successful completion of the VCE provides students with an opportunity to seek access to tertiary institutions and provides information to employers about a student's ability to cope with a wide range of complex tasks, meet deadlines and apply knowledge and skills to problems.

The main aim of the VCE, and of the school, is to assist students to develop sound working habits so that all VCE studies undertaken are satisfactorily completed.

The VCAA requires details about the Satisfactory Completion of Outcomes and School Assessed Coursework Tasks for each unit. As a requirement of the courses set down by the VCAA, some policies have been established to ensure that the correct procedures are carried out in all schools.

Vocational Education and Training (VET)

Each year, some Lakeside College students may be enrolled in VET courses.

VET courses are delivered off-campus through providers such as Federation Training, Chisholm Institute, and accredited secondary colleges. It should be noted that VET courses incur an additional fee. Contact the VCE/VET Coordinator to determine the individual costs of VET courses.

Students undertaking any sort of traineeship as part of their work, including training through work such as Certificate III in Hospitality or Retail at workplaces such as McDonalds, KFC or Subway, should let the VET Coordinator know, as these traineeships may count as credits towards their VCE.

Distance Education

Courses offered from Virtual School Victoria are available to Lakeside College students when a student wishes to undertake a subject not offered at the College, or when two subjects that the student wishes to study are in the same block on the timetable. Students are encouraged to have regular contact with their Distance Education Teacher and may use phones and other available ICT resources to maintain effective lines of communication. A school-appointed Distance Education Coordinator is available to students completing subjects via Distance Education.

All work related to Distance Education, including languages, should be submitted by the due date. When corrected work is returned to the school, the student can collect it from the Distance Education Coordinator.

VCE attendance requirements for Satisfactory Completion

All VCE students are expected to attend all timetabled classes, excursions and assemblies and be always punctual. Students who are consistently absent or late cannot possibly meet the requirements for satisfying the achievement of the Key Knowledge and Key Skills required under VCAA guidelines.

- Students who have attended **less than 80% of scheduled classes** will be deemed not to have attended sufficient classes to allow teachers to verify satisfactory understanding of the outcomes and therefore receive an **N** result for the unit.

Absences
Normally require a medical certificate

It is vital that parents and guardians are aware of all absences from class. If a student is absent during a scheduled assessed task, the subject teacher should be notified immediately of this absence and a medical certificate required upon the student's return to school. The student will be required to complete an application to sit a supplementary SAC.

Each request for supplementary SAC arrangements will be considered on its merits and approval of the request will be at the discretion of the subject teacher in consultation with the VCE Coordinator. Please note that if a student is absent for a non-approved reason on the day of a SAC they will receive an N for the SAC and thus not satisfactorily meet the requirements for the successful completion of the unit of study.

All signed notes and medical certificates must be lodged with the VCE Coordinator.
All student absences must be approved by parents or guardians.

Types of Absences Approved

Bereavement: Funeral or significant personal loss.

Attendance at weddings or significant family events: Application to be sought at least 10 days prior to event.

National and state level sporting tournaments: Letter from the organisation outlining commitment and extended absence application completed.

Film and TV work: Student absence and learning plan to be completed in consultation with subject teachers.

TAFE/VET classes: Proof of enrolment required.

Religious Observances: Communication with VCE Coordinator, College Administration and subject teachers required.

Medical, Dental, Rehabilitation or Mental Health Appointments: Medical certificates or letter required.

Types of Absences Not Approved

Driver's Licence Appointments may be approved if applied for in advance and no assessments are being held on that day.

Employment or work shifts will not be considered a reasonable excuse for an approved absence.

Holidays during school time **are not** approved absences. SACs missed due to holidays will be assessed as Satisfactory or Not Satisfactory and will not be given a mark due to the need for equity and fairness and the difficulty involved in rescheduling assessments.

This is a serious matter in Unit 3 and 4 studies and may affect Study Scores and the student's ATAR.

VCE ASSESMENT

Assessment tasks are specific activities that contribute to a final grade for a subject. Units 1 & 2 assessment tasks are set by the school and may or may not be part of a learning outcome. These tasks will be graded, and the results posted on our learning management system.

Part of the assessment of all Units 1 & 2 subjects is a formal examination, conducted towards the end of each semester. This examination addresses all areas of study covered in that unit and is conducted during an Examination Week.

SACs consist of several assessment tasks that individually contribute a significant amount to the total mark in that study. Specific details of the task will be provided before the day of the assessment.

VCE ASSESMENT

Unit 3 & 4 School Assessed Coursework (SAC)

SACs allow the teacher to rank an individual student's performance in relation to other members of the class. At Units 3 & 4 level, the VCAA provides teachers with specific assessment criteria and a marking structure. Each SAC represents a significant component of the total school-based mark for that study.

Authentication

Unacknowledged resources (plagiarism) is a serious infringement of VCAA and school policy

All SACs must be clearly the student's own work and must be completed on time and to the standards required in the relevant Study Design and as outlined by Lakeside College staff members.
Students must ensure that any SAC work (planning or final copies) is submitted directly to the subject teacher.

- Students must ensure that all unacknowledged work submitted by them is their own.
- They must acknowledge all resources used, including text and source material and the name/s and status of the person/s who helped, as well as the type of assistance received.
- Students must not accept undue assistance from any person. Undue assistance would include using or copying another person's work or resources without acknowledgement, providing actual adjustments or improvements for a student's work, or dictating or directing a student to insert text.

The issue of copying and plagiarism, and the consequences thereof, are clearly spelled out by the VCAA and may result in an 'N' assessment result.

CHANGING SUBJECTS

Changes to course selection

No later than Week 3 of the start of a semester
Change of Subject Request Form

There may be times throughout the year when a student needs to reassess their program and its direction. Any changes to study selection must be discussed fully with parents, Careers Practitioner, teachers and the VCE Coordinator.

A Change of Subject Request Form will need to be completed and signed before a change may occur. This generally involves changing from one study to another.

Students will not be permitted to change a subject after three weeks from the beginning of the course. Course changes are offered at key times throughout the year. These are communicated to students.

- At the beginning of the year, students are given an opportunity to make changes to both Unit 1 and 3 subjects for a period of no more than 3 weeks. After this time, students are unable to change courses.
- Mid-year changes can be made between Unit 1 and 2 subjects only. Students cannot change Unit 3 or 4 subjects.
- At the end of the school year for the following year, subject change requests can be made during 'Course Confirmation' appointments, prior to the end of the 'Head Start' program.

Home Learning

Home Learning remains an essential part of the teaching and learning process. Students are expected to complete all home learning tasks by the due dates. Students are encouraged to use a diary to record all home learning tasks in order to manage their home learning time effectively. Students are also encouraged to make use of appropriate electronic assistants to manage their school-related activities.

As a guide, home learning should involve the following averaged times distributed across the subjects being studied:

- Year 10: at least 1 ½ hours per day
- Year 11: at least 2 hours per day
- Year 12: at least 3 hours per day

CURRICULUM OVERVIEW

The VCE curriculum offered at Lakeside College includes the following units of study.

Unit 1 and 2 Studies	Unit 3 and 4 Studies
Art: Making and Exhibiting	Art: Making and Exhibiting
Biology	Biology
Business Management	Business Management
Chemistry	Chemistry
English	English
English Language	German (Languages)
German (Languages)	Health and Human Development
Geography	History: Revolutions
Health and Human Development	Legal Studies
History: 20th Century	Literature
Legal Studies	Mathematics: General
Literature	Mathematics: Methods
Mathematics: General	Mathematics: Specialist
Mathematics: Methods	Physical Education
Mathematics: Specialist	Physics
Physical Education	Psychology
Physics	Unit 2 Religion and Society
Psychology	
Unit 1 Religion and Society	

Explore, expand and investigate

In this unit students explore materials, techniques and processes in a range of art forms. They expand their knowledge and understanding of the characteristics, properties and application of materials used in art making. They explore selected materials to understand how they relate to specific art forms and how they can be used in the making of artworks. Students also explore the historical development of specific art forms and investigate how the characteristics, properties and use of materials and techniques have changed over time. Throughout their investigation students become aware of and understand the safe handling of materials they use.

Students explore the different ways artists use materials, techniques and processes. The students' exploration and experimentation with materials and techniques stimulates ideas, inspires different ways of working and enables a broad understanding of the specific art forms. Their exploration and experimentation is documented in both visual and written form in a Visual Arts journal.

Area of Study 1

Explore – materials, techniques and art forms
How do artists use materials and techniques in their art making?

In this area of study students are guided through an inquiry learning process to experiment with a range of materials, techniques and processes in specific art forms. They develop new ways of thinking, as they investigate the characteristics, properties and application of particular materials and how they can be manipulated to create visual language and expression in an artwork. Students are introduced to different techniques and ways of trialling them. Students experiment with a range of techniques and approaches, developing skills that foster curiosity and creative thinking and inspire new working practices. They engage with artists and artworks to understand the different processes used to make artworks in specific art forms.

Students document and record their findings from their exploration and experimentation in their Visual Arts journal, to use as a reference throughout Unit 1. They use annotations and experimental exercises to record and reflect on their experiences, their use of techniques and the manipulation of each material used. Students also document the meaningful connections they make between materials and techniques, subject matter, and the communication of ideas and meaning in art making.

Understanding the inherent characteristics and properties of materials, their purpose and the historical development of their use in specific art forms enables students to manipulate materials when making their own artworks. Students investigate the appropriate health and safety practices related to each art form they explore.

Outcome 1

On completion of this unit the student should be able to explore the characteristics and properties of materials and demonstrate how they can be manipulated to develop subject matter and represent ideas in art making.

Area of Study 2

Expand – make, present and reflect

How do artists use materials and techniques to represent ideas and achieve a style in their artworks? In this area of study students explore the characteristics of a range of art forms. They explore how materials, techniques and processes are used in the making of finished artworks. They are guided through the development and making of individual artworks based on a set theme. Students use the knowledge they have from their experimentation with materials in Area of Study 1 to make decisions about how materials can be manipulated in at least one finished artwork in Area of Study 2.

Through making their finished artwork, students develop skills using the materials, techniques and processes of a specific art form. They explore how these things work together as they refine and resolve at least one finished artwork.

By working through an inquiry process students develop new ways to develop subject matter, represent ideas and communicate meaning in artworks. They continue to document, annotate and record the making of finished artworks in their Visual Arts journal. Students write a reflection statement about their experiences and the learning involved in making at least one finished artwork. They also write an artist's statement about their art making and how at least one finished artwork has effectively achieved their intentions.

Outcome 2

On completion of this unit the student should be able to make and present at least one finished artwork and document their art making in a Visual Arts journal.

Area of Study 3

Investigate – research and present

What role do artworks and their presentation play in society?

In this area of study students investigate the artworks of Australian artists from different contexts, and the materials, techniques and processes they use to make artworks. They investigate the impact of these contexts on the communication of ideas and meaning in artworks and how contexts have influenced how artists make artworks.

Students focus on artworks by Australian artists, including Aboriginal and Torres Strait Islander artists. Students research a range of resources to support the discussion of materials appropriate to the artists' artworks. They are encouraged to view the artworks in a range of presentations throughout Unit 1, including those in galleries, museums, other exhibition spaces and site-specific spaces. The artworks can be selected from the recommended list of exhibitions in the VCE Art Making and Exhibiting Exhibitions List, which is published annually on the VCAA website.

Students select three different Australian artists for Area of Study 3 and present information on a proposed exhibition of their artworks in a format such as a catalogue, website, brochure or didactic information for a gallery, museum, other exhibition space or site-specific space. The students present their research to an audience. The research for the information is documented in their Visual Arts journal. In their presentation of research students:

- select three artists, including one or more Aboriginal or Torres Strait Islander artists, and at least one artwork by each artist
- provide information and an overview of each artist, including background information and the influences on their art making, including where the artist was born, lives/lived and works/worked
- provide an overview of the artists and their works selected for exhibition
- explore how each artist has applied materials, techniques and processes to make each artwork explain how artists represent ideas and use subject matter to communicate meaning in each artwork.

Outcome 3

On completion of this unit the student should be able to research Australian artists and present information about them in a format appropriate for a proposed exhibition.

Understand, develop and resolve

In Unit 2 students continue to research how artworks are made by investigating how artists use aesthetic qualities to represent ideas in artworks. They broaden their investigation to understand how artworks are displayed to audiences, and how ideas are represented to communicate meaning.

Students respond to a set theme and progressively develop their own ideas. Students learn how to develop their ideas using materials, techniques and processes, and art elements and art principles. They consolidate these ideas to plan and make finished artworks, reflecting on their knowledge and understanding of the aesthetic qualities of artworks. The planning and development of at least one finished artwork are documented in their Visual Arts journal.

Students investigate how artists use art elements and art principles to develop aesthetic qualities and style in an artwork. Working in their Visual Arts journal they begin to discover and understand how each of the art elements and art principles can be combined to convey different emotions and expression in their own and others' artworks. They also explore how art elements and art principles create visual language in artworks.

Students begin to understand how exhibitions are planned and designed and how spaces are organised for exhibitions. They also investigate the roles associated with the planning of exhibitions and how artworks are selected and displayed in specific spaces. This offers students the opportunity to engage with exhibitions, whether they are in galleries, museums, other exhibition spaces or site-specific spaces.

Area of Study 1

Understand – ideas, artworks and exhibition
How are thematic exhibitions planned and designed?

In Area of Study 1 students investigate the intentions of artists and the different characteristics of their art making. They understand how artworks are displayed, and how subject matter and ideas are represented to communicate meaning and the intentions of the artists to viewers. The exposure to artworks in an exhibition and the investigation of how artists make artworks enables students to see the different ways specialists in the industry work in preparing and presenting artworks for display.

Students investigate artists and artworks in a thematic exhibition. This exhibition could be in a gallery, museum, other exhibition space or site-specific space. They also research the connections between the artworks in the exhibition. Students visit an exhibition and investigate the theme of the exhibition, how it was selected and how each of the artworks relate to the theme. It is important for students to view an exhibition that demonstrates considerations of display, design and aesthetics such as lighting, hanging of works and the flow of visitors through the space. The exhibitions for study can be selected from the recommended exhibitions on the VCE Art Making and Exhibiting Exhibitions List, which is updated and published annually on the VCAA website.

Students visit an exhibition space and select three artworks to research. These artworks must be different from the three artworks researched in Unit 1 Area of Study 3. They then add three artworks they have personally selected, from other sources, that complement the artworks from the exhibition. They discuss how these artworks relate to each other and the reasons for their selection. These additional three artworks are connected to the theme or ideas of the exhibition and should be selected from different contexts. Students then plan and design a thematic exhibition of the six artworks and document the planning in their Visual Arts journal.

Outcome 1

On completion of this unit the student should be able to select a range of artworks from an exhibition and other sources to design their own thematic exhibition

Area of Study 2

Develop – theme, aesthetic qualities and style
How does an artist develop aesthetic qualities and style in artworks?

In this area of study students are introduced to the use of art elements and art principles in art making and how they contribute to the aesthetic qualities in an artwork. They trial materials and techniques and develop ideas around a theme that is either selected by the teacher or is formed after a class investigation and discussion. Students understand how to use materials, techniques and processes in combination with art elements and art principles to create aesthetic qualities in their experimental artworks. They discover and understand how each of the art elements and art principles can be used and how they can come together to represent ideas in their own and others' artworks. They also investigate how the aesthetic qualities contribute to style in their own and others' artworks.

Using their knowledge of art elements, art principles and aesthetic qualities, students develop subject matter and ideas in their own art making. Responding to the selected theme, students research and develop ideas and subject matter in their Visual Arts journal. They reflect on their understanding of the materials, techniques and processes appropriate to a specific art form, and the techniques and processes used in the making of artworks. Students document their art making to make meaningful connections to their ideas and to inform their exploration. They also document and record their investigations of aesthetic qualities used in artworks. The documentation and reflection provides students with the opportunity to keep their ideas and thinking visible and connected to their experimentation.

To investigate and develop subject matter and ideas, students explore influences and sources of inspiration. They combine these with their knowledge of art elements, art principles and aesthetic qualities to make artworks. This gives them the opportunity to explore artists and their artworks and understand how they have used art elements, art principles and aesthetic qualities in visual language. Students produce studies, such as sketches, models, maquettes or other initial preparatory work, to contribute to the development of their artworks. They document how their ideas and subject matter have developed and expanded, and how these are represented in their artworks.

Outcome 2

On completion of this unit the student should be able to explore and progressively document the use of art elements, art principles and aesthetic qualities to make experimental artworks in response to a selected theme.

Area of Study 3

Resolve – ideas, subject matter and style
How does an artist develop ideas and a personal style in artworks?

In this area of study students expand on their experiments with materials and their understanding of techniques and processes explored in Area of Study 2. From their initial experiments, students refine their use of art elements and art principles to create aesthetic qualities and to achieve a desired style in finished artworks. They develop a range of subject matter and ideas based around the selected theme identified in Area of Study 2 and expand on these in their Visual Arts journal. Students also develop and refine their visual language to communicate ideas and meaning in at least one finished artwork. They record their exploration of ideas and subject matter in their Visual Arts journal, reflecting on their personal expression and responses to their selected theme.

Students develop skills in the use of techniques and processes in a specific art form. Each finished artwork should demonstrate the relationship between the use of materials and techniques and the ideas of the selected theme. It should also demonstrate the resolution of visual language and the aesthetic qualities that contribute to an emerging personal style.

Outcome 3

On completion of this unit the student should be able to progressively document art making to develop and resolve subject matter and ideas in at least one finished artwork.

How do organisms regulate their functions?

In this unit students examine the cell as the structural and functional unit of life, from the single celled to the multicellular organism, including the requirements for sustaining cellular processes. Students focus on cell growth, replacement and death and the role of stem cells in differentiation, specialisation and renewal of cells. They explore how systems function through cell specialisation in vascular plants and animals, and consider the role homeostatic mechanisms play in maintaining an animal's internal environment.

A student-adapted or student-designed scientific investigation is undertaken in Area of Study 3. The investigation involves the generation of primary data and is related to the function and/or the regulation of cells or systems. The investigation draws on the key science skills and key knowledge from Area of Study 1 and/or Area of Study 2.

Area of Study 1

How do cells function?

In this area of study students examine the structure and functioning of prokaryotic and eukaryotic cells, and how the plasma membrane contributes to survival by controlling the movement of substances into and out of the cell. Students explore cellular growth, replacement and death. They become familiar with the key events and regulation of the cell cycle and the processes for cell division, including disruptions to the cell cycle and deviant cell behaviour. Students consider the properties of stem cells and their role in differentiation, specialisation and renewal of cells and tissues.

Outcome 1

On completion of this unit the student should be able to explain and compare cellular structure and function and analyse the cell cycle and cell growth, death and differentiation.

Area of Study 2

How do plant and animal systems function?

In this area of study students explore how systems function through cell specialisation in vascular plants and in digestive, endocrine and excretory systems in animals, focusing on regulation of water balance in plants, and temperature, blood glucose and water balance in animals. Students examine how homeostatic mechanisms in animals help maintain their internal environment within a narrow range of tolerance levels, and consider malfunctions in homeostatic mechanisms.

Outcome 2

On completion of this unit the student should be able to explain and compare how cells are specialised and organised in plants and animals, and analyse how specific systems in plants and animals are regulated.

Area of Study 3

How do scientific investigations develop understanding of how organisms regulate their functions?

Survival of organisms requires control and regulation of factors within an organism and often outside an organism. Different types of cells and adaptations enhance an organism's survival
in a particular environment, while homeostatic mechanisms maintain the internal environment.

In this area of study students adapt or design and then conduct a scientific investigation to generate appropriate qualitative and/or quantitative data, organise and interpret the data, and reach a conclusion in response to the research question.

The student-adapted or student-designed scientific investigation relates to knowledge and skills developed in Area of Study 1 and/or Area of Study 2.

Outcome 3

On completion of this unit the student should be able to adapt or design and then conduct a scientific investigation related to function and/or regulation of cells or systems, and draw a conclusion based on evidence from generated primary data.

How does inheritance impact on diversity?

In this unit students explore reproduction and the transmission of biological information from generation to generation and the impact this has on species diversity. They apply their understanding of chromosomes to explain the process of meiosis. Students consider how the relationship between genes, and the environment and epigenetic factors influence phenotypic expression. They explain the inheritance of characteristics, analyse patterns of inheritance, interpret pedigree charts and predict outcomes of genetic crosses.

Students analyse the advantages and disadvantages of asexual and sexual reproductive strategies, including the use of reproductive cloning technologies. They study structural, physiological and behavioural adaptations that enhance an organism's survival. Students explore interdependences between species, focusing on how keystone species and top predators structure and maintain the distribution, density and size of a population. They also consider the contributions of Aboriginal and Torres Strait Islander knowledge and perspectives in understanding the survival of organisms in Australian ecosystems.

A student-directed research investigation into a contemporary ethical issue is to be undertaken in Area of Study 3. The investigation relates to the application of genetic knowledge, reproductive science, inheritance or adaptations and interdependencies beneficial for survival. The investigation draws on key knowledge and key science skills from Area of Study 1 and/or Area of Study 2.

Area of Study 1

How is inheritance explained?

In this area of study students describe the production of gametes in sexual reproduction through the key events in meiosis. They explore the nature of chromosomes and the use of genetic language to read and interpret patterns of inheritance and predict outcomes of genetic crosses.

Students explain how a characteristic or trait can be influenced by one gene, many genes acting together, and genes interacting with external environmental or epigenetic factors. They apply their genetic knowledge to analyse pedigree charts, determine patterns of inheritance and predict outcomes of genetic crosses.

Outcome 1

On completion of this unit the student should be able to explain and compare chromosomes, genomes, genotypes and phenotypes, and analyse and predict patterns of inheritance.

Area of Study 2

How do inherited adaptations impact on diversity?

In this area of study students analyse the advantages and disadvantages of asexual and sexual reproduction and investigate the use and application of reproductive cloning technologies. Students explore the biological importance of genetic diversity and the structural, physiological and behavioural adaptations that enable species to survive in an ecosystem.

Students explore the interdependencies between species, including the importance and impact of keystone species and top predators. They consider the contributions of Aboriginal and Torres Strait Islander knowledge and perspectives to the understanding of the adaptations of, and interdependencies between, species in Australian ecosystems.

Outcome 2

On completion of this unit the student should be able to analyse advantages and disadvantages of reproductive strategies, and evaluate how adaptations and interdependencies enhance survival of species within an ecosystem.

Area of Study 3

How do humans use science to explore and communicate contemporary bioethical issues?

In this area of study students explore a contemporary bioethical issue relating to the application of genetic knowledge, reproductive science, inheritance or adaptations and interdependencies beneficial for survival.

Examples of investigation topics include, but are not limited to: genomic and epigenetic research; cloning for agriculture, horticulture or other purposes; assisted reproductive technologies; prenatal and predictive genetic testing; strategies for maintaining genetic diversity within a species or population; the impact of introduced species; changes to specific keystone species on populations and ecosystems; or the use of biomimicry to solve human challenges or biopiracy of Indigenous knowledge.

Students may develop a research question related to the applications included above or, in conjunction with their teacher, they may develop their own research question related to Area of Study 1 and/or Area of Study 2. Possible starting points when developing a research question may include stimulus material such as announcements of recent discoveries, an expert's published point of view, a TED talk or a YouTube presentation, an article from a scientific publication, public concern about an issue, changes in government funding or new government initiatives.

Analysing and synthesising secondary data, students demonstrate and apply their knowledge and relevant key science skills to: explain the biological concepts specific to the identified bioethical issue; consider different perspectives; outline social, economic, legal and/or political factors relevant to the selected issue; choose a position or course of action on the basis of reasoning and reflection; and communicate their findings.

The application of ethical understanding in VCE Biology involves the consideration of approaches to bioethics and ethical concepts.

Outcome 3

On completion of this unit the student should be able to identify, analyse and evaluate a bioethical issue in genetics, reproductive science or adaptations beneficial for survival.

Planning a business

Businesses of all sizes are major contributors to the economic and social wellbeing of a nation. The ability of entrepreneurs to establish a business and the fostering of conditions under which new business ideas can emerge are vital for a nation's wellbeing. Taking a business idea and planning how to make it a reality are the cornerstones of economic and social development. In this unit students explore the factors affecting business ideas and the internal and external environments within which businesses operate, as well as the effect of these on planning a business. They also consider the importance of the business sector to the national economy and social wellbeing.

Area of Study 1

The business idea

Businesses of all sizes are major contributors to the economic and social wellbeing of a nation. The ability of entrepreneurs to establish a business and the fostering of conditions under which new business ideas can emerge are vital for a nation's wellbeing. Taking a business idea and planning how to make it a reality are the cornerstones of economic and social development. In this unit students explore the factors affecting business ideas and the internal and external environments within which businesses operate, as well as the effect of these on planning a business. They also consider the importance of the business sector to the national economy and social wellbeing.

Outcome 1

On completion of this unit the student should be able to describe a process for creating and developing a business idea, and explain how innovative and entrepreneurial practices can contribute to the national economy and social wellbeing.

Area of Study 2

Internal business environment and planning

The internal environment affects the approach a business takes to planning and the extent to which planning is successful. A business owner will generally have more control over the activities, functions and pressures that occur within the business. These factors, such as business models, legal business structures and staffing, will also be influenced to some extent by the external environment. Students explore the factors within the internal business environment and consider how planning decisions involving these factors may affect the ultimate success of a business, with success being measured by the extent to which business objectives are met within a specific timeframe.

Outcome 2

On completion of this unit the student should be able to describe the internal business environment and analyse how factors from within it may affect business planning.

Area of Study 3

External business environment and planning

The external environment consists of all elements outside a business that may act as pressures or forces on business operations. Students consider factors from the external environment such as legal, political, social, economic, technological, global and corporate social responsibility factors and the effects these may have on the decisions made when planning a business.

Outcome 3

On completion of this unit the student should be able to describe the external environment of a business and explain how the macro and operating factors within it may affect business planning.

Establishing a business

This unit focuses on the establishment phase of a business. Establishing a business involves compliance with legal requirements as well as decisions about how best to establish a system of financial record keeping, staff the business and establish a customer base. In this unit students examine the legal requirements that must be met to establish a business. They investigate the essential features of effective marketing and consider the best way to meet the needs of the business in terms of staffing and financial record keeping. Students analyse management practices by applying key knowledge to contemporary business case studies from the past four years.

Area of Study 1

Legal requirements and financial considerations

It is essential to deal with legal and financial matters when establishing a business. In this area of study students are introduced to the legal requirements and financial considerations that are vital in establishing a business. They also consider the implications for the business if legal and financial requirements are not met.

Outcome 1

On completion of this unit the student should be able to outline the key legal requirements and financial record-keeping considerations when establishing a business, and explain the importance of establishing effective policies and procedures to achieve compliance with these requirements.

Area of Study 2

Marketing a business

Establishing a strong customer base for a business is an important component of success. In this area of study students develop an understanding that marketing encompasses a wide range of management practices, from identifying the needs of the target market and creating a brand presence through to consideration of the 7Ps of marketing and the impact of rapidly changing technology on marketing practices. They also consider effective public relations strategies and the benefits these can bring to a business.

Outcome 2

On completion of this unit the student should be able to explain how establishing a customer base and a marketing presence supports the achievement of business objectives, analyse effective marketing and public relations strategies and apply these strategies to business-related case studies.

Area of Study 3

Staffing a business

Staff, as one of the greatest assets of a business, are an important consideration during the establishment phase. The quantity and quality of staff has a direct link to business productivity and the achievement of business objectives. In this area of study students consider staffing requirements that will meet the needs of a business and contribute to productivity and achievement of business objectives. They research the processes undertaken by the business in relation to the recruitment, selection and induction of staff. Students consider the opportunities that the skills and capabilities of staff can offer a business, the legal obligations that must be addressed in relation to staff, and the relationship between employers and employees within a business.

Outcome 3

On completion of this unit the student should be able to discuss the importance of staff to a business, discuss the staffing needs for a business, and evaluate staff-management strategies from both an employer and staff perspective.

How can the diversity of materials be explained?

The development and use of materials for specific purposes is an important human endeavour. In this unit students investigate the chemical structures and properties of a range of materials, including covalent compounds, metals, ionic compounds and polymers. They are introduced to ways that chemical quantities are measured. They consider how manufacturing innovations lead to more sustainable products being produced for society through the use of renewable raw materials and a transition from a linear economy towards a circular economy.

Students conduct practical investigations involving the reactivity series of metals, separation of mixtures by chromatography, use of precipitation reactions to identify ionic compounds, determination of empirical formulas, and synthesis of polymers.

Throughout this unit students use chemistry terminology including symbols, formulas, chemical nomenclature and equations to represent and explain observations and data from their own investigations and to evaluate the chemistry-based claims of others.

A student-directed research investigation into the sustainable production or use of a selected material is to be undertaken in Area of Study 3. The investigation explores how sustainability factors such as green chemistry principles and the transition to a circular economy are considered in the production of materials to ensure minimum toxicity and impacts on human health and the environment. The investigation draws on key knowledge and key science skills from Area of Study 1 and/or Area of Study 2.

Area of Study 1

How do the chemical structures of materials explain their properties and reactions?

In this area of study students focus on elements as the building blocks of useful materials. They investigate the structures, properties and reactions of carbon compounds, metals and ionic compounds, and use chromatography to separate the components of mixtures. They use metal recycling as a context to explore the transition in manufacturing processes from a linear economy to a circular economy.

The selection of learning contexts should allow students to develop practical techniques to investigate the properties and reactions of various materials. Students develop their skills in the use of scientific equipment and apparatus. Students may conduct flame tests to identify elements in the periodic table. They may model covalent, metallic and ionic structures using simple ball-and-stick models and may use computer simulations of the three-dimensional representations of molecules and lattices to better understand structures. They use solubility tables to experimentally identify unknown ions in solution. They respond to challenges such as developing their own reactivity series by reacting samples of metals with acids, oxygen and water.

Outcome 1

On completion of this unit the student should be able to explain how elements form carbon compounds, metallic lattices and ionic compounds, experimentally investigate and model the properties of different materials, and use chromatography to separate the components of mixtures.

Area of Study 2

How are materials quantified and classified?

In this area of study students focus on the measurement of quantities in chemistry and the structures and properties of organic compounds, including polymers.

The selection of learning contexts should allow students to develop practical techniques to quantify amounts of substances and to investigate the chemistry of organic compounds. Students develop their skills in the use of scientific equipment and apparatus. They perform calculations based on the generation of primary data, such as determining the empirical formula of an ionic compound or hydrated salt, and consider how the quality of data generated in experiments can be improved. They may construct models to visualise the similarities and differences between families of organic compounds. Students may use common substances in their experiments such as making glue from milk. They may investigate the environmental impact of the production of polymers: for example, the recycling of biodegradable polymers derived from natural resources such as biopolyethene (Bio-PE).

Students respond to challenges such as investigating how changing formulations for polymers affects their structure and properties: for example, by creating slime.

Outcome 2

On completion of this unit the student should be able to calculate mole quantities, use systematic nomenclature to name organic compounds, explain how polymers can be designed for a purpose, and evaluate the consequences for human health and the environment of the production of organic materials and polymers.

Area of Study 3

Research investigation

How can chemical principles be applied to create a more sustainable future?

Knowledge of the structure and properties of matter has developed over time through scientific and technological research, leading to the production of a range of useful chemicals, materials and products for society. Chemists today, through sustainable practices, seek to improve the efficiency with which natural resources are used to meet human needs for chemical products and services. Chemists also learn from Aboriginal and Torres Strait Islander peoples about the ways that they sustainably modify and process raw materials using techniques developed over millennia. Sustainability requires innovation in designing and discovering new chemicals, production processes and product management systems that will provide increased yield or performance at a lower cost while meeting the goals of protecting and enhancing human health and the environment.

In this area of study students undertake an investigation involving the selection and evaluation of a recent discovery, innovation, advance, case study, issue or challenge linked to the knowledge and skills developed in Unit 1 Area of Study 1 and/or Area of Study 2, including consideration of sustainability concepts (green chemistry principles, sustainable development and the transition towards a circular economy). Examples of investigation topics and possible research questions are provided below.

Students may select a research question related to the investigation topics included below or, in conjunction with their teacher, develop their own research question related to Unit 1 Area of Study 1 and/or Area of Study 2. Possible starting points when developing a research question may include visiting a chemical laboratory, local chemical manufacturer or industrial plant; announcements of recent materials science research findings; an interview with an expert involved in materials science or sustainability; an expert's published point of view; a public concern about an issue related to the production of a chemical or material; 'green field' research leading to new technologies; changes in government funding or policy or new government initiatives, such as incentives promoting the transition from a linear economy to a circular economy; case studies related to how Aboriginal and Torres Strait Islander peoples process natural materials for particular purposes; a TED talk; a YouTube presentation; or an article from a scientific publication.

Students apply critical and creative thinking and science inquiry skills to prepare a communication to explain the relevant chemical concepts associated with their investigation, critically examine the information and data available to answer the research question, and identify the sociocultural, economic, political, legal and ethical implications of the selected investigation in terms of sustainability.

Outcome 3

On completion of this unit the student should be able to investigate and explain how chemical knowledge is used to create a more sustainable future in relation to the production or use of a selected material.

How do chemical reactions shape the natural world?

Society is dependent on the work of chemists to analyse the materials and products in everyday use. In this unit students analyse and compare different substances dissolved in water and the gases that may be produced in chemical reactions. They explore applications of acid-base and redox reactions in society.

Students conduct practical investigations involving the specific heat capacity of water, acid-base and redox reactions, solubility, molar volume of a gas, volumetric analysis, and the use of a calibration curve.

Throughout the unit students use chemistry terminology, including symbols, formulas, chemical nomenclature and equations, to represent and explain observations and data from their own investigations and to evaluate the chemistry-based claims of others.

A student-adapted or student-designed scientific investigation is undertaken in Area of Study 3. The investigation involves the generation of primary data and is related to the production of gases, acid-base or redox reactions, or the analysis of substances in water. It draws on the key science skills and key knowledge from Unit 2 Area of Study 1 and/or Area of Study 2.

Area of Study 1

How do substances interact with water?

In this area of study students focus on understanding the properties of water and investigating acid-base and redox reactions. They explore water's properties, including its density, specific heat capacity and latent heat of vaporisation. They write equations for acid-base and redox reactions, and apply concepts including pH as a measure of acidity. They explore applications of acid-base reactions and redox reactions in society.

The selection of learning contexts should allow students to develop practical techniques to investigate the properties of water and acid-base and redox reactions. Students develop their skills in the use of scientific equipment and apparatus. They may demonstrate their understanding of concentration using coloured solutions such as ammonium molybdate. Students explore pH: for example, by making their own indicators from natural materials, developing their own pH scale and comparing the accuracy of their indicators with commercial indicators. They may investigate redox reactions by comparing corrosion rates of iron in tap water and sea water or building simple cells to power a diode. They respond to challenges such as investigating the action of soda water on seashells and linking their findings to socio-scientific issues such as ocean acidification.

Outcome 1

On completion of this unit the student should be able to explain the properties of water in terms of structure and bonding, and experimentally investigate and analyse applications of acid-base and redox reactions in society.

Area of Study 2

How are chemicals measured and analysed?

In this area of study students focus on the analysis and quantification of chemical reactions involving acids, bases, salts and gases. They measure the solubility of substances in water, explore the relationship between solubility and temperature using solubility curves, and learn to predict when a solute will dissolve or crystallise out of solution. They quantify amounts in chemistry using volumetric analysis, application of the ideal gas equation, stoichiometry and calibration curves.

The selection of learning contexts should allow students to develop practical techniques to investigate substances that may be dissolved in water or found in soils, particularly salts, acids and bases, as well as gases. Students develop their skills in the use of scientific equipment and apparatus. They use precipitation reactions to purify water: for example, by using iron or aluminium compounds to precipitate and remove phosphorus from wastewater. They perform acid-base titrations, such as comparing the ethanoic acid concentrations of vinegar, mayonnaise and tomato sauce. They construct calibration curves to analyse unknown concentrations of substances, such as the amount of nitrates or phosphates in water or soil samples. Students respond to challenges such as determining the set of standards required in setting up a calibration curve in colorimetry.

Outcome 2

On completion of this unit the student should be able to calculate solution concentrations and predict solubilities, use volumetric analysis and instrumental techniques to analyse for acids, bases and salts, and apply stoichiometry to calculate chemical quantities.

Area of Study 3

How do quantitative scientific investigations develop our understanding of chemical reactions?

Many of the 17 goals in the United Nations' 2030 Agenda for Sustainable Development relate to ensuring that people have access to potable water, clean air and good quality soil to meet their basic needs. The quality of water, air and soil must be monitored closely to ensure that human health and the environment are not compromised.

In this area of study students adapt or design and then conduct a scientific investigation related to chemical equations and/or analysis, which must include the generation of primary data. They develop a research question related to the production of gases, acid-base or redox reactions or the analysis of substances in water, and adapt or design and then conduct a scientific investigation to generate appropriate quantitative data. Students organise and interpret the data and reach a conclusion in response to their research question.

Research questions may relate to different scientific methodologies. Pattern seeking may be utilised in investigating questions such as 'Is there a relationship between salinity concentration and the rate of rusting of iron?'. Controlled experiments may be designed to investigate questions such as 'Why is isopropyl alcohol measured as %(v/v) while chlorine bleach is measured in ppm, and what concentrations of isopropyl alcohol and chlorine bleach are required to disinfect surfaces?'. Students may also investigate product, process or system development, such as formulating a UV-stable natural indicator.
The student-adapted or student-designed scientific investigation relates to knowledge and skills developed in Unit 2 Area of Study 1 and/or Area of Study 2.

Outcome 3

On completion of this unit the student should be able to draw an evidence-based conclusion from primary data generated from a student-adapted or student-designed scientific investigation related to the production of gases, acid-base or redox reactions or the analysis of substances in water.

Area of Study 1

Reading and Exploring Text

In this area of study, students engage in reading and viewing texts with a focus on personal connections with the story. They discuss and clarify the ideas and values presented by authors through their evocations of character, setting and plot, and through investigations of the point of view and/or the voice of the text. They develop and strengthen inferential reading and viewing skills, and consider the ways a text's vocabulary, text structures and language features can create meaning on several levels and in different ways.

Students' exploration of texts involves understanding and appreciating the role of vocabulary, text structures and language features in creating story and meaning. They contemplate the ways a text can present and reflect human experiences, and how stories or aspects of stories resonate with their own memories and lives. Students are encouraged to share their experience and understanding of the world, and make connections with key ideas, concerns and tensions presented in a text. They also explore the cultural, social and historical values embedded in the text, and can compare these values with their own. It is through these moments of connection that students engage more closely with the reading experience, and draw parallels with their own observations of the world.

Through participation in discussions about their own experiences and the ways they make connections with a text, students develop their own thinking and engage with the ideas of others to extend their understanding of a text. They draw on personal experience and understanding in developing writing about a text, and work to shape their ideas and knowledge into formal essay structures.

For this outcome, students will read and explore one set text, or extracts from the set text (EAL). This text must be of a different text type from that selected for study in Unit 2. The text selected should reflect the interests of the students and be worthy of close study.

Students are provided with opportunities to practise and extend their writing about texts. They are given time and support to extend their writing through reflection, editing and feedback.

Outcome 1

On completion of this unit the student should be able to make personal connections with, and explore the vocabulary, text structures, language features and ideas in a text.

Area of Study 2
Crafting texts

In this area of study, students engage with and develop an understanding of effective and cohesive writing. They apply, extend and challenge their understanding and use of imaginative, persuasive and informative text through a growing awareness of situated contexts, stated purposes and audience.
Students read and engage imaginatively and critically with mentor texts that model effective writing. Through guided reading of mentor texts, students develop an understanding of the diverse ways that vocabulary, text structures, language features and ideas can interweave to craft compelling texts. They consider these texts through knowledge of the ways purpose, context (including mode) and audience influence and shape writing.

Both individual and shared reading of mentor texts provides students with opportunities for rich discussion about what constitutes effective writing. Students collaborate through classwork to cultivate their understandings of cohesive and successful texts.

Students employ and experiment with the qualities of effective writing in their own work. Considering clear purpose, context (including mode) and audiences for their writing, and through engaging with and expanding on ideas drawn from mentor texts and other reading, they extend their creativity, fluency and range. As they craft their texts, students explore text structures and language features, and ideas. They build a varied vocabulary, which can include abstract and technical language, and apply standard and/or non-standard conventions of language, including syntax and spelling, as appropriate. They are also able to explore other forms of non-standard or informal language including colloquial and idiomatic language such as slang or dialects, where appropriate.

Outcome 2

On completion of this unit the student should be able to demonstrate an understanding of effective and cohesive writing through the crafting of their own texts designed for a specific context and audience to achieve a stated purpose; and to describe individual decisions made about the vocabulary, text structures, language features and conventions used during writing processes.

Area of Study 1

Reading and Exploring Texts

In this area of study, students develop their reading and viewing skills, including deepening their capacity for inferential reading and viewing, to further open possible meanings in a text, and to extend their writing in response to text. Students will develop their skills from Unit 1 through an exploration of a different text type from that studied in Unit 1.

Students read or view a text, engaging with the ideas, concerns and tensions, and recognise ways vocabulary, text structures, language features and conventions of a text work together to create meaning. Through discussions about representations in a text, they examine the ways readers understand text considering its historical context, and social and cultural values. They also explore the text through the prism of their own cultural knowledge, experiences and understanding of the world, and extend their observations into analytical and abstracted explorations.

Developing analytical writing about a text provides students with opportunities to build skills to discuss ideas, apply appropriate metalanguage, integrate evidence from a text to support key points, and explore organisational structures such as formal essays.

Outcome 1

On completion of this unit the student should be able to explore and analyse how the vocabulary, text structures, language features and ideas in a text construct meaning.

Area of Study 2

Exploring argument

In this area of study, students consider the way arguments are developed and delivered in many forms of media. Through the prism of a contemporary and substantial local and/or national issue, students read, view and listen to a range of texts that attempt to position an intended audience in a particular context. They explore the structure of these texts, including contention, sequence of arguments, use of supporting evidence and persuasive strategies. They closely examine the language and the visuals employed by the author, and offer analysis of the intended effect on the audience. Students apply their knowledge of argument to create a point of view text for oral presentation.

Suitable texts for study should reflect a variety of persuasive texts. Appropriate texts could be drawn from print, digital, audio and audio visual sources. These texts may include speeches, digitally presented texts, opinion and comment pieces, and other texts designed to position audiences in relation to an issue.

Students practise analysing persuasive texts using note taking, summaries and short-answer questions, and through formal, analytical writing. When working with audio or audio visual texts, they explore elements of spoken language including intonation, volume, pace, pausing and stress, and develop analysis of the ways these elements contribute to argument and the effect on the audience.

Students craft their writing using evidence from the texts to support their analysis. They draft and revise their writing and invite feedback from their teacher and other students to refine their ideas and expression. They aim for coherence, logic and accuracy in their writing.

Students employ their understanding of argument to create their own point of view text. They construct this text for oral presentation, and learn about the conventions of oral presentation for persuasive purposes.

Outcome 2

On completion of this unit the student should be able to explore and analyse persuasive texts within the context of a contemporary issue, including the ways argument and language can be used to position an audience; and to construct a point of view text for oral presentation.

They use planning and drafting to test and clarify their ideas, and edit for clear and coherent expression of them. They apply the conventions of written analysis and textual evidence. They draft, revise and edit for clarity, coherence and technical accuracy, and refine for effective presentation of the insights gained through comparison.

Outcome 1

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.

Area of Study 2
Presenting Argument

In this area of study students build their understanding of both the analysis and construction of texts that attempt to influence audiences. They use their knowledge of argument and persuasive language as a basis for the development of their own persuasive texts in relation to a topical issue that has appeared in the media since 1 September of the previous year.

This area of study focuses on the construction of persuasive texts. Students use their understanding of argument and language as the basis for the development of an oral presentation of their points of view. Students draw on their knowledge to express their viewpoints through arguments and persuasive language selected specifically to position an audience.

Students use discussion and writing to clarify their thinking and develop a viewpoint on an issue, to plan and prepare an argument and its supporting evidence, and to develop and prepare any materials to support an oral presentation. Students identify approaches to positioning the audience that are appropriate to the issue. Students also consider how oral conventions may be used to influence the audience and refine these through rehearsal. Students develop, test and practise argument, critically analysing their own developing text. Students reflect on their intentions in positioning the reader and consider how their use of language expresses their argument. They explore options for language use for audience engagement and persuasive effect. They use the conventions of spoken texts appropriately, draw on evidence soundly and include accurate acknowledgment.

Outcome 2

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.

Contribution to final assessment

School-assessed Coursework for Unit 3 will contribute 25 per cent to the study score.

Outcomes	Marks allocated	Assessment tasks
Outcome 1 Produce a detailed comparison which analyses how two selected texts present ideas, issues and themes.	60	A detailed comparison in written form of how two selected texts present ideas, issues and themes.
Outcome 2 Construct a sustained and reasoned point of view on an issue currently debated in the media	10	A written statement of intention to accompany the student's own oral presentation, articulating the intention of decisions made in the planning process, and how these demonstrate understanding of argument and persuasive language.
	30	A point of view presented in oral form using sound argument and persuasive language. The point of view should relate to an issue that has appeared in the media since 1 September of the previous year. The issue does not have to be the same as the issue selected for study in Outcome 2, Unit 3.
Total marks	**100**	

Language and communication

Language is an essential aspect of human behaviour and the means by which individuals relate to the world, to each other and to the communities of which they are members. In this unit, students consider the ways language is organised so that its users have the means to make sense of their experiences and to interact with others. Students explore the various functions of language and the nature of language as an elaborate system of signs and conventions. The relationship between speech and writing as the dominant language modes and the impact of situational and cultural contexts on language choices are also considered. Students investigate children's ability to acquire language and the stages of language acquisition across a range of subsystems.

Area of Study 1

The nature and functions of language

In this area of study students explore the nature of language and the various functions that language performs in a range of Australian and other contexts. They consider the properties that distinguish human communication as unique, the differences between the modes of spoken and written language, and the relationship between meaning and conventions that govern language use. Students are introduced to the theory that language is a system of signs and conventions, and that while the relationship between words and meanings may be arbitrary, our use of language is governed by conventions and informed by accepted systems.

Meaning can be conveyed through the key language modes of writing and speaking. Languages allow for communication through actions, like speech sounds, or graphic symbols such as letters. Communication can also occur through systems such as sign languages, and students can consider the role of paralinguistic features in conveying meaning, but the focus of this area of study is on the language modes of writing and speaking.

Students learn that our language choices are always influenced by the function, register and tenor and the situational and cultural contexts in which they occur, and are based on understandings and traditions that shape and reflect our view of the world. They come to understand that language is never a neutral and transparent means of representing the world we inhabit; rather, it is influenced by situational and cultural understandings.

Students learn that the situational elements of a language exchange, such as the field, language mode, setting and text type, influence language choice. Cultural factors, such as the values, attitudes and beliefs held by participants and the wider community, also affect people's linguistic choices.

Outcome 1

On completion of this unit the student should be able to identify and describe primary aspects of the nature and functions of human language.

Area of Study 2

Language acquisition

This area of study focuses on the developmental stages of language acquisition, both first- and additional-language learning. Students explore how, in addition to words and their meanings, people learn to use the phonological and grammatical conventions of the language, as well as the appropriate use of these conventions in different situational contexts.

Students are introduced to two linguistic theories – universal grammar and usage-based accounts – that attempt to explain how children acquire their first language. They research the so-called 'critical period', the window of opportunity during which language must be acquired. As children acquire language, they can be seen to change their language system gradually in response to the language use of others. At different stages, children's language develops across a range of subsystems of language, allowing for increasingly complex communication and a greater range of functions.

Students also examine the similarities and differences between first- and additional-language acquisition, and multilingualism. They consider differences in the language acquisition process in children who are brought up multilingual compared with those who learn additional languages as they grow up. This extends to examining the language acquisition processes in adults who learn additional languages.
Students examine case studies and engage in field work to explore language acquisition.

Outcome 2

On completion of this unit the student should be able to identify and describe types of language acquisition, and to discuss and investigate language acquisition in the context of linguistic theories.

Language change

In this unit, students focus on language change. Languages are dynamic and language change is an inevitable and continuous process. Students consider factors contributing to change in the English language over time and factors contributing to the spread of English. They explore texts from the past and from the present and consider how language change affects each of the subsystems of language – phonetics and phonology, morphology, lexicology, syntax, discourse, and pragmatics and semantics. Students also consider how attitudes to language change can vary markedly.

In addition to developing an understanding of how English has been transformed, they consider how the global spread of English has led to a diversification of the language and to English now being used by more people as an additional or a foreign language than as a first language. Students investigate how contact between English and other languages has led to the development of geographical and ethnic varieties but has also hastened the decline of the languages of indigenous peoples. They consider the cultural repercussions of the spread of English.

Area of Study 1

English across time

This area of study examines the changes that have occurred in English over time. Students investigate the factors that bring about language change, including those that come from contact with other languages, from social and technological transformation, and from within the language itself. They explore language change across some subsystems of language as represented in texts.

Students consider the relationship and influence of Indo-European languages on the English language.

Students examine the general concept of standardisation and the notion of 'correct English'. While some language changes are critiqued by the wider community, with linguistic change often viewed as indicative of declining standards, others occur without widespread acknowledgment. The role of prescriptivist attitudes in establishing and maintaining standard language is considered in this area of study, as are descriptivist approaches to language change.

Students must be introduced to all the events and periods listed in the elective options below but study only ONE elective option in depth (that is, choose EITHER 'Incursions' OR 'Inventions' and study each of the dot points listed beneath those options in depth). The in-depth exploration must consider how significant social and cultural change impacts language and leads to language change across the subsystems of language. Teachers can consider significant texts that emerged in Old English, Middle English, Early Modern English and Modern English.

Incursions

- The Vikings
- Norman conquest in 1066
- Religion
- Plagues

Inventions

- Gutenberg and the printing press
- Dictionaries
- Typewriters/keyboards
- The internet

Outcome 1

On completion of this unit the student should be able to identify and describe language change and its effects on the English language and analyse attitudes to language change.

Area of Study 2

Englishes in contact

In this area of study students consider the effects of the global spread of English by learning about both the development and decline of languages as a result of English contact, the elevation of English as a global lingua franca and the cultural consequences of language contact. Students explore the many ways English is used as an expression of identity and culture in written and spoken texts.

Students explore factors that contributed to the spread of English in the past, such as trade and colonisation, and factors that continue to contribute to the spread of English today. They consider the development of Australian Englishes, including Aboriginal Australian Englishes, through the lens of colonialism.

Students explore the development and features of English-based varieties, including pidgins and creoles, and the consequences on the languages of indigenous peoples around the world. Students become familiar with the distinctive features of a number of national, ethnic and regional varieties of English and explore the ways that some of these varieties show the effects of intensive contact with other languages. Students explore how changes to and loss of language affect its users' cultural identities and worldviews, as evidenced by language reclamation and maintenance movements in contemporary Australian society.

Outcome 2

On completion of this unit the student should be able to identify and explain the effects of the global spread of English through spoken and written texts.

In this unit students develop an understanding of the language and culture/s of German-speaking communities through the study of three or more topics from the prescribed themes. Students access and share useful information on the topics and subtopics through German and consolidate and extend vocabulary and grammar knowledge and language skills. They focus on analysing cultural products or practices including visual, spoken or written texts.

Cultural products or practices can be drawn from a diverse range of texts, activities and creations. These may include the following: stories, poems, plays, novels, songs, films, photographs, artworks, architecture, technology, food, clothing, sports and festivals. Students apply acquired knowledge of the German culture and language to new contexts.

Students reflect on the interplay between language and culture, and its impact on the individual's language use in specific contexts and for specific audiences.

Area of Study 1

Interpersonal communication

In this area of study students develop their skills and knowledge to establish and maintain an informal, personal, spoken interaction in German on a selected subtopic.

Students consider language as a tool for communication and focus on language important for effective participation in spoken interaction. They develop their understanding that the content and the direction of an exchange is influenced by the participants and the purpose of the interaction, and consider the influence of cultural perspectives on meaning and mutual understanding.

Outcome 1

On completion of this unit the student should be able to exchange meaning in a spoken interaction in German.

Area of Study 2
Interpretive communication

In this area of study students locate and use information from two texts in German, chosen from a written, spoken or audio-visual format. They develop skills and knowledge to read, listen to or view texts in German effectively, to summarise content and to combine information from the texts in written responses in German and English.

The subtopic selected for the texts will be drawn from the prescribed themes and topics and should provide an opportunity for students to learn about the culture/s of the German-speaking communities. In preparation for understanding and interpreting information on the selected subtopic, students consider relevant content, language and cultural information. They focus on language important for presenting information in written form, such as answering questions or writing for a specific purpose and audience. Students identify and clarify aspects of language and culture in the texts.

Outcome 2

On completion of this unit the student should be able to interpret information from two texts on the same subtopic presented in German, and respond in writing in German and in English.

Area of Study 3

Presentational communication

Students present content related to the selected subtopic in German in written form, which may include supporting visual elements. Students develop a presentation that recounts, narrates, entertains, retells or interprets information, concepts and ideas for a specific audience.

The presentation will feature cultural products or practices from German-speaking communities which can be drawn from a diverse range of texts, activities and creations.

Outcome 3

On completion of this unit the student should be able to present information, concepts and ideas in writing in German on the selected subtopic and for a specific audience and purpose.

In this unit students develop an understanding of aspects of language and culture through the study of three or more topics from the prescribed themes listed on page 11. Each area of study must focus on a different subtopic. Students analyse visual, spoken and written texts. They access and share useful information on the topics and subtopics through German and consolidate and extend vocabulary, grammar knowledge and language skills. Cultural products or practices can be used to demonstrate how culture and perspectives may vary between communities. Students reflect on the interplay between language and culture, and its impact on meaning, understanding and the individual's language use in specific contexts and for specific audiences.

Area of Study 1

Interpersonal communication

In this area of study students participate in a written exchange in German. They develop skills and knowledge that enable them to read, listen to and view texts in German and to develop a suitable response in German. The stimulus material may be in spoken or written form, such as a letter, telephone message, video call or email, and may be accompanied by visual information, such as maps, advertisements, menus, photographs, film clips or diagrams.

In preparation for engaging with the subtopic, students consider relevant content, language and cultural information. They focus on language that is important for writing for a specific purpose and audience. Students identify and clarify aspects of language in the exchange and account for the influence of cultural perspectives on meaning and mutual understanding.

Outcome 1

On completion of this unit the student should be able to respond in writing in German to spoken, written or visual texts presented in German.

Outcome 1

On completion of this unit the student should be able to participate in a spoken exchange in German to resolve a personal issue.

Area of Study 2

Interpretive communication

In this area of study students extract information from three or more texts relating to the selected subtopic, and create written responses to specific questions or instructions in German. Students synthesise information from written, spoken and visual texts.

Students consider relevant content, language and cultural information from three or more texts to identify and interpret key ideas and detail on the selected subtopic. Texts could include extracts, articles, blogs, webpages, postcards, stories, podcasts, songs, plays, news items, films, photographs, maps and other written, spoken or viewed texts. Students connect and compare ideas and identify different points of view or perspectives in each of the texts.

Students respond to the texts in writing in German. They consider the influence of language, culture, social norms and ways of thinking in shaping meaning and the sequencing of ideas in the response.

Outcome 2

On completion of this unit the student should be able to interpret information from texts and write responses in German.

Area of Study 3

Presentational communication

In this area of study students create an extended original piece of personal, informative or imaginative writing in German to express ideas, thoughts or responses on an aspect of the selected subtopic. Students analyse and reflect on content related to the selected subtopic to assist in identifying aspects suited to reflection, informing or storytelling. They may use cultural products or practices as stimulus material for their writing. Cultural products or practices can be drawn from a diverse range of texts, activities and creations. Students consider the language and features of the types of text they encounter to ensure that their writing includes culturally appropriate content.

Outcome 3

On completion of this unit the student should be able to express ideas in a personal, informative or imaginative piece of writing in German.

Hazards and disasters

This unit investigates how people have responded to specific types of hazards and disasters. Hazards represent the potential to cause harm to people and or the environment, whereas disasters are defined as serious disruptions of the functionality of a community at any scale, involving human, material, economic or environmental losses and impacts. Hazards include a wide range of situations including those within local areas, such as fast-moving traffic or the likelihood of coastal erosion, to regional and global hazards such as drought and infectious disease.

Students undertake an overview of hazards before investigating two contrasting types of hazards and the responses to them.

Students examine the processes involved with hazards and hazard events, considering their causes and impacts, human responses to hazard events and the interconnections between human activities and natural phenomena, including the impact of climate change.

Hazards and disasters

Types of hazards are commonly classified by their causes:

- geological (or geophysical) hazards include volcanic activity, erosion, earthquakes, tsunamis, landslides and avalanches
- hydro-meteorological (weather, climate, water) hazards include droughts, floods, storms, storm surges and bushfires
- biological hazards include infectious diseases such as HIV/AIDS and malaria, animal transmitted diseases, water borne diseases, and plant and animal invasion such as blackberries and cane toads in Australia
- technological hazards are human induced and exacerbated hazards including oil spills, air pollution, radiation leaks, flooding primarily caused by land clearances, epidemics caused by poor living conditions and hazards caused by current climate change such as rising sea levels or increased intensification of weather events.

There may be considerable interconnection between the causes and types of hazards. For example, a region may be at risk from a number of hazards: high seasonal rainfall may result
in a primary flood hazard which may in turn generate a secondary hazard of landslides.

Students undertake fieldwork and produce a fieldwork report using the structure provided.

Area of Study 1

Characteristics of hazards

In this area of study students examine hazards and hazard events, and analyse the impacts of hazard events. They study at least two specific hazards at different scales. Students select one hazard from at least two different types of hazards listed above, for example, coastal hazards and an alien animal invasion, or floods and oil spills. The selection of hazards should allow students to use visual representations and topographical maps at various scales and to undertake fieldwork.

Outcome 1

On completion of this unit the student should be able to analyse the nature of hazards and the impacts of hazard events at a range of scales.

Area of Study 2

Response to hazards and disasters

In this area of study students distinguish between a hazard and a hazard event, which can result in a disaster depending on its impact and interconnections. They explore the nature and effectiveness of specific measures such as prediction and warning programs, community preparedness and land use planning, as well as actions taken after hazards become harmful and destructive disasters. Students consider natural and human factors influencing the nature of responses, considering the scale of the hazard, levels of risk due to hazards, past experiences and perceptions of similar hazards and hazard events, the capacity of government organisations and communities to act, issues and challenges that arise from responses to hazards and hazard events, available technological resources and the ability to plan and develop effective prevention and mitigation measures. Students investigate the responses to the hazards selected in Area of Study 1, with reference to a variety of locations.

Outcome 2

On completion of this unit the student should be able to analyse and evaluate the nature, purpose and effectiveness of a range of responses to selected hazards and disasters.

Tourism: issues and challenges

In this unit students investigate the characteristics of tourism: where it has developed, its various forms, how it has changed and continues to change and its impact on people, places and environments, issues and challenges of ethical tourism. Students select contrasting examples of tourism from within Australia and elsewhere in the world to support their investigations. Tourism involves the movement of people travelling away from and staying outside of their usual environment for more than 24 hours but not more than one consecutive year (United Nations World Tourism Organization definition). The scale of tourist movements since the 1950s and its predicted growth has had and continues to have a significant impact on local, regional and national environments, economies and cultures. The travel and tourism industry is directly responsible for a significant number of jobs globally and generates a considerable portion of global GDP.

The study of tourism at local, regional and global scales emphasises the interconnection within and between places as well as the impacts, issues and challenges that arise from various forms of tourism. For example, the interconnections of climate, landforms, culture and climate change help determine the characteristics of a place that can prove attractive to tourists. There is an interconnection between places tourists originate from and their destinations through the development of communication and transport infrastructure, employment, and cultural preservation and acculturation. The growth of tourism at all scales requires appropriate management to ensure it is environmentally, socially, culturally and economically sustainable.

Students undertake fieldwork and produce a fieldwork report using the structure provided.

Area of Study 1

Characteristics of tourism

In this area of study students examine the characteristics of tourism, the location and distribution of different types of tourism and tourist destinations, and the factors affecting different types of tourism. Students support this investigation with contrasting examples from within Australia and elsewhere in the world. They investigate in detail at least one tourism location using appropriate fieldwork techniques, and one other location elsewhere in the world. The selection of examples should allow students to work with a range of information sources, for example statistical data, digital images, streamed video, geospatial technologies and a variety of maps at various scales, as well as to undertake fieldwork.

Outcome 1

On completion of this unit the student should be able to analyse the nature of tourism at a range of scales.

Area of Study 2

Impact of tourism: issues and challenges

In this area of study students explore the environmental, economic, social and cultural impacts
 of different types of tourism, and the issues and challenges that these create for people and the
environment. They investigate at least one tourism location using appropriate fieldwork techniques, and
one location elsewhere in the world that requires an investigation of ethical tourism. Students evaluate the
effectiveness of measures taken to enhance the positive impacts and/or to minimise the negative impacts
at these locations. This fieldwork site could be the same fieldwork site explored in Area of Study 1. They
investigate the interconnection of the two selected locations with their surrounding region and national
context.

Outcome 2

On completion of this unit the student should be able to analyse the impacts of tourism on people, places
and environments, and evaluate the effectiveness of strategies for managing tourism.

Understanding health and wellbeing

In this unit, students explore health and wellbeing as a concept with varied and evolving perspectives and definitions. They come to understand that it occurs in many contexts and is subject to a wide range of interpretations, with different meanings for different people. As a foundation to their understanding of health, students investigate the World Health Organization's (WHO) definition and other interpretations. They also explore the fundamental conditions required for health as stated by the WHO, which provide a social justice lens for exploring health inequities.

In this unit, students identify perspectives relating to health and wellbeing, and inquire into factors that influence health attitudes, beliefs and practices, including among Aboriginal and Torres Strait Islander Peoples. Students look at multiple dimensions of health and wellbeing, the complex interplay of influences on health outcomes and the indicators used to measure and evaluate health status. With a focus on youth, the unit equips students to consider their own health as individuals and as a cohort. They build health literacy by interpreting and using data in a research investigation into one youth health focus area, and by investigating the role of food.

Area of Study 1

Concepts of health

In this area of study, students take a broad, multidimensional approach to health and wellbeing. Such an approach acknowledges that defining and measuring concepts of health are complicated by a diversity of social and cultural contexts. Students consider the measurable indicators of population health and look at data reflecting the health status of young Australians. Focusing on youth, students inquire into the reasons for variations and inequalities in health status, including the sociocultural factors that contribute to variations in health outcomes.

Outcome 1

On completion of this unit, the student should be able to explain multiple dimensions of health and wellbeing, explain indicators used to measure health status and analyse sociocultural factors that contribute to variations in the health status of youth.

Area of Study 2

Youth health and wellbeing

In this area of study, students apply the broad concepts of health and wellbeing from Area of Study 1 to their study of Australia's youth. They identify major health inequalities impacting Australia's youth and reflect on the causes. Students inquire into how governments and organisations develop and implement youth health programs and consider factors that influence the implementation of and access to these programs.

Students conduct a research investigation and apply research skills to find out what young people are most focused on and concerned about regarding health outcomes. The focus for this research could include key areas such as mental health and wellbeing, smoking and vaping, alcohol and other drugs, gambling, relationships and sexuality, and safety (for example, on the road, in the water and the sun, and online). Students select a particular focus area and conduct research, interpret data and draw conclusions on how the health of Australia's youth can be promoted and improved.

Outcome 2

On completion of this unit, the student should be able to interpret data to identify key areas for improving youth health and wellbeing, and analyse one youth health area in detail.

Area of Study 3

Health and nutrition

In this area of study, students explore food and nutrition as foundations for good health. They investigate the roles and sources of major nutrients and the use of food selection models and other initiatives to promote healthy eating. Students explore the health consequences of nutritional imbalance, especially for youth, and consider the sociocultural and commercial factors that influence the food practices of, and food choices made, by youth. They develop strategies for building health literacy and evaluating nutrition information from various sources, including advertisements and social media.

Outcome 3

On completion of this unit, the student should be able to apply nutrition information, food selection models and initiatives to evaluate nutrition information.

Managing health and development

In this unit, students investigate transitions in health and wellbeing, and human development, from lifespan and societal perspectives. They explore the changes and expectations that are integral to the progression from youth to adulthood. Students apply health literacy skills through an examination of adulthood as a time of increasing independence and responsibility, involving the establishment of long-term relationships, possible considerations of parenthood and management of health-related milestones and changes.

Students explore health literacy through an investigation of the Australian healthcare system from the perspective of youth and analyse health information. They investigate the challenges and opportunities presented by digital media and consider issues surrounding the use of health data and access to quality health care.

Area of Study 1

Developmental transitions

In this area of study, students examine the developmental transitions from youth to adulthood, with a focus on expected changes, significant decisions, and protective factors including behaviours. They consider perceptions of what it means to be a youth and an adult and investigate the expected physical and social changes. They inquire into factors that influence both the transition from youth to adulthood and later health status. They consider the characteristics of respectful, healthy relationships. Students examine parenthood as a transition in life. With a focus on the influence of parents or carers, and families, they investigate factors that contribute to development, and health and wellbeing during the prenatal, infancy and early childhood stages of the human lifespan. Health and wellbeing is considered as an intergenerational concept; that is, the health and wellbeing of one generation affects the next.

Outcome 1

On completion of this unit, the student should be able to explain developmental changes in the transition from youth to adulthood, analyse factors that contribute to healthy development during the prenatal and early childhood stages of the human lifespan and explain health and wellbeing as an intergenerational concept.

Area of Study 2

Youth health literacy

In this area of study, students investigate the health system in Australia from the perspective of youth and their rights and responsibilities. They examine the functions of various entities that play a role in our health system. Students inquire into equity of access to health services, as well as the rights and responsibilities of youth receiving health care. They research the range of health services in their communities and suggest ways of improving the health literacy and health outcomes of youth.

Outcome 2

On completion of this unit, the student should be able to explain factors affecting access to Australia's health system that contribute to health literacy and promote the health and wellbeing of youth.

Unit 1: Change and conflict

In this unit students investigate the nature of social, political, economic and cultural change in the later part of the 19th century and the first half of the 20th century. Modern History provides students with an opportunity to explore the significant events, ideas, individuals and movements that shaped the social, political, economic and technological conditions and developments that have defined the modern world.

The late 19th century marked a challenge to existing empires, alongside growing militarism and imperialism. Empires continued to exert their powers as they competed for new territories, resources and labour across Asia-Pacific, Africa and the Americas, contributing to tremendous change. This increasingly brought these world powers into contact and conflict. Italian unification and German unification changed the balance of power in Europe, the USA emerged from a bitter civil war and the Meiji Restoration brought political revolution to Japan. Meanwhile, China under the Qing struggled to survive due to foreign imperialism. Modernisation and industrialisation also challenged and changed the existing political, social and economic authority of empires and states. During this time the everyday lives of people significantly changed.

World War One was a significant turning point in modern history. It represented a complete departure from the past and heralded changes that were to have significant consequences for the rest of the twentieth century. The post-war treaties ushered in a period where the world was, to a large degree, reshaped with new borders, movements, ideologies and power structures and led to the creation of many new nation states. These changes had many unintended consequences that would lay the foundations for future conflict and instability in Europe, the Americas, Asia, Africa and the Middle East. Economic instability caused by the Great Depression contributed to great social hardship as well as to the development of new political movements.

The period after World War One, in the contrasting decades of the 1920s and 1930s, was characterised by significant social, political, economic, cultural and technological change. In 1920 the League of Nations was established, but despite its ideals about future peace, subsequent events and competing ideologies would contribute to the world being overtaken by war in 1939.

New fascist governments used the military, education and propaganda to impose controls on the way people lived, to exclude particular groups of people and to silence criticism. In Germany, the persecution of the Jewish people and other minorities intensified, resulting, during World War Two, in the Holocaust.

In the Union of Soviet Socialist Republics (USSR), millions of people were forced to work in state-owned factories and farms and had limited personal freedom. Japan became increasingly militarised and anti-Western. Turkey emerged out of the ruins of the Ottoman Empire and embarked on reforms to establish a secular democracy. In the United States of America (USA), foreign policy was shaped by isolationism, and the consumerism and material progress of the Roaring Twenties was tempered by the Great Depression in 1929. Writers, artists, musicians, choreographers and filmmakers reflected, promoted or resisted political, economic and social changes.

Area of Study 1
Ideology and conflict

- How did significant events and ideas contribute to conflict and change?
- How did individuals and movements challenge existing political and economic conditions?
- What were the consequences of World War One?
- How did ideology influence the emergence of new nation states?
- To what extent did the events, ideologies, individuals, movements and new nations contribute to the causes of World War Two?

In this area of study students focus on the events, ideologies, individuals and movements of the period that led to the end of empires and the emergence of new nation states before and after World War One; the consequences of World War One; the emergence of conflict; and the causes of World War Two. They investigate the impact of the treaties which ended the Great War and which redrew the maps of Europe and its colonies, breaking up the former empires of the defeated nations, such as the partitioning of the German, Austro-Hungarian and Ottoman Empires. They consider the aims, achievements and limitations of the League of Nations.

While democratic governments initially replaced the monarchies and authoritarian forms of government in European countries at the end of the war, new ideologies of socialism, communism and fascism gained popular support. Communism emerged in Russia/USSR after the 1917 Bolshevik Revolution. Fascism first emerged in Italy when the Italian Fascist Party gained power in 1922, and before the end of the decade fascist parties existed in various countries around the world. In 1933, Adolf Hitler's National Socialist German Workers' Party (Nazi) gained power in Germany. In Japan, the government was increasingly influenced by the military and by anti-Western attitudes, shaping much of its political and social action, alongside growing imperial ambitions in Manchuria. In the wake of World War One, the USA pursued an isolationist policy.

While the Roaring Twenties was a decade of economic growth, the 1930s saw considerable suffering as a result of the Great Depression, a global economic event that challenged and changed societies such as Germany and Australia.

As a result of the post-World War One treaties and despite the establishment of the League of Nations, the world became increasingly hostile and unstable. Widespread economic instability, failure of diplomacy, growing militarism and territorial aggression in Europe, Africa and Asia, along with totalitarianism, combined in 1939 to draw the world into a second major conflict.

In this area of study students may focus on one or more of the following contexts: Australia, China, France, Germany, Italy, Japan, Russia/USSR, the Ottoman Empire/Turkey, the British Empire/United Kingdom and/or the USA.

Outcome 1

On completion of this unit the student should be able to explain how significant events, ideologies and individuals contributed to political and economic changes in the first half of the 20th century, and analyse how these contributed to the causes of World War Two.

Area of Study 2
Social and cultural change

- How did society and culture change?
- How did cultural life both reflect and challenge the prevailing political, economic and social conditions?
- How did ideologies contribute to continuities and changes in society and culture?
- What role did individuals, groups and movements play in social and cultural continuity and/or change?
-

In this area of study students focus on the social life and cultural expression in the late nineteenth century and the first half of the twentieth century, and their relation to the technological, political and economic changes of the period. Students explore particular forms of cultural expression from the period.

The period between the wars was characterised by significant social and cultural change. While the 1920s, a time in Western society known as the Roaring Twenties, was largely marked by optimism and material prosperity in the West and Japan, by contrast the thirties was a period of severe economic hardship for many, dominated by the impact of the Great Depression.

At the end of World War One, new governments in Italy, Germany and Japan led to the emergence of societies driven by new ideologies and, in some countries, the oppression and persecution of certain groups, most especially the Jewish community in Nazi Germany. In the USSR, the establishment of a communist regime in 1917 was initially greeted with support by a large proportion of the people, but under Stalin millions of people were forced to work in state-owned factories and farms and dissenters were sent to labour camps.

In the USA, during the decades between the wars, controls such as prohibition and race segregation affected the lives of many people, as did the presence of groups such as the Ku Klux Klan. While the 1920s was characterised by material progress, new technologies, increased personal freedoms and unprecedented economic growth, the Great Depression brought hardship to many nations.

The creative arts both reflected and challenged social and political life and change in this period. Mass entertainment and information by means of radio and film became widespread.
In this area of study students may focus on one or more of the following contexts: Australia, China, France, Germany, Italy, Japan, Russia/USSR, the Ottoman Empire/Turkey, the British Empire/United Kingdom and/or the USA.

Outcome 2

On completion of this unit the student should be able to explain patterns of social and cultural change in everyday life in the first half of the twentieth century, and analyse the conditions which influenced these changes.

Unit 2: The changing world order

In this unit students investigate the nature and impact of the Cold War and challenges and changes to social, political and economic structures and systems of power in the second half of the twentieth century and the first decade of the twenty-first century.

The establishment of the United Nations (UN) in 1945 was intended to take an internationalist approach to avoiding warfare, resolving political tensions and addressing threats to human life and safety. The Universal Declaration of Human Rights adopted in 1948 was the first global expression of human rights. However, despite internationalist moves, the second half of the twentieth century was dominated by the Cold War, competing ideologies of democracy and communism and proxy wars. By 1989 the USSR began to collapse. Beginning with Poland, Eastern European communist dictatorships fell one by one. The fall of the Berlin Wall was a significant turning point in modern history.

The period also saw continuities in and challenges and changes to the established social, political and economic order in many countries. The continuation of moves towards decolonisation led to independence movements in former colonies in Africa, the Middle East, Asia and the Pacific. New countries were created and independence was achieved through both military and diplomatic means. Ethnic and sectarian conflicts also continued and terrorism became increasingly global.

The second half of the twentieth century also saw the rise of social movements that challenged existing values and traditions, such as the civil rights movement, feminism and environmental movements, as well as new political partnerships, such as the UN, European Union, APEC, OPEC, ASEAN and the British Commonwealth of Nations.

The beginning of the twenty-first century heralded both a changing world order and further advancements in technology and social mobility on a global scale. However, terrorism remained a major threat, influencing politics, social dynamics and the migration of people across the world. The attack on the World Trade Centre on 11 September, 2001 was a significant turning point for what became known as the war on global terror and shaped the first decade of the twenty-first century, including the wars in Afghanistan and Iraq.

The Global Financial Crisis challenged and contributed to some change in the social, political and economic features and structures; however, many continuities remained. Technology also played a key role in shaping social and political change in different contexts. The internet significantly changed everyday life and revolutionised communication and the sharing of information and ideas, some of which challenged authority, most notably the Arab Spring.

Area of Study 1

Causes, course and consequences of the Cold War

- What were the causes of the Cold War?
- How did Cold War ideology contribute to increased tensions and conflict?
- What were the consequences of the Cold War on nations and peoples?
- What caused the end of the Cold War?
- How did the social, political, economic and cultural conditions influence and change the post-Cold War world?

In this area of study students focus on the causes and consequences of the Cold War; the competing ideologies that underpinned events, the consequences on people, groups and nations, and the causes of the end of the Cold War and the collapse of the USSR.

Students investigate the causes of the Cold War in the decades that followed World War Two. They analyse the significant contribution of events, ideologies and individuals, and the consequences for nations and people in the period 1945–1991. While the USA and the USSR never engaged in direct armed conflict, they opposed each other in a range of international conflicts and proxy wars such as those in Berlin, Korea, Angola, Cuba and Vietnam. They both tried to exert their influence through aid and propaganda in Africa, Asia and the Americas and engaged in an arms race and a space race, with competition also extending to sport and the arts.

Students consider the reasons for the end of this long-running period of ideological conflict and the collapse of the USSR in 1991, as well as exploring the legacy of communism and/or socialism in the post-Soviet era and the emergence of democracy in new nations.

Outcome 1

On completion of this unit the student should be able to explain the causes of the Cold War and analyse its consequences on nations and people.

Area of Study 2
Challenge and change

- What caused the challenges to existing political and/or social structures and conditions?
- How did the actions and ideas of popular movements and individuals contribute to continuity and change?
- To what extent did change occur?
- What were the perspectives and experiences of those who demanded and/or resisted change?

While the Cold War dominated the second half of the twentieth century, social and political challenges, continuities and changes occurred within and between nations based on religion, nationalism, race, gender and human rights. Nations were challenged by internal struggles over ideology such as the Islamic Revolution in Iran in 1979. Independence movements led to the emergence of new nations. Nations such as Algeria and Timor-Leste achieved sovereignty through armed struggle, while Papua New Guinea and other Pacific nations achieved independence through diplomatic means.

Regional conflicts continued and emerged, including the Arab–Israeli conflict, the struggle against Apartheid in South Africa and civil and sectarian conflict in Northern Ireland, the Horn of Africa, Rwanda, Kashmir, and the breakup of the former Yugoslavia. Although, terrorism was not a new phenomenon, it took on new dimensions and became increasingly global, such as the attack in the USA on 11 September, 2001, and the Bali Bombings in 2002, particularly with the rise of prominent groups such as Al Qaeda.

Developments in media and mass communication including cable television, the internet and social media meant that many social and political ideas and movements transcended national boundaries. The digital revolution in the beginning of the 21st century saw the rise of social media, which played a key role in challenging traditional authority, work, lifestyle, and forms of communication and media, and in changing the nature of consumerism and destabilising authoritarian regimes and fuelling popular change. The speed at which these ideas and movements were shared with global audiences changed the social, political and economic features of states. Democratic systems and authoritarian regimes also used social media as a method for communicating their ideas as well as suppressing challenge and dissent.

In many societies, individuals and groups emerged to challenge the ways that power structures were organised, distributed and used. Traditional attitudes to race, war, gender, sexuality, religion, the environment and human rights were questioned, challenged and in some cases remained the same and/or changed.

This area of study focuses on challenge and change in relation to at least one of the following themes: Decolonisation and self-determination movements, Terrorism campaigns, Regional conflicts, and/or Social and political movements.

- Decolonisation and self-determination movements, such as in Algeria, the Congo, Indonesia, India, Pakistan, Bangladesh, Cambodia, Laos, Malaya, Timor-Leste, Hong Kong and/or Macau, Papua New Guinea, the Iranian Revolution, the Middle East, Sudan and South Sudan, Oceania, the Caribbean states, Former Republics of the Soviet Union, and the Arab Spring

- Terrorist groups and their campaigns, such as EOKA (Cyprus), ETA (Spain), FLN (Algeria), Baader-Meinhof (West Germany), the Japanese Red Army, Black September, Palestinian Liberation Organisation, Irish Republican Army and Loyalist Paramilitaries, Shining Path, FARC, the Tamil Tigers, Al Jihad, Hezbollah, the Lord's Resistance Army, Al Qaeda, and Boko Haram

- Regional conflicts, such as the Arab–Israeli dispute, the anti-Apartheid movement in South Africa, the Northern Irish Troubles, the Cyprus dispute, USA War on Drugs, the breakup of the former Yugoslavia, the Somali Civil War, conflicts in Latin America, the Sri Lankan Civil war, the Gulf Wars, the Rwandan Genocide, and the Wars in Afghanistan.

- Social and political movements, such as civil rights campaigns in Australia, USA, South Africa or Northern Ireland, Aboriginal and Torres Strait Islander peoples' land rights, reconciliation and recognition, feminism and women's rights, the global protests of 1968, counterculture, 1969 Stonewall Riots and LGBTIQA+ rights movements, labour movements, democracy movements, environmentalism and climate change movements, nuclear non-proliferation, the peace movement, the Tiananmen Square pro-democracy protests 1989, the Arab Spring, religious rights and movements, and the Occupy movement.

Outcome 2

On completion of this unit the student should be able to explain the challenges to social, political and/or economic structures of power and evaluate the extent to which continuity and change occurred.

The presumption of innocence

Laws, including criminal law, aim to achieve social cohesion and protect the rights of individuals. Criminal law is aimed at maintaining social order. When a criminal law is broken, a crime is committed which is punishable and can result in criminal charges and sanctions.

In this unit, students develop an understanding of legal foundations, such as the different types and sources of law, the characteristics of an effective law, and an overview of parliament and the courts. Students are introduced to and apply the principles of justice. They investigate key concepts of criminal law and apply these to actual and/or hypothetical scenarios to determine whether an accused may be found guilty of a crime. In doing this, students develop an appreciation of the manner in which legal principles and information are used in making reasoned judgments and conclusions about the culpability of an accused. Students also develop an appreciation of how a criminal case is determined, and the types and purposes of sanctions. Students apply their understanding of how criminal cases are resolved and the effectiveness of sanctions through consideration of recent criminal cases from the past four years.

Area of Study 1

Legal foundations

This area of study provides students with foundational knowledge of laws and the Australian legal system. Students explore the role of individuals, laws and the legal system in achieving social cohesion and protecting the rights of individuals. Students consider the characteristics of an effective law, and sources and types of law. They examine the relationship between parliament and the courts in law-making, and the reasons for a court hierarchy in Victoria, they also develop an understanding of the principles of justice.

Outcome 1

On completion of this unit the student should be able to describe the main sources and types of law, and evaluate the effectiveness of laws.
To achieve this outcome the student will draw on key knowledge and key skills outlined in Area of Study 1.

Area of Study 2

Proving guilt

The presumption of innocence is a fundamental principle of criminal law and provides a guarantee that an accused is presumed innocent until proven guilty beyond reasonable doubt. In this area of study, students develop an understanding of the purposes of and key concepts in criminal law, as well as the types of crime. They also investigate two criminal offences in detail. For each offence, students consider actual and/or hypothetical scenarios in which an accused has been charged with the offence, use legal reasoning to determine possible culpability and explain the impact of the offence on individuals and society.

Outcome 2

On completion of this unit the student should be able to explain the purposes and key concepts of criminal law, and use legal reasoning to argue the criminal culpability of an accused based on actual and/or hypothetical scenarios.
To achieve this outcome the student will draw on key knowledge and key skills outlined in Area of Study 2.

Area of Study 3

Sanctions

The criminal justice system determines the guilt of an accused, and imposes sanctions on offenders. In this area of study, students investigate key concepts in the determination of a criminal case, including the institutions that enforce criminal law, the purposes and types of sanctions, and alternative approaches to sentencing such as the Drug Court, Koori Courts and diversion programs. Students compare approaches to sentencing in Victoria to one other Australian jurisdiction. Through an investigation of criminal cases from the past four years, students apply their knowledge to discuss the effectiveness of sanctions and the ability of the Victorian criminal justice system to achieve the principles of justice.

Outcome 3

On completion of this unit the student should be able to explain the key concepts in the determination of a criminal case, discuss the principles of justice in relation to experiences of the criminal justice system, and discuss the ability of sanctions to achieve their purposes.

To achieve this outcome the student will draw on key knowledge and key skills outlined in Area of Study

Wrongs and rights

Criminal law and civil law aim to protect the rights of individuals. When rights are infringed, a case or dispute may arise which needs to be determined or resolved, and sanctions or remedies may be imposed. This unit focuses on the enforcement of criminal law and civil law, the methods and institutions that may be used to determine a criminal case or resolve a civil dispute, and the purposes and types of sanctions and remedies and their effectiveness.

Area of Study 1

Civil liability

The criminal justice system determines the guilt or otherwise of an accused, and imposes sanctions on a guilty person. In this area of study students investigate key concepts in the determination of a criminal case, including the institutions that enforce criminal law, and the purposes and types of sanctions and approaches to sentencing. Through an investigation of two criminal cases from the past four years, either decided or still being decided, students explore the extent to which the principles of justice were or could be achieved.

Outcome 1

On completion of this unit the student should be able to explain the purposes and key concepts of civil law, and apply legal reasoning to argue the liability of a party in civil law based on actual and/or hypothetical scenarios.

To achieve this outcome the student will draw on key knowledge and key skills outlined in Area of Study 1.

Area of Study 2

Remedies

Remedies may be available to a wronged party where there has been a breach of civil law. In this area of study, students develop an appreciation of how civil disputes are resolved, including the methods and institutions available to resolve disputes, and the purposes and types of remedies. Through an investigation of civil cases from the past four years, students apply their knowledge to discuss the effectiveness of remedies and the ability of the civil justice system to achieve the principles of justice.

Outcome 2

On completion of this unit the student should be able to explain the key concepts in the resolution of a civil dispute, discuss the principles of justice in relation to experiences of the civil justice system, and discuss the ability of remedies to achieve their purposes.

To achieve this outcome the student will draw on key knowledge and key skills outlined in Area of Study 2.

Area of Study 3

Human Rights

The protection of rights is fundamental to a democratic society. Rights are protected in Australia through the Australian Constitution, the Victorian Charter of Human Rights and Responsibilities and through common law and statute law, including in relation to discrimination and equal opportunity. In this area of study, students examine the ways in which human rights are protected in Australia and consider possible reforms to the protection of human rights. Students investigate one human rights issue in Australia, such as in relation to the right to vote, the right to freedom of religion, or the rights of First Nations peoples.

Outcome 3

On completion of this unit the student should be able to explain one contemporary human rights issue in Australia, and evaluate the ways in which rights are protected in Australia.

To achieve this outcome the student will draw on key knowledge and key skills outlined in Area of Study 3.

Area of Study 1

Reading Practices

In this area of study students consider how language, structure and stylistic choices are used in different literary forms and types of text. They consider both print and non-print texts, reflecting on the contribution of form and style to meaning. Students reflect on the degree to which points of view, experiences and contexts shape their own and others' interpretations of text.

Students closely examine the literary forms, features and language of texts. They begin to identify and explore textual details, including language and features, to develop a close analysis response to a text.

Outcome 1

On completion of this unit the student should be able to respond to a range of texts through close analysis.

Area of Study 2

Exploration of Literary Movements and Genres

In this area of study students explore the concerns, ideas, style and conventions common to a distinctive type of literature seen in literary movements or genres. Examples of these groupings include literary movements and/or genres such as modernism, epic, tragedy and magic realism, as well as more popular, or mainstream, genres and subgenres such as crime, romance and science fiction.

Students explore texts from the selected movement or genre, identifying and examining attributes, patterns and similarities that locate each text within that grouping. Students engage with the ideas and concerns shared by the texts through language, settings, narrative structures and characterisation, and they experiment with the assumptions and representations embedded in the texts.

Students must study at least one complete text alongside multiple samples of other texts from the selected movement or genre.

Outcome 2

On completion of this unit the student should be able to explore conventions common to a selected movement or genre, and engage with the ideas, concerns and representations from at least one complete text alongside multiple samples of other texts considered characteristic of the selected movement or genre.

Area of Study 1

Voices of Country

In this area of study students explore the voices, perspectives and knowledge of Aboriginal and Torres Strait Islander authors and creators. They consider the interconnectedness of place, culture and identity through the experiences, texts and voices of Aboriginal and Torres Strait Islander peoples, including connections to Country, the impact of colonisation and its ongoing consequences, and issues of reconciliation and reclamation.

Students examine representations of culture and identity in Aboriginal and Torres Strait Islander peoples' texts and the ways in which these texts present voices and perspectives that explore and challenge assumptions and stereotypes arising from colonisation. Students acknowledge and reflect on a range of Australian views and values (including their own) through a text(s). Within that exploration, students consider stories about the Australian landscape and culture.

Outcome 1

On completion of this unit the student should be able to explore and reflect on the voices, perspectives and knowledge in the texts of Aboriginal and Torres Strait Islander authors and creators.

Area of Study 2

The text in its context

In this area of study students focus on the text and its historical, social and cultural context. Students reflect on representations of a specific time period and/or culture within a text. Students explore the text to understand its point of view and what it reflects or comments on. They identify the language and the representations in the text that reflect the specific time period and/or culture, its ideas and concepts. Students develop an understanding that contextual meaning is already implicitly or explicitly inscribed in a text and that textual details and structures can be scrutinised to illustrate its significance.

Students develop the ability to analyse language closely, recognising that words have historical and cultural import.

Outcome 2

On completion of this unit the student should be able to analyse and respond to the representation of a specific time period and/or culture explored in a text and reflect or comment on the ideas and concerns of individuals and groups in that context.

General Mathematics Units 1 and 2 cater for a range of student interests, provide preparation for the study of VCE General Mathematics at the Units 3 and 4 level and contain assumed knowledge and skills for these units.

General Mathematics Units 1

The areas of study for Unit 1 of General Mathematics are 'Data analysis, probability and statistics', 'Algebra, number and structure', 'Functions, relations and graphs' and 'Discrete mathematics'.

In undertaking these units, students are expected to be able to apply techniques, routines and processes involving rational and real arithmetic, sets, lists, tables and matrices, diagrams and geometric constructions, algorithms, algebraic manipulation, recurrence relations, equations and graphs, with and without the use of technology. They should have facility with relevant mental and by-hand approaches to estimation and computation. The use of numerical, graphical, geometric, symbolic, financial and statistical functionality of technology for teaching and learning mathematics, for working mathematically, and in related assessment, is to be incorporated throughout each unit as applicable.

Area of Study 1

Data analysis, probability and statistics

In this area of study students cover types of data, display and description of the distribution of data, summary statistics for centre and spread, and the comparison of sets of data.

Area of Study 2

Algebra, number and structure

In this area of study students cover the concept of a sequence and its representation by rule, table and graph, arithmetic or geometric sequences as examples of sequences generated by first-order linear recurrence relations, and simple financial and other applications of these sequences.

Area of Study 3

Functions, relations and graphs

In this area of study students cover linear function and relations, their graphs, modelling with linear functions, solving linear equations and simultaneous linear equations, line segment and step graphs and their applications.

Area of Study 4

Discrete mathematics

In this area of study students cover the concept of matrices and matrix operations to model and solve a range of practical problems, including population growth and decay.

Outcomes

For each unit the student is required to demonstrate achievement of three outcomes. As a set these outcomes encompass all of the selected areas of study for each unit. For each of Unit 1 and Unit 2, the outcomes apply to the content from the areas of study selected for that unit.

Outcome 1

On completion of this 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 this unit the student should be able to apply mathematical processes in non-routine contexts, including situations with some open-ended aspects requiring investigative, modelling or problem-solving techniques or approaches, and analyse and discuss these applications of mathematics.

Outcome 3

On completion of this unit the student should be able to apply computational thinking and use numerical, graphical, symbolic and statistical functionalities of technology to develop mathematical ideas, produce results and carry out analysis in situations requiring investigative, modelling or problem-solving techniques or approaches.

General Mathematics Units 2

The areas of study for Unit 2 of General Mathematics are 'Data analysis, probability and statistics', 'Discrete mathematics', 'Functions, relations and graphs' and 'Space and measurement'.

In undertaking these units, students are expected to be able to apply techniques, routines and processes involving rational and real arithmetic, sets, lists and tables, diagrams, networks and geometric constructions, algorithms, algebraic manipulation, equations and graphs, with and without the use of technology. They should have facility with relevant mental and by-hand approaches to estimation and computation. The use of numerical, graphical, geometric, symbolic, financial and statistical functionality of technology for teaching and learning mathematics, for working mathematically, and in related assessment, is to be incorporated throughout each unit as applicable.

Area of Study 1

Data analysis, probability and statistics

In this area of study students cover association between two numerical variables, scatterplots, and lines of good fit by eye and their interpretation.

Area of Study 2

Discrete mathematics

In this area of study students cover the use of graphs and networks to model and solve a range of practical problems, including connectedness, shortest path and minimum spanning trees.

Area of Study 3

Functions, relations and graphs

In this area of study students cover direct and inverse variation, transformations to linearity and modelling of some non-linear data.

Area of Study 4

Space and measurement

In this area of study students cover units of measurement, accuracy, computations with formulas for different measures, similarity and scale in two and three dimensions, and their practical applications involving simple and composite shapes and objects, trigonometry, problems involving navigation and Pythagoras' theorem and their applications in the plane.

Outcomes

For each unit the student is required to demonstrate achievement of three outcomes. As a set these outcomes encompass all of the selected areas of study for each unit. For each of Unit 1 and Unit 2, the outcomes apply to the content from the areas of study selected for that unit.

Outcome 1

On completion of this 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 this unit the student should be able to apply mathematical processes in non-routine contexts, including situations with some open-ended aspects requiring investigative, modelling or problem-solving techniques or approaches, and analyse and discuss these applications of mathematics.

Outcome 3

On completion of this unit the student should be able to apply computational thinking and use numerical, graphical, symbolic and statistical functionalities of technology to develop mathematical ideas, produce results and carry out analysis in situations requiring investigative, modelling or problem-solving techniques or approaches.

Mathematical Methods Units 1 and 2 provide an introductory study of simple elementary functions of a single real variable, algebra, calculus, probability and statistics and their applications in a variety of practical and theoretical contexts. They are designed as preparation for Mathematical Methods Units 3 and 4 and contain assumed knowledge and skills for these units.

Mathematical Methods Units 1

The focus of Unit 1 is the study of simple algebraic functions, and the areas of study are 'Functions and graphs', 'Algebra', 'Calculus' and 'Probability and statistics'. At the end of Unit 1, students are expected to have covered the content outlined in each area of study, with the exception of 'Algebra' which extends across Units 1 and 2. This content should be presented so that there is a balanced and progressive development of skills and knowledge from each of the four areas of study with connections between and across the areas of study being developed consistently throughout both Units 1 and 2. In undertaking this unit, students are expected to be able to apply techniques, routines and processes involving rational and real arithmetic, sets, lists and tables, diagrams and geometric constructions, algebraic manipulation, equations, graphs and differentiation with and without the use of technology. They should have facility with relevant mental and by-hand approaches to estimation and computation. The use of numerical, graphical, geometric, symbolic and statistical functionality of technology for teaching and learning mathematics, for working mathematically, and in related assessment, is to be incorporated throughout the unit as applicable.

Area of Study 1

Functions, relations and graphs

In this area of study students cover the graphical representation of simple algebraic functions (polynomial and power functions) of a single real variable and the key features of functions and their graphs such as axis intercepts, domain (including the concept of maximal, natural or implied domain), co-domain and range, stationary points, asymptotic behaviour and symmetry. The behaviour of functions and their graphs is explored in a variety of modelling contexts and theoretical investigations.

Area of Study 2

Algebra

This area of study supports students' work in the 'Functions and graphs', 'Calculus' and 'Probability and statistics' areas of study, and content is to be distributed between Units 1 and 2. In Unit 1 the focus is on the algebra of polynomial functions of low degree and transformations of the plane.

Area of Study 3

Calculus

In this area of study students cover constant and average rates of change and an introduction to instantaneous rate of change of a function in familiar contexts, including graphical and numerical approaches to estimating and approximating these rates of change.

Area of Study 4

Data Analysis, probability and statistics

In this area of study students cover the concepts of experiment (trial), outcome, event, frequency, probability and representation of finite sample spaces and events using various forms such as lists, grids, Venn diagrams and tables. They also cover introductory counting principles and techniques and their application to probability.

Outcomes

For this unit the student is required to demonstrate achievement of three outcomes. As a set these outcomes encompass all of the areas of study for the unit.

Outcome 1

On completion of this 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.
To achieve this outcome, the student will draw on knowledge and skills outlined in all the areas of study.

Outcome 2

On completion of this unit the student should be able to apply mathematical processes in non-routine contexts, including situations requiring problem-solving, modelling or investigative techniques or approaches, and analyse and discuss these applications of mathematics.
To achieve this outcome, the student will draw on knowledge and skills outlined in one or more areas of study.

Outcome 3

On completion of this unit the student should be able to use numerical, graphical, symbolic and statistical functionalities of technology to develop mathematical ideas, produce results and carry out analysis in situations requiring problem-solving, modelling or investigative techniques or approaches.
To achieve this outcome, the student will draw on knowledge and skills outlined in all the areas of study.

In Unit 2 students focus on the study of simple transcendental functions and the calculus of simple algebraic functions. The areas of study are 'Functions and graphs', 'Algebra', 'Calculus', and 'Probability and statistics'. At the end of Unit 2, students are expected to have covered the material outlined in each area of study. Material from the 'Functions and graphs', 'Algebra', 'Calculus', and 'Probability and statistics' areas of study should be organised so that there is a clear progression of skills and knowledge from Unit 1 to Unit 2 in each area of study.

In undertaking this unit, students are expected to be able to apply techniques, routines and processes involving rational and real arithmetic, sets, lists and tables, diagrams and geometric constructions, algebraic manipulation, equations, graphs, differentiation and anti-differentiation with and without the use of technology. They should have facility with relevant mental and by-hand approaches to estimation and computation. The use of numerical, graphical, geometric, symbolic and statistical functionality of technology for teaching and learning mathematics, for working mathematically, and in related assessment, is to be incorporated throughout the unit as applicable.

Area of Study 1

Functions, relations and graphs

In this area of study students cover graphical representation of functions of a single real variable and the key features of graphs of functions such as axis intercepts, domain (including maximal, natural or implied domain), co-domain and range, asymptotic behaviour, periodicity and symmetry. . The behaviour of functions and their graphs is to be explored in a variety of modelling contexts and theoretical investigations.

Area of Study 2

Algebra, number and structure

This area of study supports students' work in the 'Functions and graphs', 'Calculus' and 'Probability and statistics' areas of study. In Unit 2 the focus is on the algebra of some simple transcendental functions and transformations of the plane. This area of study provides an opportunity for the revision, further development and application of content prescribed in Unit 1, as well as the study of additional algebra material introduced in the other areas of study in Unit 2 as follows:

- use of inverse functions and transformations to solve equations of the form $Af(bx) + c = k$, where A, b, c, k R and A, $b \neq 0$ and f is sine, cosine, tangent or ax, using exact or approximate values on a given domain
- index (exponent) laws and logarithm laws, including their application to the solution of simple exponential equations
- numerical approximation of roots of cubic polynomial functions using Newton's method.

Area of Study 3

Calculus

In this area of study students cover first principles approach to differentiation, differentiation and anti-differentiation of polynomial functions and power functions by rule, and related applications including the analysis of graphs.

Area of Study 4

Data analysis, probability and Statistics

In this area of study students cover the use of lists, tables and diagrams to calculate probabilities, including consideration of complementary, mutually exclusive, conditional and independent events involving one, two or three events (as applicable), including rules for computation of probabilities for compound events.

Outcomes

For this unit the student is required to demonstrate achievement of three outcomes. As a set these outcomes encompass all of the areas of study for the unit.

Outcome 1

On completion of this 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.
To achieve this outcome the student will draw on key knowledge and key skills outlined in all the areas of study.

Outcome 2

On completion of this unit the student should be able to apply mathematical processes in non-routine contexts, including situations requiring problem-solving, modelling or investigative techniques or approaches, and analyse and discuss these applications of mathematics.
To achieve this outcome the student will draw on key knowledge and key skills outlined in all the areas of study.

Outcome 3

On completion of this unit the student should be able to select and use numerical, graphical, symbolic and statistical functionalities of technology to develop mathematical ideas, produce results and carry out analysis in situations requiring problem-solving, modelling or investigative techniques or approaches.
To achieve this outcome the student will draw on key knowledge and key skills outlined in all the areas of study.

- Specialist Mathematics Units 1 and 2 provide a course of study for students who wish to undertake an in-depth study of mathematics, with an emphasis on concepts, skills and processes related to mathematical structure, modelling, problem-solving, reasoning and proof. This study has a focus on interest in the discipline of mathematics and investigation of a broad range of applications, as well as development of a sound background for further studies in mathematics and mathematics related fields.

- Mathematical Methods Units 1 and 2 and Specialist Mathematics Units 1 and 2, taken in conjunction, provide a comprehensive preparation for Specialist Mathematics Units 3 and 4. Study of Specialist Mathematics Units 3 and 4 also assumes concurrent study or previous completion of Mathematical Methods Units 3 and 4.

- The areas of study for Specialist Mathematics Units 1 and 2 are 'Algebra, number and structure', 'Data analysis, probability and statistics', 'Discrete mathematics', 'Functions, relations and graphs' and 'Space and measurement'.

Specialist Mathematics Unit 1

- At the end of Unit 1 students are expected to have covered the material in the areas of study: 'Algebra, number and structure' and 'Discrete mathematics'. Concepts from these areas of study will be further developed and used in Unit 2 and also in Units 3 and 4.

- In undertaking this unit, students are expected to be able to apply techniques, routines and processes involving rational, real and complex arithmetic, sets, lists, tables and matrices, diagrams, graphs, logic gates and geometric constructions, algorithms, algebraic manipulation, recurrence relations, equations and graphs, with and without the use of technology. They are expected to be able to construct proofs and develop and interpret algorithms to solve problems. They should have facility with relevant mental and by-hand approaches to estimation and computation. The use of numerical, graphical, geometric, symbolic and statistical functionality of technology for teaching and learning mathematics, for working mathematically, and in related assessment, is to be incorporated throughout each unit as applicable.

Area of Study 1

Algebra, number and structure

In this area of study students cover the development of formal mathematical notation, definition, reasoning and proof applied to number systems, graph theory, sets, logic, and Boolean algebra, and the development of algorithms to solve problems.

Area of Study 2

Discrete mathematics

In this area of study students cover the study of sequences, series, and first-order linear difference equations, combinatorics, including the pigeon-hole principle, the inclusion-exclusion principle, permutations and combinations, combinatorial identities, and matrices.

Outcome 1

On completion of this 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.

To achieve this outcome the student will draw on key knowledge and key skills outlined in all the areas of study.

Outcome 2

On completion of this unit the student should be able to apply mathematical processes in non-routine contexts, including situations with some open-ended aspects requiring investigative, modelling or problem-solving techniques or approaches, and analyse and discuss these applications of mathematics.

To achieve this outcome the student will draw on key knowledge and key skills outlined in all the areas of study.

Outcome 3

On completion of this unit the student should be able to apply computational thinking and use numerical, graphical, symbolic and statistical functionalities of technology to develop mathematical ideas, produce results and carry out analysis in situations requiring investigative, modelling or problem-solving techniques or approaches.

To achieve this outcome the student will draw on key knowledge and key skills outlined in all the areas of study.

Specialist Mathematics Unit 2

The areas of study for Specialist Mathematics Units 1 and 2 are 'Algebra, number and structure', 'Data analysis, probability and statistics', 'Discrete mathematics', 'Functions, relations and graphs' and 'Space and measurement'.

At the end of Unit 2 students are expected to have covered the material in the areas of studies: 'Data analysis, probability and statistics', 'Space and measurement', 'Algebra, number and structure' and 'Functions, relations and graphs'.

In undertaking this unit, students are expected to be able to apply techniques, routines and processes involving rational, real and complex arithmetic, sets, lists, tables, vectors and matrices, diagrams and geometric constructions, algorithms, algebraic manipulation, equations and graphs, with and without the use of technology. They are expected to be able to construct proofs and develop and interpret algorithms to solve problems. They should have facility with relevant mental and by-hand approaches to estimation and computation. The use of numerical, graphical, geometric, symbolic and statistical functionality of technology for teaching and learning mathematics, for working mathematically, and in related assessment, is to be incorporated throughout each unit as applicable.

Area of Study 1

Data analysis, probability and statistics

In this area of study students cover the study of linear combinations of random variables and the distribution of sample means of a population, with the use of technology to explore variability of sample means.

Area of Study 2

Space and measurement

In this area of study students cover trigonometry and identities, rotation and reflection transformations of the plane and vectors for working with position, shape, direction and movement in the plane and related applications.

Area of Study 3

Algebra, number and structure

In this area of study students cover the arithmetic and algebra of complex numbers, including polar form, regions and curves in the complex plane and introduction to factorisation of quadratic functions over the complex field.

Area of Study 4

Functions, relations and graphs

In this area of study students cover an introduction to partial fractions; reciprocal and inverse circular functions and their graphs and simple transformations of these graphs; locus definitions of lines, parabolas, circles, ellipses and hyperbolas and the Cartesian, parametric and polar forms of these relations.

Outcome 1

On completion of this 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.
To achieve this outcome the student will draw on key knowledge and key skills outlined in all the areas of study.

Outcome 2

On completion of this unit the student should be able to apply mathematical processes in non-routine contexts, including situations with some open-ended aspects requiring investigative, modelling or problem-solving techniques or approaches, and analyse and discuss these applications of mathematics.
To achieve this outcome the student will draw on key knowledge and key skills outlined in all the areas of study.

Outcome 3

On completion of this unit the student should be able to apply computational thinking and use numerical, graphical, symbolic and statistical functionalities of technology to develop mathematical ideas, produce results and carry out analysis in situations requiring investigative, modelling or problem-solving techniques or approaches.
To achieve this outcome the student will draw on key knowledge and key skills outlined in all the areas of study.

The human body in motion

IIn this unit, students explore how the musculoskeletal and cardiorespiratory systems work together to produce movement. Students investigate the role and function of the main structures in each system and how they respond to movement. Through participation in practical activities, students explore and analyse the relationships between the body systems and movement, and how these systems interact and respond at various intensities. Students investigate possible conditions and injuries associated with the musculoskeletal system and recommend and implement strategies to minimise and manage such injuries and conditions. They consider the ethical implications of using permitted and prohibited practices to improve the performance of the body systems, evaluating perceived physiological benefits and describing potential harms.

Area of Study 1

How does the musculoskeletal system work to produce movement?

In this area of study, students examine the muscular and skeletal systems of the human body and how the muscles and bones work together to produce movement. Through practical activities, they explore, from a biophysical perspective, the major components of the musculoskeletal system and its contributions and interactions during physical activity, sport and exercise.

Possible causes of illness and injury to the musculoskeletal system are investigated. Strategies and aids to assist in the prevention and management of such conditions are also explored. Students consider a variety of permitted and prohibited substances and methods used to enhance performance of the musculoskeletal system.

Outcome 1

On completion of this unit, the student should participate in and analyse information from a variety of practical activities to explain how the muscular and skeletal systems function and interact to produce movement, and evaluate the use of performance enhancement substances and methods.

Area of Study 2

What role does the cardiorespiratory system play in movement?

In this area of study, students investigate the cardiovascular and respiratory systems of the human body and how the heart, blood vessels and lungs function at rest and during physical activity. Through practical activities, students explore the structures and function of the cardiorespiratory system and the contributions and interactions of each system during physical activity, sport and exercise at various intensities. The impacts of regular aerobic exercise on the functioning of these systems are also examined. Students consider a variety of permitted and prohibited substances and methods used to enhance performance of the cardiorespiratory system. They also explore the ethical and sociocultural considerations of using permitted and prohibited performance-enhancing substances and methods.

Outcome 2

On completion of this unit, the student should be able to participate in and analyse information from a variety of practical activities to explain how the cardiovascular and respiratory systems function and interact, and evaluate the use of performance enhancement substances and methods.

Physical activity, sport, exercise and society

This unit develops students' understanding of physical activity, sport and exercise from a participatory perspective. Students are introduced to types of physical activity and the role that physical activity participation and sedentary behaviour plays in their own health and wellbeing, as well as in other population groups and contexts.

Through a series of practical activities, students experience and explore different types of physical activity promoted within and beyond their community. They gain an appreciation of the movement required for health benefits and the consequences of physical inactivity and sedentary behaviour. Using various methods to assess physical activity and sedentary behaviour, students analyse data to investigate perceived barriers and enablers, and explore opportunities to enhance participation in physical activity. Students explore and apply the social-ecological model to critique a range of individual- and settings-based strategies that are effective in promoting participation in regular physical activity. They create and participate in a personal plan with movement strategies that optimise adherence to physical activity and sedentary behaviour guidelines.

By investigating a range of contemporary issues associated with physical activity, sport and exercise, students explore factors that affect access, inclusion, participation and performance. Students then select one issue at the local, national or global level and analyse key concepts within the issue, including investigating, participating in and prescribing movement experiences that highlight the issue.

Students develop an understanding of the historical and current perspectives on the issue and consider the future implications on participation and performance.

Students apply various methods to assess physical activity and sedentary behaviour levels at the individual and population level, and analyse the data in relation to physical activity and sedentary behaviour guidelines. Students study and apply the social-ecological model and/or the Youth Physical Activity Promotion Model to critique a range of individual- and settings-based strategies that are effective in promoting participation in some form of regular physical activity.

Area of Study 1

How do physical activity, sport and exercise contribute to healthy lifestyles?

In this area of study, students focus on the role of physical activity, sport and exercise in developing and promoting healthy lifestyles across the lifespan. Students explore the sociocultural influences on participation in various forms of physical activity. They investigate the physical, social, mental, emotional and spiritual benefits of participation in regular physical activity at the individual and population levels, and the potential health risks associated with physical inactivity and sedentary behaviour.

Students examine sociocultural factors that influence physical activity and consider opportunities and barriers to participation. They develop an understanding of the use of subjective and objective methods for assessing physical activity and sedentary behaviour at the individual and population levels and compare these to physical activity and sedentary behaviour guidelines. Students identify and describe the components of the social-ecological model to assist in the critique and creation of strategies aimed at increasing physical activity and/or reducing sedentary behaviour within a given population. Students conduct a Functional Movement Assessment (FMA), then design and implement a personalised plan that is sustainable and adheres to the physical activity and sedentary behaviour guidelines.

Outcome 1

On completion of this unit, the student should be able to collect and analyse data related to individual and population levels of participation in physical activity and sedentary behaviour and conduct an FMA to create, undertake and evaluate a personalised plan that promotes adherence to the relevant physical activity and sedentary behaviour guidelines.

Area of Study 2

What are the contemporary issues associated with physical activity and sport?

In this area of study, students focus on a range of contemporary issues associated with physical activity and sport at the local, national and global levels.

They investigate a range of intrapersonal and interpersonal factors that affect access to, and inclusion, participation and performance in, physical activity and sport, such as injuries, coaching, sports technology and the media, psychological strategies and equity for a range of population groups, including Aboriginal and Torres Strait Islander Peoples.

Students explore one contemporary issue relevant to physical activity and/or sport and prescribe and participate in practical activities to highlight the issue.

Students develop an understanding of the historical and current perspectives on the issue and forecast future trends. They form conclusions about the impacts these issues have on physical activity and sport in society.

Outcome 2

On completion of this unit, the student should be able to explain a range of intrapersonal and interpersonal contemporary issues that influence access to, and inclusion, participation and performance in, physical activity and sport at the local, national and global levels.

What ideas explain the physical world?

Ideas in physics are dynamic. As physicists explore concepts, theories evolve. Often this requires the detection, description and explanation of things that cannot be seen. In this unit students explore how physics explains phenomena, at various scales, which are not always visible to the unaided human eye. They examine some of the fundamental ideas and models used by physicists in an attempt to understand and explain the world. Students consider thermal concepts by investigating heat, probe common analogies used to explain electricity and consider the origins and formation of matter.

Students use thermodynamic principles to explain phenomena related to changes in thermal energy. They apply thermal laws when investigating energy transfers within and between systems, and assess the impact of human use of energy on the environment. Students examine the motion of electrons and explain how it can be manipulated and utilised. They explore current scientifically accepted theories that explain how matter and energy have changed since the origins of the Universe.

Students undertake quantitative investigations involving at least one independent, continuous variable.

Area of Study 1

How can thermal effects be explained?

In this area of study students investigate the thermodynamic principles related to heating processes, including concepts of temperature, energy and work. Students examine the environmental impacts of Earth's thermal systems and human activities with reference to the effects on surface materials, the emission of greenhouse gases and the contribution to the enhanced greenhouse effect. They analyse the strengths and limitations of the collection and interpretation of thermal data in order to consider debates related to climate science.

Outcome 1

On completion of this unit the student should be able to apply thermodynamic principles to analyse, interpret and explain changes in thermal energy in selected contexts, and describe the environmental impact of human activities with reference to thermal effects and climate science concepts.

Area of Study 2

How do electric circuits work?

Modelling is a useful tool in developing concepts that explain physical phenomena that cannot be directly observed. In this area of study students develop conceptual models to analyse electrical phenomena and undertake practical investigations of circuit components. Concepts of electrical safety are developed through the study of safety mechanisms and the effect of current on humans. Students apply and critically assess mathematical models during experimental investigations of DC circuits.

Outcome 2

On completion of this unit the student should be able to investigate and apply a basic DC circuit model to simple battery-operated devices and household electrical systems, apply mathematical models to analyse circuits, and describe the safe and effective use of electricity by individuals and the community.

Area of Study 3

What is matter and how is it formed?

In this area of study students explore the nature of matter, and consider the origins of atoms, time and space. They examine the currently accepted theory of what constitutes the nucleus, the forces within the nucleus and how energy is derived from the nucleus.

Outcome 3

On completion of this unit the student should be able explain the origins of atoms, the nature of subatomic particles and how energy can be produced by atoms.

What do experiments reveal about the physical world?

In this unit students explore the power of experiments in developing models and theories. They investigate a variety of phenomena by making their own observations and generating questions, which in turn lead to experiments. Students make direct observations of physics phenomena and examine the ways in which phenomena that may not be directly observable can be explored through indirect observations.

In the core component of this unit students investigate the ways in which forces are involved both in moving objects and in keeping objects stationary. Students choose one of twelve options related to astrobiology, astrophysics, bioelectricity, biomechanics, electronics, flight, medical physics, nuclear energy, nuclear physics, optics, sound and sports science. The option enables students to pursue an area of interest by investigating a selected question.

Students design and undertake investigations involving at least one independent, continuous variable. A student designed practical investigation relates to content drawn from Area of Study 1 and/or Area of Study 2 and is undertaken in Area of Study 3. Area of Study 1 How can motion be described and explained? In this area of study students observe motion and explore the effects of balanced and unbalanced forces on motion. They analyse motion using concepts of energy, including energy transfers and transformations, and apply mathematical models during experimental investigations of motion. Students model how the mass of finite objects can be considered to be at a point called the centre of mass. They describe and analyse graphically, numerically and algebraically the motion of an object, using specific physics terminology and conventions.

Outcome 1

On completion of this unit the student should be able to investigate, analyse and mathematically model the motion of particles and bodies.

Area of Study 2 Options Twelve options are available for selection in Area of Study 2. Each option is based on a different observation of the physical world.

One option is to be selected by the student from the following: · What are stars? · Is there life beyond Earth's Solar System?

One option is to be selected by the student from the following: · What are stars? · Is there life beyond Earth's Solar System?

- How do forces act on the human body?
- How can AC electricity charge a DC device?
- How do heavy things fly?
- How do fusion and fission compare as viable nuclear energy power sources?
- How is radiation used to maintain human health?
- How do particle accelerators work?
- How can human vision be enhanced? Unit 2: What do experiments reveal about the physical world?
- How do instruments make music?
- How can performance in ball sports be improved? · How does the human body use electricity?

Area of Study 3

Practical investigation

Systematic experimentation is an important aspect of physics inquiry. In this area of study students design and conduct a practical investigation related to knowledge and skills developed in Area of Study 1 and/or Area of Study 2.

The investigation requires the student to develop a question, plan a course of action that attempts to answer the question, undertake an investigation to collect the appropriate primary qualitative and/or quantitative data, organise and interpret the data, and reach a conclusion in response to the question. The student designs and undertakes an investigation involving two independent variables one of which should be a continuous variable. A practical logbook must be maintained by the student for recording, authentication and assessment purposes.

Outcome 3

On completion of this unit the student should be able to design and undertake an investigation of a physics question related to the scientific world.

How are behaviour and mental processes shaped?

In this unit students examine the complex nature of psychological development, including situations where psychological development may not occur as expected. Students examine the contribution that classical and contemporary knowledge from Western and non-Western societies, including Aboriginal and Torres Strait Islander peoples, has made to an understanding of psychological development and to the development of psychological models and theories used to predict and explain the development of thoughts, emotions and behaviours. They investigate the structure and functioning of the human brain and the role it plays in mental processes and behaviour and explore brain plasticity and the influence that brain damage may have on a person's psychological functioning.

A student-directed research investigation into contemporary psychological research is undertaken in Area of Study 3. The investigation involves the exploration of research, methodology and methods, as well as the application of critical and creative thinking to evaluate the validity of a research study by analysing secondary data. The investigation draws on the key science skills and key knowledge from Area of Study 1 and/or Area of Study 2.

Area of Study 1

What influences psychological development?

The psychological development of an individual involves complex interactions between biological, psychological and social factors. In this area of study students explore how these factors influence different aspects of a person's psychological development, recognising that individuals are not fixed from birth but instead can grow and change psychologically across their lives.

Students consider the interactive influences of hereditary and environmental factors on a person's psychological development. They explore psychological development across the life span through the lens of emotional, cognitive and social development, including the consideration and evaluation of relevant models and theories.

Students explore concepts of normality and neurotypicality and consider how typical or atypical psychological development in individuals may be culturally defined, classified and categorised. They consider how normal cognitive variations within society can be illustrated through consideration of neurodiversity, investigating selected developmental differences. The role of mental health workers, psychologists, psychiatrists and organisations in supporting psychological development and the diagnosis and management of atypical behaviour is considered, and depending on interest and context, students may extend their understanding of atypical behaviour to explore the diagnosis and treatment of selected mental disorders.

Outcome 1

On completion of this unit the student should be able to discuss complexity of psychological development over the life span, and evaluate ways of understanding and representing psychological development.

Unit 2

How do internal and external factors influence behaviour and mental processes?

In this unit students 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 individuals and groups, recognising that different cultural groups have different experiences and values. Students are encouraged to consider Aboriginal and Torres Strait Islander people's experiences within Australian society and how these experiences may affect psychological functioning.

Students examine the contribution that classical and contemporary research has made to the understandings of human perception and why individuals and groups behave in specific ways. 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.

A student-adapted or student-designed scientific investigation is undertaken in Area of Study 3. The investigation involves the generation of primary data and is related to internal and external factors that influence behaviour and mental processes. The investigation draws on key knowledge and key science skills from Area of Study 1 and/or Area of Study 2.

Area of Study 1

How are people influenced to behave in particular ways?

In this area of study students explore the interplay of psychological and social factors that shape the identity and behaviour of individuals and groups. Students consider how factors such as person perception, attributions, attitudes and stereotypes can be used to explain the cause and dynamics of individual and group behaviours. Students explore how cognitive biases may assist with the avoidance of cognitive dissonance. They also consider the important role that heuristics have in problem-solving and decision-making.

Students are given an opportunity to explore the psychological impact of stereotypes, prejudice, discrimination and stigma on individuals and groups in Australian society, including on Aboriginal and Torres Strait Islander peoples. They investigate strategies to reduce prejudice, discrimination and stigma.

Students evaluate the findings of classical and contemporary research when considering impacts of social groups and culture on individual behaviour, including obedience and conformity. They explore the positive and negative influences of different media sources on an individual's mental wellbeing and group behaviour. They also consider mechanisms to understand group processes and biases that may assist in decision-making and the critical evaluation of people they encounter in life.

Outcome 1

On completion of this unit the student should be able to analyse how social cognition influences individuals to behave in specific ways and evaluate factors that influence individual and group behaviour.

Area of Study 2

How are mental processes and behaviour influenced by the brain?

In this area of study students explore how the understanding of brain structure and function has changed over time, considering the influence of different approaches and contributions to understanding the role of the brain. They develop their understanding of how the brain enables humans to interact with the external world around them and analyse the interactions between different areas of the brain that enable the processing of complex sensory information, the initiation of voluntary movements, language, decision-making, and the regulation of emotions.

Students consider how the brain changes with age and experience, and subsequently how mental functions adapt. Students explore neuroplasticity as the result of experience and brain trauma. They investigate ways to maintain brain functioning and an opportunity is provided to investigate the impact of acquired brain injuries (ABIs), to consolidate students' understanding of brain functioning. Chronic traumatic encephalopathy (CTE) is also considered as area of contemporary research into progressive and fatal brain disease.

Outcome 2

On completion of this unit the student should be able to analyse the role of the brain in mental processes and behaviour and evaluate how brain plasticity and brain injury can change biopsychosocial functioning.

Area of Study 3

How does contemporary psychology conduct and validate psychological research?

Researchers in psychology work to continually expand and refine the ability to understand and describe human thoughts, feelings and behaviours and to review the validity of research already conducted in a particular area of research. Historically, psychological research has been conducted using samples selected from Western, educated, industrialised, rich and democratic (WEIRD) societies – samples that under-represent a large proportion of the overall population. Reproducing previous research with different population groups has led to the accuracy of published findings and the external validity of the original research being questioned.

In this area of study students investigate how science is used to explore and validate contemporary psychological research questions. Making connections between the research of others and their own learning enables students to explore and compare responses to contemporary psychological concepts as well as engage in the analysis and evaluation of methodologies, methods and conclusions of research studies. When evaluating information and research, students consider questions such as 'Where does this idea come from?', 'Can it be tested empirically?', 'What are the underlying scientific processes?', 'What is the scientific evidence to support the research question?', 'Does the evidence address the research question?', 'Is the claim well justified?', 'Is the evidence subject to critique?', 'What uncertainties still exist?' and 'Have cultural biases impacted on the research design, data collection and interpretation?'

Students select and evaluate a recent discovery, finding, innovation, issue, advance or case study linked to the knowledge and skills developed in Area of Study 1 and/or Area of Study 2. Students may develop a research question individually or in conjunction with their class or a group of students. Possible starting points when developing a research question include reviewing contemporary research such as announcements of recent psychological research, an expert's published point of view, a TED Talk, a YouTube presentation, a report from a community program or an article from a scientific publication.

Analysing and synthesising secondary data, students demonstrate and apply their knowledge and relevant key science skills to identify the psychological concepts specific to the research question; consider different perspectives and evidence available; identify any social, economic, legal and/or political factors relevant to the selected research question; and analyse and evaluate the validity of the psychological research.

Students consider the appropriateness of different methodologies to the needs and world views of Aboriginal and Torres Strait Islander peoples and identify cultural biases in research methods and data interpretations, including those that may exclude Aboriginal and Torres Strait Islander voices and knowledges.

When communicating their findings, students apply critical and creative thinking and scientific inquiry skills to explain the relevant psychological concepts; critically examine the evidence available to answer the research question; and identify the sociocultural, economic, political, legal and ethical implications of the selected investigation for society.

Outcome 3

On completion of this unit the student should be able to identify, analyse and evaluate the evidence available to answer a research question relating to contemporary psychology.

How do internal and external factors influence behaviour and mental processes?

In this unit students 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 individuals and groups, recognising that different cultural groups have different experiences and values. Students are encouraged to consider Aboriginal and Torres Strait Islander people's experiences within Australian society and how these experiences may affect psychological functioning.

Students examine the contribution that classical and contemporary research has made to the understandings of human perception and why individuals and groups behave in specific ways. 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.

A student-adapted or student-designed scientific investigation is undertaken in Area of Study 3. The investigation involves the generation of primary data and is related to internal and external factors that influence behaviour and mental processes. The investigation draws on key knowledge and key science skills from Area of Study 1 and/or Area of Study 2.

Area of Study 1

How are people influenced to behave in particular ways?

In this area of study students explore the interplay of psychological and social factors that shape the identity and behaviour of individuals and groups. Students consider how factors such as person perception, attributions, attitudes and stereotypes can be used to explain the cause and dynamics of individual and group behaviours. Students explore how cognitive biases may assist with the avoidance of cognitive dissonance. They also consider the important role that heuristics have in problem-solving and decision-making.

Students are given an opportunity to explore the psychological impact of stereotypes, prejudice, discrimination and stigma on individuals and groups in Australian society, including on Aboriginal and Torres Strait Islander peoples. They investigate strategies to reduce prejudice, discrimination and stigma.

Students evaluate the findings of classical and contemporary research when considering impacts of social groups and culture on individual behaviour, including obedience and conformity. They explore the positive and negative influences of different media sources on an individual's mental wellbeing and group behaviour. They also consider mechanisms to understand group processes and biases that may assist in decision-making and the critical evaluation of people they encounter in life.

Outcome 1

On completion of this unit the student should be able to analyse how social cognition influences individuals to behave in specific ways and evaluate factors that influence individual and group behaviour.

Area of Study 2

What influences a person's perception of the world?

Human perception of internal and external stimuli is influenced by a variety of biological, psychological and social factors. In this area of study students explore the role of attention in making sense of the world around them and they consider two aspects of human perception – vision and taste – and consider how perception is influence by cultural norms and historical experiences.

Students explore the influence of biological, psychological and social factors on visual and gustatory perception. Perceptual distortions of vision and taste are explored when looking at the fallibility of perceptual systems. Students may choose to explore a range of different visual illusions to understand how individuals misinterpret real sensory stimuli. Different forms of agnosia may be investigated by students to understand issues with sensory processing areas within the brain.

Aboriginal and Torres Strait Islander experiences of sensory connection to Country and/or Place, ancestors, spirituality and songlines may also be considered.

Outcome 2

On completion of this unit the student should be able to explain the roles of attention and perception, compare gustatory and visual perception and analyse factors that may lead to perceptual distortions.

Area of Study 3

How do scientific investigations develop understanding of influences on perception and behaviour?

Individuals are influenced by a variety of biological, psychological and social and cultural factors. These determinants can be classified as either internal or external factors and they lead to a diverse range of perceptions and behaviour.

In this area of study students adapt or design and then conduct a scientific investigation into the internal or external influences on perception and/or behaviour. They generate appropriate qualitative and/or quantitative data, organise and interpret the data, and research a conclusion in response to the research question.

The student-adapted or student-designed scientific investigation relates to knowledge and skills developed in Area of Study 1 and/or Area of Study 2.

Outcome 3

On completion of this unit the student should be able to adapt or design and then conduct a scientific investigation related to internal and external influences on perception and/or behaviour and draw an evidence-based conclusion from generated primary data.

The role of religion in society

In this unit students explore the spiritual origins of religion and understand its role in the development of society, identifying the nature and purpose of religion over time. They investigate religion, including the totality of phenomena to which the term 'religion' refers, and acknowledge religion's contribution to the development of human society. They also focus on the role of spiritualities, religious traditions and religious denominations in shaping personal and group identity over time. Students examine how individuals, groups and new ideas have affected and continue to affect spiritualities, religious traditions and religious denominations.

The unit provides an opportunity for students to understand the often complex relationships that exist between individuals, groups, new ideas, truth narratives, spiritualities and religious traditions broadly and in the Australian society in which they live. A range of examples is studied throughout the unit. For all areas of study, students explore detailed examples from more than one spirituality, religious tradition or religious denomination. These may be from one or more of the groups below. In addition, for Areas of Study 1 and 2 further shorter illustrative examples should be selected for study from across all the groups below:

- Spiritualities of First Nations peoples (such as in Australia and Oceania; Africa; Canada and the rest of the Americas; Siberia and the rest of Russia; Scandinavia)
- Spiritual and religious ideas in prehistory (associated with, for example, hunter-gatherer societies, Çatalhöyük, Göbekli Tepe, Jericho, Lascaux, Stonehenge)
- Religious traditions of ancient civilisations and empires (such as Babylonia, Canaan, Ancient China, Ancient Egypt, the Indus Valley civilisation, Ancient Rome, Sumer)
- Asian religious and philosophical traditions (such as Buddhism, Confucianism, Hinduism, Jainism, Shintoism, Sikhism, Taoism)
- Abrahamic religions (such as the Baha'i Faith, Christianity, Islam, Judaism).

Students consider the aspects of religion when investigating selected spiritualities, religious traditions and religion in general.

The Nature and Purpose of Religion

In this area of study students are introduced to the nature and purpose of religion in general, exploring the role of religion in shaping and giving meaning to individuals and communities. Religion has often been drawn on to provide explanations for all phenomena, offering a means for finding answers to the big questions of life and answering such questions. Students examine the aspects of religion in general, and then apply the aspects of religion as a framework to further examine spiritualities, religious traditions and religious denominations. They also study the interrelation of these aspects generally, and apply the aspects to spiritualities, religious traditions and religious denominations studied. They investigate how the aspects may vary between spiritualities, religious traditions and religious denominations.

Outcome 1

On completion of this unit the student should be able to discuss the nature and purpose of religion and examine the aspects of religion as they apply to selected examples.

Area of Study 2

Religion Through the Ages

In this area of study students investigate how society and religion influence each other, and the roles of religion in society. They consider the factors that influence these roles and the effect that developments in society might have on religion.

Spirituality and religion have been an integral part of the development of human societies as cultural knowledge and understanding is passed from generation to generation through a process of socialisation. As people spread across the globe they encountered and exchanged religious and cultural ideas. Over time, religious traditions have encountered challenging philosophical and spiritual movements, political regimes, legal structures, scientific ideas, colonisation, national myths, globalisation, secularisation, technological developments and historical events.

These encounters have led to religious traditions taking various roles to initiate, endorse, modify or resist the spread of ideas and movements in society.

At times in history some spiritualities, religious traditions and religious denominations have lost the authority and power to explain meaning for their society and have been abandoned; other spiritualities, religious traditions and religious denominations have adapted and been resilient or were re-established in a different form. Some spiritualities, religious traditions and religious denominations have been able to adopt and adapt beliefs, ideas and practices from other religious traditions while retaining their distinctiveness.

Outcome 2

On completion of this unit the student should be able to discuss the changing roles and influence of religion in society

Area of Study 3
Religion in Australia

In this area of study students consider spiritualities and religion in Australia, past and present, and the influences on Australian religious composition, in particular from colonisation, migration and secularisation. They explore how the communities and later institutions of these spiritualities, religious traditions and religious denominations perceived themselves and expressed their collective identity in Australia. This expression of collective identity may have been cohesive or diverse. Students also examine the influence of religion on the personal identity of members, who may adopt religious ideas or practices from other spiritualities, religious traditions and religious denominations. They explore the influence of spiritualities, religious traditions and religious denominations on the development of social infrastructure in Australia, and consider factors such as the laws governing the provision of education and welfare. This exploration should include the interfaith and ecumenical initiatives between and within spiritualities, religious traditions and religious denominations in Australia and trends of religious adherence in Australia.

Outcome 3

On completion of this unit the student should be able to discuss the presence of religion in Australia, past and present.