



**Curriculum
Council**

GEOGRAPHY

IMPORTANT INFORMATION

Syllabus review

Once a course syllabus has been accredited by the Curriculum Council, the implementation of that syllabus will be monitored by the syllabus committee. This committee can advise council about any need for syllabus review. Syllabus change deemed to be minor requires schools to be notified of the change at least six months before implementation. Major syllabus change requires schools to be notified 18 months before implementation. Formal processes of syllabus review and requisite reaccreditation will apply.

Other sources of information

The Western Australian Certificate of Education (WACE) Manual contains essential information on assessment, moderation and other procedures that need to be read in conjunction with this course.

The Curriculum Council will support teachers in delivering the course by providing resources and professional development online.

The council website www.curriculum.wa.edu.au provides support materials including sample programs, assessment outlines, assessment tasks, with marking keys, sample examinations with marking keys and grade descriptors with annotated student work samples.

Training package support materials are developed by Registered Training Organisations (RTOs), government bodies and industry training advisory bodies to support the implementation of industry training packages. Approved support materials are listed at www.ntis.gov.au

WACE providers

Throughout this course booklet the term 'school' is intended to include both schools and other WACE providers.

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Rationale

Geography is a field of inquiry that brings together the human and physical dimensions of the world in the study of people, places and environments. This includes the study of interrelationships between natural and human environments and the spatial patterns that result from and account for these processes over time.

Geography addresses questions about the interaction of natural and human environments within various natural and social systems. It examines the factors that impact upon decisions about sustainability, the conflicting values between individuals and groups over sustainability and the degree of commitment towards sustainable development.

The rapidly changing nature of our world and the complexity of interrelationships between people and places demand solutions that reflect public decision-making and the need to balance the competing demands, views and values of the various stakeholders. In the course, a wide range of issues are explored such as energy-efficient planning, natural disasters, water management, biodiversity, urban living and changing agricultural practices. These issues and their implications are examined at local, regional, national and international levels with a view to making sense of the present and evaluating future solutions. In assessing solutions that take into account economic, social and environmental considerations, students develop an understanding of how a balanced, sustainable future can be achieved.

Students develop a range of skills that help them to understand the physical world, interpret the past, scrutinise the present and explore sustainable strategies for the future care of places. They are able to understand recent and future developments, such as urban planning, climate change, environments at risk, sustainable development practices and the unequal distribution of resources throughout the world.

These understandings and skills are transferable and applicable to the world of work and everyday life and offer a framework for a systematic understanding of our environment and society, both now and in the future. The course assists students to make informed decisions about where and how they will live, work, recreate, travel and seek opportunities. By the nature of the issues explored, the course inspires students to question their own values, rights and responsibilities in caring for the environment and living in a civil society.

The understandings, skills, knowledge and values developed in the course will ensure students are well placed to enrol in post-school studies at tertiary levels and employment in the workforce. They are important components of all management positions

in business, government and non-government agencies. They are also significant to careers associated with tourism, town planning, primary industries, such as agriculture and mining, land evaluation, environmental planning, teaching, overseas aid programs, foreign affairs and trade.

This course provides students with the opportunity to further their achievement of specific overarching learning outcomes from the Curriculum Framework together with the development of the core-shared values.

Course outcomes

The Geography course is designed to facilitate the achievement of three outcomes. These outcomes are based on the Society and Environment learning area outcomes from the Curriculum Framework. Outcomes are statements of what students should know, understand, value and be able to do as a result of the syllabus content taught.

Outcome 1: Geographical inquiry

Students investigate the interactions that occur within natural and cultural environments in order to make informed decisions and communicate findings.

In achieving this outcome, students:

- plan ways to gather and organise geographical information;
- conduct investigations by using geographical inquiry methods;
- process and translate information gained from geographical investigations to form conclusions; and
- evaluate, apply and communicate findings of geographical investigations to suit a purpose or an audience.

Outcome 2: Features of places

Students understand that features of places are shaped by natural and social systems over time.

In achieving this outcome, students:

- understand that places consist of natural and cultural landscape features;
- understand that the features of places are influenced by natural processes and human activities; and
- understand that natural and social systems form patterns of features on the Earth's surface that change over time.

Outcome 3: People and places

Students understand that the interdependence of people and places is shaped by the ways that people interact with their environments and the degree to which they adopt sustainable practices.

In achieving this outcome, students:

- understand that there is an interdependent relationship between people and places;
- understand that people view and value their environments in different ways; and
- understand that the degree to which people adopt sustainable practices and solutions influences the nature of their impact on their environments.

Outcome progressions

Each of the outcomes is described as a learning progression across six broad levels (pages 27–29). In teaching a particular course unit, teachers can use the outcome progressions along with the unit content and contexts to:

- plan appropriate lessons and activities for their students, and
- develop specific assessment tasks and marking keys.

Course content

The course content needs to be the focus of the learning program. It enables students to maximise their achievement of both the overarching learning outcomes from the Curriculum Framework and the Geography course outcomes.

The course content is divided into three content areas:

- place and change
- human influence on sustainability
- geographical thinking, skills and processes.

Place and change

Location and spatial distribution

An understanding of where natural and cultural features and human activities occur serves as a prerequisite for the appreciation of place and change. The development of skills and conceptual understandings relevant to location include: grid referencing; latitude and longitude; distance and direction; scale; site and situation and density and distribution. Central to the study of location and spatial distribution are the factors of distance, time, change, frequency, scale and density.

Areas of study may include descriptions of patterns created by local, regional, national or global phenomena (features and processes). For example, natural phenomena could include the distribution of wetlands; plate tectonic activity (e.g. volcanoes, earthquakes); and the general pattern of world biomes, pressure belts and climates. Possible cultural dimensions for study include the patterns of urban land use and economic development e.g. mining and agriculture.

Spatial association

Spatial association compares the distribution patterns of different phenomena (features and processes) on Earth's surface. Examination of the extent to which things are arranged in a similar way is undertaken. By comparing patterns, the strength of the relationship (degree of association) between two or more phenomena is identified. A strong spatial association exists where distributions are similar e.g. the distribution of tropical rainforests is strongly associated with the location of wet tropical climates. A weak association shows little similarity in distribution e.g. between schools and shopping centres. Dissimilar distributions show no association e.g. airports and boat harbours. The relative strength of association is evaluated using both simple methods (such as comparison of data from maps) and more exact statistical methods (such as correlation coefficients).

Understanding spatial association is fundamental to understanding the relationships between humans and the environment. An understanding of spatial relationships is developed through examining the factors that contribute to patterns of location, distribution and association. For example, climate, topography, soil and vegetation have all influenced the location of agricultural activities, while the relationship between physical and cultural inputs, farming practices and outputs create a variety of agricultural systems. There is an emphasis on relationships within and between systems, and the processes that take place. For example, subduction needs to be understood in order to account for plate tectonic movements and associated landforms.

Through an examination of the degree of spatial association between features, the reasons for these associations can be identified. Comparing associations at different times allows a focus on change and the reasons why this may or may not have occurred.

Spatial interaction

Spatial interaction is about the movement or the flows (e.g. of air, water, material, life forms, people, goods or information) between different locations on the Earth's surface. It is concerned with the impact of processes and relationships involved with interactions, the trends created and change over time.

These relationships can be part of social systems (e.g. the relationship between areas of migration origin and destination), natural or biophysical systems (e.g. the relationship between mountain rain and snowfall and river flow) or between humans and the natural environment e.g. the relationships between climate and agriculture in nomadic or transhumance systems.

Understanding natural systems and the interrelationships within these systems involves concepts such as adaptation, interdependence and equilibrium. The diversity of ecosystems will be explained by referring, in context, to climate, soil and topography. At the higher levels, human impact on natural cycles will be investigated and the sustainable use of natural resources will be explored.

Human influence on sustainability

Factors that impact on decisions about sustainability

Sustainability is about meeting the needs of current and future generations through simultaneous environmental, social and economic adaptation and improvement. An understanding of the complexities of sustainability and the issues associated with caring for the environment are explored when examining the various factors that impact on natural and human environments. These include social factors such as population pressures and traditional uses of various natural resources; political factors such as the influence of pressure groups, world heritage listing and international treaties; economic factors such as the need for employment, increasing world demand for natural resources and the desire to increase standards of living. These forces will be explored at local, regional, national and global levels. The reasons why sustainability is difficult to achieve are examined. The application of detailed understandings about sustainability is addressed when proposing a range of solutions to complex problems.

Values and viewpoints in people's use of places

Identifying people's reasons for using places in particular ways, and the values positions they hold, helps determine their level of commitment to sustainability. Understandings as to why people have different points of view about the use of places are investigated. These include, for example, differences between groups regarding land management practices (past and present). It also includes understanding conflicting views on the use of particular places, such as the South-West forests or Ningaloo Reef. An understanding of the complexity of factors involved in the conflicts arising from people's differing attitudes and values towards ecological sustainability and the changes that occur over time.

Care of places

Caring for the places occurs at all levels, from the personal and local community to global. In a democratic society caring for places involves cooperation and is carried out in various ways. These range, for example, from responsible social action carried out in a community setting, through to influencing the political process to violent direct action. Possible contexts for care of places could be the development of an action plan to care for a wetland or historic townscape through to applying democratic processes to encourage the world heritage listing of a significant area. By learning to

explore and clarify issues in such contexts, students develop skills of democratic processes and social action. Students are encouraged to undertake a critical analysis of policies and processes associated with land-use planning and environmental decisions on a local, regional, national or global scale.

Geographical thinking, skills and processes

Geographical thinking and questioning

Geographical thinking is used to develop understandings about patterns and processes occurring on or close to the Earth's surface. The principles of geography as a spatial science are applied to the study of the natural and cultural features of places, and to patterns, processes, interactions and complex interrelationships in natural and human environments. An investigation of these features and relationships allows identification and development of an understanding of the nature of places in order to make decisions and/or take social action. Geographical terminology is used to develop knowledge and understandings and to plan, conduct, process, translate and communicate findings.

A range of questions are explored when thinking about a geographical investigation, such as:

- Where and what are the features or patterns or processes being studied?
- How and why are they there?
- What are their short- and/or long-term impacts or consequences?
- What can be done to address these consequences?

When conducting a geographical investigation the following ethical considerations are made:

- acknowledge sources of information
- use an approved referencing technique
- use correct protocols and procedures when collecting and communicating data
- reflect on the extent to which ethical processes have been followed.

Geographical inquiry skills

The core skills listed below are those which students develop in Units 1A–3B. There are also additional skills detailed in the unit content.

Generic mapping skills

- apply the conventional signs contained in the map legend
- use the north point to give general compass directions (8 points)
- locate a place on atlases and topographic maps, having been given its latitude and longitude
- state the latitude and longitude of a given place or feature

- use a line scale to measure distances for both straight and curved lines on maps of different scales
- identify and interpret natural features
- identify and interpret cultural features
- identify and interpret the spatial relationships between natural and cultural features.

Thematic mapping skills

- construct, identify, interpret and apply data from isoline maps, choropleth maps, overlay and dot distribution maps
- construct précis or sketch maps.

Topographic maps

- identify that topographic maps are medium scale maps that depict a range of physical and cultural features
- use eastings and northings to locate features on a map by using six-figure grid references for the location of points and four-figure grid references for the location of grid squares
- identify that contours and relief shading are used to depict relief and that spot heights are used to indicate the height of a particular object
- use topographic map evidence and marginal information to determine the latitude and longitude of places and the location of the map
- use the spacing of contour lines to describe the steepness and shape (uniform/concave/convex) of slopes
- construct simple, annotated cross-sections
- identify and describe landform features on the topographic map using contour patterns
- describe interrelationships between the relief, vegetation, drainage, settlements, transport networks and land use patterns.

Photographs and satellite imagery

- identify and describe physical and cultural features and patterns on the Earth's surface from photographs, aerial photographs (i.e. vertical, oblique) and satellite and radar imagery e.g. Landsat and weather satellites
- use photographs and satellite imagery as an aid to the interpretation of topographic maps.

Fieldwork

- collect fieldwork data using techniques such as surveys and interviews, observing and recording, listening, questioning, sketching and annotating, measuring and counting, photographing and note-taking
- collate fieldwork data using techniques such as listing, tabulating, reporting, graphing, constructing diagrams and mapping
- analyse and interpret fieldwork data.

Statistical skills

- understand and apply arithmetic mean, median and range.

Graphing skills

- interpret and apply a line graph, bar graph, pie graph, proportional circle graph and scatter graph.

Geographical information systems

- use online atlases, pre-prepared maps and satellite photographs to aid in describing, classifying and interpreting spatial patterns.

Information and communications technology

- use of ICT to specialise in a geographic context to plan, conduct, analyse and represent geographical data and/or issues
- simple applications of GIS (geographic information systems) software, online atlases, maps and satellite photographs to aid in describing, classifying and interpreting spatial patterns.

Forms of geographical communication

Understandings about the spatial features of natural and cultural environments are communicated. Conclusions about human interaction with natural environments for a sustainable future are drawn. Understandings and conclusions are applied and communicated in a manner appropriate to an audience using the terminology and conventions of geographical written and oral communication. Visual forms of representing information are an essential component of geographical communication.

Appropriate choices are made regarding the technologies used to represent this information. For example, relevant maps may be drawn or created digitally using GIS software to represent and analyse collected data. Judgements must be communicated and used in an ethical way. The consequences of these judgements need to be explored and the original understandings and assumptions reviewed. These will be re-examined against the original assumptions and recommendations posed for future applications.

Decisions are made and/or social action proposed about the use of natural resources and how to care for places. This action can be applied and communicated in a range of ways. For instance, writing submissions to local councils or state governments in response to issues such as urban planning proposals e.g. development of Perth's Swan River foreshore. Submissions should include typical geographic communicating tools such as maps, diagrams, graphs and models.

Course units

Each unit is defined with a particular focus and a selection of learning contexts through which the specific unit content can be taught and learnt. The cognitive difficulty of the content increases with each stage and is referenced to the broad learning described in the outcome progressions. The pitch of the content for each stage is notional and there will be overlap between stages.

Stage 1 units provide bridging support and a practical and applied focus to help students develop skills required to be successful for Stage 2 units. The content is notionally pitched at levels 3 to 4.

Stage 2 units provide opportunities for applied learning but there is a focus more on academic learning. The content is notionally pitched at levels 4 to 6.

Stage 3 units provide opportunities to extend knowledge and understandings in challenging academic learning contexts. The content is notionally pitched at levels 6 to 8.

Unit 1AGEO

The focus for this unit is the **geography of environments at risk**. In the local area, in particular regions and globally, people pose threats to the environment as they attempt to meet their needs. This can place environments at risk and people's interests and concerns can often be in conflict. Publicity campaigns are mounted, but what is most desirable is that sustainable solutions emerge through analyses of the situations and the interrelationships that such analyses expose.

Unit 1BGEO

The focus for this unit is the **geography of people and places** where students will have the opportunity to apply geographical concepts to a specified spatial or regional area. Students will learn about the natural and cultural characteristics of this region and about the processes that have enabled it to change over time. As a result of the study of this unit, students will be able to understand and apply the concept of a region to other regions in different scales.

Unit 2AGEO

The focus of this unit is the **geography of natural hazards and impact minimisation**. The increasing incidence of hazards, together with their impact on standards of living, has prompted the active search for proposed solutions. An understanding of how these hazards are perceived and managed at a local, regional and global level is developed in a range of ways. First, an understanding of hazards (geomorphic/tectonic and atmospheric) is developed. Secondly, the spatial distribution of hazards, the cause and impact and increased risk is examined. Finally, students investigate strategies to minimise the risks associated with hazards.

Unit 2BGEO

The focus of this unit is the **geography of sustainable resource use**. Natural resources provide the basis for economic growth in Australia. There is an unprecedented global demand for these resources. Future provision will require application of sustainable management practices to resource development and the surrounding environment. Regional perspectives supported with local area case studies are used to investigate spatial patterns that emerge between resource developments, local communities and market destinations. There is a need to evaluate management practices that can sustain these resources into the future. Approaches to sustainable management can vary significantly between countries in terms of social, economic and environmental factors. Students will compare these spatial patterns and practices in resource use in Australia to those in a less developed country.

Unit 3AGEO

The focus of this unit is the **geography of planning cities**. Challenges exist in designing cities to be more productive, vibrant and sustainable. Urban planning involves a range of stakeholders that contribute to decision-making and the planning process. The present and future needs of society are addressed by the allocation and reallocation of land uses, improving infrastructure and transport systems and enhancing amenities to meet the different perspectives of stakeholders. Students will examine concepts, processes and roles of planning by comparing Perth with a selected megacity.

Unit 3BGEO

The focus of this unit is the **geography of climate change over geological time**. This global phenomenon possesses the capacity to affect significant areas of the planet. Climate change, including the greenhouse effect, is created by both natural and human processes that have local and global consequences. The human response to climate change is affected by social, economic and political considerations, and resource access and distribution. Students will investigate policies and strategies designed to guide future action used to address the effects of the climate change.

Time and completion requirements

The notional hours for each unit are 55 class contact hours. Units can be delivered typically in a semester or in a designated time period up to a year depending on the needs of the students. Pairs of units can also be delivered concurrently over a one year period. Schools are encouraged to be flexible in their timetabling in order to meet the needs of all of their students.

A unit is completed when all assessment requirements for that unit have been met. Only completed units will be recorded on a student's statement of results.

Refer to the new WACE Manual for details about unit completion and course completion.

Vocational Education Training information

Vocational Education Training (VET) is nationally recognised training that provides practical work skills and credit towards, or attainment of, a vocational education and training qualification.

When considering VET delivery in courses it is necessary to:

- refer to the WACE Manual, Section 4: Vocational Education Training, and
- contact education sector/systems representatives for information on operational issues concerning VET delivery options in schools.

Australian Quality Training Framework (AQTF)

AQTF is the quality system that underpins the national vocational education and training sector and outlines the regulatory arrangements in states and territories. It provides the basis for a nationally consistent, high-quality VET system.

The AQTF Standards for Registered Training Organisations outline a set of auditable standards that must be met and maintained for registration as a training provider in Australia.

VET delivery

VET can be delivered by schools providing they meet Australian Quality Training Framework (AQTF) requirements. Schools need to become a Registered Training Organisation (RTO) or work in partnership (auspicing arrangement) with an RTO to deliver training within the scope for which they are registered. If a school operates in partnership with an RTO, it will be the responsibility of the RTO to assure the quality of the training delivery and assessment. Qualifications identified in this course must be on the scope of

registration of the RTO delivering or auspicing training.

Units of competency from selected training package qualifications have been taken into account during the development of this course.

Schools seeking to link delivery of this course with units of competency or qualification must read the information outlined in the relevant training package/s. This information can be found at the National Training Information Service website: www.ntis.gov.au.

National Training Package

FPI05 Forest and Forest Products Industry

Qualifications

FPI10105 Certificate I in Forest and Forest Products

National Training Package

SRO03 Outdoor Recreation Industry

Qualifications

SRO20206 Certificate II in Outdoor Recreation

Note: Any reference to units of competency from training packages mentioned are correct at the time of accreditation.

Resources

A detailed list of textbooks, teacher references, teacher guides and manuals can be found at www.det.wa.edu.au/education/cmis/eval/curriculum/courses/

Assessment

Refer to the new WACE Manual for policy and principles for both school-based assessment and examinations.

School-based assessment

The four types of assessment in the table below are consistent with the teaching and learning strategies considered to be the most supportive of student achievement of the outcomes in the Geography course. The table provides details of the assessment types, including examples of different ways that they can be applied and the weighting range for each assessment type.

Teachers are to use the assessment table to develop their own assessment outlines.

An assessment outline needs to be developed for each class group enrolled in each unit of the course. This outline includes a range of assessment tasks that cover all assessment types and course outcomes with specific weightings. If units are delivered concurrently, assessment requirements must still be met for each unit.

In developing assessment outlines and teaching programs the following guidelines should be taken into account.

- All tasks should take into account teaching, learning and assessment principles from the Curriculum Framework.
- There is flexibility within the assessment framework for teachers to design school-based assessment tasks to meet the learning needs of students.
- Student responses may be communicated in any appropriate form e.g. written, oral, graphical, multimedia or various combinations of these.
- Student work submitted to demonstrate achievement of outcomes should only be accepted if the teacher can attest that, to the best of her/his knowledge, all uncited work is the student's own.
- Evidence collected for each unit should include tasks conducted under test conditions.

Assessment table			
Weightings			Assessment types
Stage 1	Stage 2	Stage 3	
30%–50%	20%–30%	20%–30%	<p>Geographical inquiry A range of scientific and observational methodologies are used when investigating geographic phenomena. Geographical inquiry is a process where students plan and conduct investigations, process and translate information, and communicate findings following ethical protocols and procedures. Both primary and secondary information sources are used e.g. ABS (Australian Bureau of Statistics). <i>Examples: project, assignment, report, presentation.</i></p>
20%–40%	10%–20%	10%–20%	<p>Fieldwork/practical skills Fieldwork involves students actively engaged in collecting primary data. This can be done through field observations and the use of data gathering techniques such as surveys, questionnaires and interviews. Practical skills involve the collection and interpretation of data from a number of sources. These can include maps, photographs, tables, graphs and statistics. <i>Examples: coastal landscape excursion, CBD (Central Business District) study, forest investigation.</i></p>
10%–30%	25%–35%	25%–35%	<p>Short and extended responses Short and extended response assessments require students to answer questions that demonstrate ability to understand the key concepts in the geography course. These assessments are usually completed in class and can involve a response to stimulus material. <i>Examples: tests, essays, multiple-choice questions.</i></p>
0%–25%	25%–40%	25%–40%	<p>Examination Examinations are major assessments held at the completion of a unit or pair of units. Exams require students to demonstrate their knowledge and understandings of key geographical content and skills.</p>

Grades

Grade descriptors (A–E) for Stage 1, Stage 2 and Stage 3 are to be used in reporting student achievement at the end of a course unit. Along with annotated work samples, they illustrate specific characteristics of student achievement across a range of assessment types. This enables teachers to better determine grade cut-offs and to assign grades in consistent ways. The grades package for this course can be accessed on the course page at http://www.curriculum.wa.edu.au/internet/Senior_Secondary/Courses/Geography/

WACE examination details

All students who have studied two Stage 2 or Stage 3 units in their final year will sit an external examination. Details of the examination in this course are prescribed in the examination design briefs and are summarised below. The design briefs can be accessed on the course page at http://www.curriculum.wa.edu.au/internet/Senior_Secondary/Courses/Geography/

Stage 2 Examination

Written Examination

Three hours working time with ten minutes reading time

Section One

Multiple-choice

20% of the written exam

20 questions

Suggested working time: 30 minutes

Section Two

Short answer

30% of the written exam

8–10 short answer questions

Suggested working time: 60 minutes

Section Three

Sectionalised extended answer

Part A: Unit 2A

25% of the written exam

One question from a choice of two

Suggested working time: 45 minutes

Part B: Unit 2B

25% of the written exam

One question from a choice of two

Suggested working time: 45 minutes

Stage 3 Examination

Written Examination

Three hours working time with ten minutes reading time

Section One

Multiple-choice

20% of the written exam

20 questions

Suggested working time: 30 minutes

Section Two

Short answer

20% of the written exam

7–9 short answer questions

Suggested working time: 40 minutes

Section Three

Sectionalised extended answer

Part A: Unit 3A

30% of the written exam

One question from a choice of two

Suggested working time: 55 minutes

Part B: Unit 3B

30% of the written exam

One question from a choice of two

Suggested working time: 55 minutes

UNIT 1 AGEO

Unit description

The focus for this unit is the **geography of environments at risk**. In the local area, in particular regions and globally, people pose threats to the environment as they attempt to meet their needs. This can place environments at risk and people's interests and concerns can often be in conflict. Publicity campaigns are mounted, but what is most desirable is that sustainable solutions emerge through analyses of the situations and the interrelationships that such analyses expose.

The focus of this unit is on investigating the spatial patterns and processes related to environments at risk, and to the protection of such environments through management at local, regional and global levels. Students develop geographical methodologies that are applicable and useful in the workplace and relevant to a changing world. They may also provide them with the framework to explore careers in the environmental protection/rehabilitation and tourism industry.

Unit learning contexts

Within the broad area of **environments at risk** students will study one or more of the following contexts. Teachers are encouraged to use local contexts where possible (this list is not exhaustive):

- catchments e.g. Swan River; Nile River
- coasts e.g. Penguin Island and Point Peron, Californian coast
- coral reefs e.g. Ningaloo, Great Barrier
- world biomes e.g. rainforest, temperate forests, sclerophyllous forest
- wetlands e.g. Lake Monger, Lake Nukuru (Kenya)
- glacial environments e.g. Fox Glacier, Antarctica
- national parks e.g. Purnululu (Bungle Bungle), Hwange (Zimbabwe).

Unit content

This unit includes knowledge, understandings and skills to the degree of complexity described below:

- using examples, differentiate between natural and cultural features of environments
- define the term ecosystem
- identify the elements (biotic and abiotic) of an ecosystem
- explain the concept of sustainability.

Place and change

Location and spatial distribution

In relation to the ecosystem studied:

- describe the location and distribution of the ecosystem.

Spatial association

- describe the characteristics of the following elements of the ecosystem:
 - climate e.g. temperature and rainfall
 - soils and landforms e.g. soil structure and topography
 - flora and fauna e.g. dominant species and community structure
- describe the associated cultural landscape in relation to the ecosystem studied i.e. describe the cultural patterns and processes within the ecosystem e.g. bauxite mining within the jarrah forest.

Spatial interaction

- describe the interaction between the flora and fauna of the chosen ecosystem. Include the following concepts:
 - biodiversity
 - food chains and webs
 - biomass
 - trophic levels
 - pyramid of numbers
 - pyramid of energy
 - flows of matter and energy
- describe the interrelationships between biotic elements and abiotic elements of the ecosystem studied e.g. xerophytic adaptations of plants to drought conditions
- describe how human activity and land use impact upon the ecosystem's patterns and processes.

Human influence on sustainability

Factors that impact on decisions about sustainability

- describe the environmental, economic and social factors that impact upon decisions about sustainability of the ecosystem.

Values and viewpoints in people's use of places

- evaluate the extent to which current land use practices are sustainable within the ecosystem
- identify and explain the different views towards these human activities.

Care of places

- outline the benefits of implementing sustainable practices within the ecosystem.

Geographical thinking, skills and processes

Refer to pages five and six for a list of generic skills included in this unit.

Geographical thinking and questioning

- establish the purpose for the investigation
- identify and cluster ideas
- devise focus questions using a variety of questioning techniques
- identify observations, data and sources required for investigation
- identify factors affecting reliability of data
- use appropriate geographical language to identify and describe phenomena in the context of study.

Geographical inquiry skills

- use information obtained from a variety of maps (i.e. topographic maps, atlas maps, sketch maps and synoptic charts) and photographs (i.e. oblique, aerial and satellite) to identify, locate and describe natural and cultural landscape features and patterns of features (formal regions)
- use technology in a geographic context to represent and analyse geographical data
- identification, selection and synthesis of information from a variety of sources and perspectives
- identification of links between cause and effect.

Forms of geographical communication

- use geographical language appropriate to learning contexts through forms of communication (e.g. oral and written reports, graphs and models), common geographical terminology (e.g. place, space, pattern, process, scale and names of landform features) and planning for appropriate action such as a goal-based task, performance or visual display
- use of information acquired through investigation to communicate informed judgements.

VET units of competency

The following units of competency may be delivered in appropriate learning contexts if all AQTF requirements are met.

FPICOT2233A Navigate in forest areas

SRONAV001B Navigate in tracked or easy untracked areas

Assessment

The four types of assessment in the table below are consistent with the teaching and learning strategies considered to be the most supportive of student achievement of the outcomes in the Geography course. The table provides details of the assessment type, examples of different ways that these assessment types can be applied and the weighting range for each assessment type.

Weighting Stage 1	Type of assessment
30%–50%	<p>Geographical inquiry</p> <p>A range of scientific and observational methodologies are used when investigating geographic phenomena. Geographical inquiry is a process where students plan and conduct investigations, process and translate information, and communicate findings following ethical protocols and procedures. Both primary and secondary information sources are used e.g. ABS (Australian Bureau of Statistics).</p> <p><i>Examples: project, assignment, report, presentation.</i></p>
20%–40%	<p>Fieldwork/practical skills</p> <p>Fieldwork involves students actively engaged in collecting primary data. This can be done through field observations and the use of data gathering techniques such as surveys, questionnaires and interviews. Practical skills involve the collection and interpretation of data from a number of sources. These can include maps, photographs, tables, graphs and statistics.</p> <p><i>Examples: coastal landscape excursion, CBD (Central Business District) study, forest investigation.</i></p>
10%–30%	<p>Short and extended responses</p> <p>Short and extended response assessments require students to answer questions that demonstrate ability to understand the key concepts in the geography course. These assessments are usually completed in class and can involve a response to stimulus material.</p> <p><i>Examples: tests, essays, multiple-choice questions.</i></p>
0%–25%	<p>Examination</p> <p>Examinations are major assessments held at the completion of a unit or pair of units. Exams require students to demonstrate their knowledge and understandings of key geographical content and skills.</p>

UNIT 1BGEO

Unit description

The focus for this unit is the **geography of people and places** where students will have the opportunity to apply geographical concepts to a specified location or region. Students will learn about the natural and cultural characteristics of this region and about the processes that have enabled it to change over time. As a result of the study of this unit, students will be able to understand and apply the concept of a region to other regions in different scales.

Unit learning contexts

Within the broad area of **people and places**, students will study a region at any scale. Teachers are encouraged to use the local area where possible:

- local shire
- city
- country town
- regional area e.g. South East Asia
- mining town
- agricultural region e.g. the wheat belt
- tourist destination or attraction e.g. Ningaloo Reef, Bali.

Unit content

This unit includes knowledge, understandings and skills to the degree of complexity described below:

- define the concept of a region.

Place and change

Location and spatial distribution

- describe the location of, and spatial variation within, the region
- describe the characteristics of the natural environment of your region. Include the:
 - topography
 - weather and climatic characteristics
 - vegetation patterns
 - soil characteristics
- describe the characteristics of the cultural environment of your region. Include the:
 - spatial characteristics and pattern of settlement
 - demographic characteristics
 - land use characteristics i.e. form, function and land use distribution.

Spatial association

- examine the association between natural attributes of the environment e.g. climate, soil type, vegetation, topography
- examine the association between the cultural attributes of the environment e.g. topography and settlement, climate and agriculture, soils and agriculture, topography and transport.

Spatial interaction

- account for the characteristics of the natural environment of your region. Include the:
 - variations in the topography
 - factors that characterise the regional weather and climate
 - factors affecting the vegetation patterns
 - characteristics and patterns of soil distribution
- account for the characteristics and associations of the cultural environment of your region. Include the:
 - variations in the land use
 - variations in settlement and population distribution
 - variations in transport systems and flows of people and services
 - demographic characteristics of population
- discuss the changing patterns of the natural environment over time e.g. changes in soil fertility, climatic variations, changes in topography as a result of fluvial action
- discuss the changing patterns of the cultural environment over time e.g. changes in settlement patterns, changes in agricultural patterns as a result of climate change
- examine the current interactions and features within the region to evaluate its potential to attract increased numbers of people for tourism and/or employment.

Human influence on sustainability

Factors that impact on decisions about sustainability

- define the concept of sustainability
- outline a geographic issue pertinent to sustainable development of cultural and/or physical resources within the region
- describe the factors that impact upon the implementation of sustainable practice.

Values and viewpoints in people's use of places

- identify the stakeholders related to the geographic issue
- explain the views and attitudes of these stakeholders towards the issue
- explain how their views and attitudes have changed over time.

Care of places

- describe the various responses of stakeholders within the region towards the issue
- discuss the extent to which the various responses are likely to lead to sustainable management practices
- discuss the effects that increased flows of people for tourism and/or employment may have on sustainable management practices.

Geographical thinking, skills and processes

Refer to pages five and six for a list of generic skills included in this unit.

Geographical thinking and questioning

- specify the purpose of investigations
- reflect on ideas to identify gaps, misconceptions, required new knowledge and challenges to perspectives
- develop questions that have a critical focus and use common terms of geographical discourse to more precisely identify and describe concrete aspects of what is to be investigated
- construct a search plan to locate sources of information
- gather a range of sources and allocate them according to particular tasks
- use appropriate geographical language to identify and describe phenomena in the context of study.

Geographical inquiry skills

- use information obtained from a variety of maps (i.e. topographic maps, atlas maps, sketch maps, cadastral maps and street directory maps) and photographs (i.e. oblique, aerial and satellite) to identify and describe natural and cultural landscape features and patterns of features (formal regions)
- use technology in a geographic context to represent and analyse geographical data
- identify and interpret trends in longitudinal data for a particular context
- draw conclusions supported by patterns evident in the data.

Forms of geographical communication

- develop the use of geographical language appropriate to learning contexts e.g. by discussing journeys to work in terms of distance, direction, mode of transport, time taken for journeys, transport routes and destinations
- report geographical information using suitable methods of visual representation (e.g. written, digital, table, graph, map and diagram) to convey the appropriate message to an audience.

VET units of competency

The following units of competency may be delivered in appropriate learning contexts if all AQTF requirements are met.

FPICOT2233A Navigate in forest areas

Assessment

The four types of assessment in the table below are consistent with the teaching and learning strategies considered to be the most supportive of student achievement of the outcomes in the Geography course. The table provides details of the assessment type, examples of different ways that these assessment types can be applied and the weighting range for each assessment type.

Weighting Stage 1	Type of assessment
30%–50%	<p>Geographical inquiry A range of scientific and observational methodologies are used when investigating geographic phenomena. Geographical inquiry is a process where students plan and conduct investigations, process and translate information, and communicate findings following ethical protocols and procedures. Both primary and secondary information sources are used e.g. ABS (Australian Bureau of Statistics). <i>Examples: project, assignment, report, presentation.</i></p>
20%–40%	<p>Fieldwork/practical skills Fieldwork involves students actively engaged in collecting primary data. This can be done through field observations and the use of data gathering techniques such as surveys, questionnaires and interviews. Practical skills involve the collection and interpretation of data from a number of sources. These can include maps, photographs, tables, graphs and statistics. <i>Examples: coastal landscape excursion, CBD (Central Business District) study, forest investigation.</i></p>
10%–30%	<p>Short and extended responses Short and extended response assessments require students to answer questions that demonstrate ability to understand the key concepts in the geography course. These assessments are usually completed in class and can involve a response to stimulus material. <i>Examples: tests, essays, multiple-choice questions.</i></p>
0%–25%	<p>Examination Examinations are major assessments held at the completion of a unit or pair of units. Exams require students to demonstrate their knowledge and understandings of key geographical content and skills.</p>

UNIT 2 AGEO

Unit description

The focus of this unit is the **geography of natural hazards and impact minimisation**. The increasing incidence of hazards, together with their impact on standards of living, has prompted the active search for proposed solutions. An understanding of how these hazards are perceived and managed at a local, regional and global level is developed in a range of ways. First, an understanding of hazards (geomorphic/tectonic and atmospheric) is developed. Secondly, the spatial distribution of hazards, the cause and impact and increased risk is examined. Finally, students investigate strategies to minimise the risks associated with hazards.

Unit learning contexts

There are two study areas listed below with a range of contexts. Students must choose **ONE** context drawn from each of the **TWO** areas of study.

- geomorphic/tectonic hazards
 - earthquakes
 - tsunamis
 - volcanic eruptions

AND

- atmospheric
 - floods
 - droughts
 - storms
 - bushfires.

The focus of the study will typically be on a hazard in a local or regional context. However, students need to be able to refer to the hazard in a wider regional and global context where appropriate.

Unit content

This unit includes knowledge, understandings and skills to the degree of complexity described below:

- explain the concept of hazard geography
- classify hazards as atmospheric, hydrologic, geologic, biologic or technologic.

For the geomorphic hazard

- use the key tectonic process elements to explain your chosen hazard i.e. the structure of the Earth, plate boundary types, movements and resultant landforms.

For the atmospheric hazard

- use the key elements of weather and climate to explain the processes of your chosen hazard i.e. patterns of temperature and rainfall, heat budget, atmospheric circulation and factors affecting climate.

Place and change

Location and spatial distribution

For both hazards

- describe and account for the characteristics of your hazard case study. Refer to the:
 - location, size and distribution of the hazard i.e. the areal extent
 - magnitude of the hazard
 - duration of the hazard
 - frequency and intensity of the hazard occurring within the case study area i.e. the probability of the hazard event reoccurring.

Spatial association

- explain how the location and distribution pattern of your hazard case study compares with the distribution pattern of:

For the geomorphic hazard

- plate boundaries e.g. distribution of earthquakes
- other related geomorphic hazards e.g. earthquakes associated with volcanoes.

For the atmospheric hazard

- climatic regions e.g. tropical cyclones and tropical climates
- other related atmospheric hazards e.g. storms and floods.

For both hazards

- describe the natural and cultural human environments affected by the hazard
- discuss the importance of the region/area affected by the hazard in environmental, social, political and economic terms e.g. the flow of tourism.

Spatial interaction

For the geomorphic hazard

- apply the theory of plate tectonics to account for the origin and spread of the geomorphic hazard e.g. tsunami.

For the atmospheric hazard

- apply weather and climatic pattern models to account for the origin and spread of the atmospheric hazard e.g. track of tropical cyclone.

For both hazards

- describe the impact of the hazard upon natural and human environments i.e. loss in terms of life, property and biodiversity
- describe and account for any relationship between the degrees of loss (i.e. life, property and biodiversity) and the proximity to the hazard i.e. spatial variations in relation to loss and distance to the hazard.

Human influence on sustainability

Factors that impact on decisions about sustainability

For both hazards

- explain the concept of risk assessment in terms of the following:
 - loss i.e. potential loss of life, property and biodiversity
 - vulnerability i.e. measure of an inability to cope with the hazard
 - resilience i.e. capacity to recover from a hazard event
 - adaptation i.e. change in behaviour to minimise future loss.

Values and viewpoints in people's use of places

For both hazards

- identify the stakeholders affected by the hazard e.g. tsunamis would affect farmers, fishermen, settlements, tourist resorts, governments, relief agencies
- describe the values and viewpoints of stakeholders on recovery and adaptation (i.e. loss mitigation) to future hazard events in terms of modifying the:
 - human vulnerability i.e. identify which groups of people are more susceptible to future loss e.g. coastal settlements along Sumatra's west coast and tsunamis
 - loss burden i.e. the cost of loss mitigation e.g. international aid projects.

Care of places

For both hazards

- explain how social, political and economic responses reduce loss and maintain sustainability in the region
- discuss the positive and negative impacts of these responses in terms of the effects on the natural and cultural environment
- describe the short-term rescue and relief measures taken by individuals, communities and governments
- describe the longer term reconstruction and restoration measures taken by individuals, communities and governments.

Geographical thinking, skills and processes

Refer to pages five and six for a list of generic skills included in this unit.

Geographical thinking and questioning

- clarify the specific purpose of an investigation
- formulate general research questions and, where appropriate, hypotheses
- develop focus questions which require identification of trends, analysis, critical evaluation and cause and effect
- construct a search plan to locate and identify the most suitable sources of information

- identify a range of sources of information and allocate them according to particular task/questions in the investigation
- use of geographical language to discuss phenomena and concepts about their spatial arrangement.

Geographical inquiry skills

- use information obtained from a variety of maps (i.e. topographic maps, atlas maps, sketch maps, and synoptic charts), photographs (i.e. oblique, aerial and satellite) and satellite imagery to identify, locate and describe natural and cultural landscape features, patterns of features (formal regions) and interrelationships between features
- use of technology in a geographic context to represent and analyse geographical data
- selection of specialised information, possibly including field observation
- process and interpret trends in longitudinal data for a particular context
- draw conclusions supported by patterns evident in the data.

The skills listed below are in addition to the core skills, which students develop in Units 1A–3B.

Generic mapping skills:

- general compass directions (16 points) and bearings, given the north point
- identify that a line scale and a representative fraction are the two main ways of showing the scale of maps
- convert a representative fraction into a written statement or a line scale
- apply the map scale to basic calculations i.e. determining the time taken to cover a distance given the speed of a moving object (time, speed, distance), calculating the approximate area of features.

Thematic mapping skills

- construct, identify and interpret location quotient maps and proportional circle maps.

Topographic maps

- general compass directions (16 points) and bearings on the topographic map, given the north point
- calculate the average gradient of slopes using the map scale and height information from contours and spot heights to express the gradient as a ratio of change in height to horizontal displacement.

Photographs and satellite imagery

- use evidence from various photographic products to suggest likely processes that may account for physical and cultural features.

Statistical skills

- read and interpret statistical information where appropriate i.e. graphs and tables.

Information and communications technology

- read online or CD-based data sets and maps to interpret spatial patterns.

Forms of geographical communication

- use appropriate geographical discourse to communicate information and draw conclusions, including when analysing viewpoints for accuracy, bias and omission
- use a variety of combinations of verbal, numerical and visual forms of representing data when processing, translating and communicating geographical information.

VET units of competency

The following units of competency may be delivered in appropriate learning contexts if all AQTF requirements are met.

SROOPS003B Apply weather information

Assessment

The four types of assessment in the table below are consistent with the teaching and learning strategies considered to be the most supportive of student achievement of the outcomes in the Geography course. The table provides details of the assessment type, examples of different ways that these assessment types can be applied and the weighting range for each assessment type.

Weighting Stage 2	Types of assessment
20%–30%	<p>Geographical inquiry A range of scientific and observational methodologies are used when investigating geographic phenomena. Geographical inquiry is a process where students plan and conduct investigations, process and translate information, and communicate findings following ethical protocols and procedures. Both primary and secondary information sources are used e.g. ABS (Australian Bureau of Statistics). <i>Examples: project, assignment, report, presentation.</i></p>
10%–20%	<p>Fieldwork/practical skills Fieldwork involves students actively engaged in collecting primary data. This can be done through field observations and the use of data gathering techniques such as surveys, questionnaires and interviews. Practical skills involve the collection and interpretation of data from a number of sources. These can include maps, photographs, tables, graphs and statistics. <i>Examples: coastal landscape excursion, CBD (Central Business District) study, forest investigation.</i></p>
25%–35%	<p>Short and extended responses Short and extended response assessments require students to answer questions that demonstrate ability to understand the key concepts in the geography course. These assessments are usually completed in class and can involve a response to stimulus material. <i>Examples: tests, essays, multiple-choice questions.</i></p>
25%–40%	<p>Examination Examinations are major assessments held at the completion of a unit or pair of units. Exams require students to demonstrate their knowledge and understandings of key geographical content and skills.</p>

UNIT 2BGEO

Unit description

The focus of this unit is the **geography of sustainable resource use**. Natural resources provide the basis for economic growth in Australia. There is an unprecedented global demand for these resources. Future provision will require application of sustainable management practices to resource development and the surrounding environment. Regional perspectives, supported with local area case studies, are used to investigate spatial patterns that emerge between resource developments, local communities and market destinations. There is a need to evaluate management practices that can sustain these resources into the future. Approaches to sustainable management can vary significantly between countries in terms of social, economic and environmental factors. Students will compare these spatial patterns and practices in resource use in Australia to those in a less developed country.

Unit learning contexts

Students are to study and apply content to at least:

- **one** renewable resource activity from any region in Australia i.e. an agricultural, forestry or fishing activity
- **one** non-renewable resource activity from a mining context within any region in Australia i.e. a mineral or fossil fuel

AND

- a comparison of the same renewable and non-renewable resource activity within a less developed country (LDC) in terms of the human influence on sustainability.

Note:

A LDC is typically one with comparatively poor health, education and social services, low GDP (gross domestic product) per capita and low life expectancy. Economic development and production levels are limited.

The primary focus is on a regional or local area case study of a renewable and a non-renewable Australian resource activity with a secondary emphasis on the same selected resource activities in a LDC. The comparative study of these resource activities will require the relevant contextual background for the consideration of management practice and how sustainability principles are implemented.

Unit content

This unit includes knowledge, understandings and skills to the degree of complexity described below:

- define the term resource
- define and explain the following different types of resources i.e. natural resources, cultural resources, human resources, renewable resources and non-renewable resources
- explain the difference between exploitation, depletion and conservation of natural resources; provide examples for both Australia and the LDC
- explain the concept of sustainability in relation to resource use.

Place and change

For the selected resource activities in Australia:

Location and spatial distribution

- describe and map the location (site and situation) of both resource activities
- explain the physical and cultural factors affecting their location.

Spatial association

- describe the associated natural environment i.e. soils, vegetation, climate
- describe the cultural environment associated with both resource activities e.g. bauxite and its associated refinery and transport network.

Spatial interaction

- using a systems model, describe the development and use of both resources i.e. inputs (physical and cultural), throughputs and outputs. Note: study of on-processing in other locations not in the area occupied by the resource is not required
- discuss how markets can change e.g. alternative technologies, globalisation and cultural attitudes
- discuss the impact of resource utilisation on the associated natural environment
- evaluate the extent to which these impacts have changed over time in Australia e.g. improved rehabilitation strategies and pollution controls.

Human influence on sustainability

For the selected resource activities in Australia and the LDC:

Factors that impact on decisions about sustainability

- describe the economic, political and social factors that affect the sustainability of the resource activities
- explain how environmental, economic, political and social factors impact upon the sustainability of the natural environment.

Values and viewpoints in people's use of places

- identify the main stakeholders associated with resource utilisation e.g. farmers, mining companies, local residents, workers, conservationists
- explain how economic, political and social factors lead to different viewpoints and perspectives on sustainable practices
- examine the current views and attitudes of stakeholders towards the sustainable management of the resource activities and their associated natural environments.

Care of places

- discuss current management practices that affect sustainable resource utilisation
- evaluate the long-term sustainability of the resource activities and their associated natural environment
- evaluate current management practices associated with the natural environments.

Geographical thinking, skills and processes

Refer to pages five and six for a list of generic skills included in this unit.

Geographical thinking and questioning

- decide on the aspects to be considered in an investigation
- formulate general and specific research questions and, where appropriate, hypotheses
- develop focus questions that require identification of trends, analysis, critical evaluation and cause and effect
- identify appropriate geographical methods and resources
- use geographical language to discuss theories about the formation of spatial patterns.

Geographical inquiry skills

- use information obtained from a variety of maps (i.e. topographic maps, atlas maps, sketch maps, and synoptic charts), photographs (i.e. oblique, aerial and satellite) and satellite imagery to identify, locate and describe natural and cultural landscape features, patterns of features (formal regions) and interrelationships between features
- independently select appropriate data sources and recording techniques for an argument or viewpoint
- recognise inconsistencies in data and suggest improvements
- refine and organise information to support the needs of a research topic
- interpret information obtained from a variety of maps, images, photographs, graphs, tables and diagrams to identify interrelationships between elements described in the data.

The skills listed below are in addition to the core skills, which students develop in Units 1A–3B.

Generic mapping skills

- general compass directions (16 points) and bearings given the north point
- identify that a line scale and a representative fraction are the two main ways of showing the scale of maps
- convert a representative fraction into a written statement or a line scale
- apply the map scale to basic calculations i.e. determining the time taken to cover a distance given the speed of a moving object (time, speed, distance); calculating the approximate area of features.

Thematic mapping skills

- construct, identify and interpret location quotient maps and proportional circle maps.

Topographic maps

- general compass directions (16 points) and bearings on the topographic map, given the north point
- calculate the average gradient of slopes using the map scale and height information from contours and spot heights to express the gradient as a ratio of change in height to horizontal displacement.

Photographs and satellite imagery

- use evidence from the photographs to suggest likely processes that may account for physical and cultural features.

Statistical skills

- read and interpret statistical information where appropriate i.e. data graphs and tables.

Information and communications technology

- read online or CD-based data sets and maps to interpret spatial patterns.

Forms of geographical communication

- use appropriate geographical language to communicate information and draw conclusions, including when analysing viewpoints for accuracy, bias and omission
- use a variety of combinations of verbal, numerical and visual forms of representing data when processing, translating and communicating geographical information.

VET units of competency

The following units of competency may be delivered in appropriate learning contexts if all AQTF requirements are met.

SROOPS008A Apply the principles of natural resource management

Assessment

The four types of assessment in the table below are consistent with the teaching and learning strategies considered to be the most supportive of student achievement of the outcomes in the Geography course. The table provides details of the assessment type, examples of different ways that these assessment types can be applied and the weighting range for each assessment type.

Weighting Stage 2	Types of assessment
20%–30%	<p>Geographical inquiry A range of scientific and observational methodologies are used when investigating geographic phenomena. Geographical inquiry is a process where students plan and conduct investigations, process and translate information, and communicate findings following ethical protocols and procedures. Both primary and secondary information sources are used e.g. ABS (Australian Bureau of Statistics). <i>Examples: project, assignment, report, presentation.</i></p>
10%–20%	<p>Fieldwork/practical skills Fieldwork involves students actively engaged in collecting primary data. This can be done through field observations and the use of data gathering techniques such as surveys, questionnaires and interviews. Practical skills involve the collection and interpretation of data from a number of sources. These can include maps, photographs, tables, graphs and statistics. <i>Examples: coastal landscape excursion, CBD (Central Business District) study, forest investigation.</i></p>
25%–35%	<p>Short and extended responses Short and extended response assessments require students to answer questions that demonstrate ability to understand the key concepts in the geography course. These assessments are usually completed in class and can involve a response to stimulus material. <i>Examples: tests, essays, multiple-choice questions.</i></p>
25%–40%	<p>Examination Examinations are major assessments held at the completion of a unit or pair of units. Exams require students to demonstrate their knowledge and understandings of key geographical content and skills.</p>

UNIT 3 AGEO

Unit description

The focus of this unit is the **geography of planning cities**. Challenges exist in designing cities to be more productive, vibrant and sustainable. Urban planning involves a range of stakeholders that contribute to decision-making and the planning process. The present and future needs of society are addressed by the allocation and reallocation of land uses, improving infrastructure and transport systems and enhancing amenities to meet the different perspectives of stakeholders. Students will examine concepts, processes and roles of planning by comparing Perth with a selected megacity.

Unit learning contexts

Within the area of **planning cities**, students must study the following:

- Perth, Australia
- AND**
- a megacity from a country other than Australia e.g. Mexico City, Cairo, Delhi, Jakarta, Tokyo, New York City.

NOTE: The primary focus is **Perth, Australia** with a secondary emphasis on a selected **megacity** (greater than 10 million people). The comparative study of the megacity will highlight internal processes and some of the issues requiring planning solutions.

Unit content

This unit includes knowledge, understandings and skills to the degree of complexity described below:

Place and change

Location and spatial distribution

- describe and account for the site and situation of Perth
- identify and describe the external morphology of Perth, referring to models of urban morphology.

Spatial association

- describe and account for the internal morphology of Perth and the association and connection between functions with reference to factors, processes and models e.g. site, situation, cultural attitudes, land value, planning and concentric, sector and multiple nuclei models
- outline demographic patterns within Perth—age, gender, socioeconomic, cultural distributions and factors contributing to associations.

Spatial interaction

- refer to a range of urban processes (i.e. urban sprawl, invasion and succession, blight and shadow, renewal, gentrification, consolidation, planning) to explain changes in interactions and patterns within Perth and the megacity
- outline and discuss the major urban problems (i.e. urban sprawl, slums and blight, water shortages, provision of services, traffic congestion, pollution, loss of amenity) which result from interactions and processes within Perth and the megacity
- analyse the nature of planning strategies and policies in addressing current urban problems with Perth and the megacity.

Human influence on sustainability

Factors that impact on decisions about sustainability

- explain the concept of sustainable planning and management and why such practices are important within Perth and the megacity
- discuss the key environmental, economic, social and political factors that impact on decisions about planning and management policies in Perth and the megacity
- identify the implications of these planning and management decisions for the attainment of sustainability in Perth and the megacity.

Values and viewpoints in people's use of places

- identify the key stakeholders in Perth and the megacity which need to be considered when strategies are proposed in relation to the urban problems
- discuss the views and attitudes of these stakeholders in response to strategies that apply sustainable practices to reduce the impact of urban problems.

Care of places

- describe ways in which stakeholders in Perth and the megacity have planned and adapted their urban landscape to enhance sustainable management and planning practices
- evaluate the effectiveness of the practices implemented in Perth and the megacity and the extent to which they reflect the principles of sustainable management and planning practice.

Geographical thinking, skills and processes

Refer to pages five and six for a list of generic skills included in this unit.

Geographical thinking and questioning

- devise research tasks using general and specific research questions and, where appropriate, hypotheses
- develop focus questions that explore different viewpoints and perspectives

- identify the most appropriate geographical methods
- use geographical language to examine and apply theories about spatial interactions.

Geographical inquiry skills

- use information obtained from a variety of maps (i.e. topographic maps, atlas maps, sketch maps, cadastral maps, road maps and synoptic charts), photographs (i.e. oblique, aerial and satellite) and satellite imagery to identify, locate and describe natural and cultural landscape features, patterns of features (formal regions), interrelationships between features and spatial interaction between features (functional regions)
- assess data and information for bias, viewpoint, values, importance and reliability and draw inferences from this
- refine and organise information to support the needs of the investigation
- interpret information obtained from a variety of maps, images, photographs, graphs, tables and diagrams to identify and account for interrelationships and likely processes between elements described in the data
- understand the connectedness between ideas shown and elaboration of ideas
- justify attitudes and opinions in the context of events and time periods.

The skills listed below are in addition to the core skills, which students develop in Units 1A–3B.

Generic mapping skills

- general compass directions (16 points) and bearings, given the north point
- identify that a line scale and a representative fraction are the two main ways of showing the scale of maps
- convert a representative fraction into a written statement or a line scale
- apply the map scale to basic calculations i.e. determining the time taken to cover a distance given the speed of a moving object (time, speed, distance); calculating the approximate area of features.

Thematic mapping skills

- construct, identify and interpret location quotient maps and proportional circle maps.

Topographic maps

- calculate the average gradient of slopes, using the map scale and height information from contours and spot heights to express the gradient as a ratio of change in height to horizontal displacement.

Photographs and satellite imagery

- use evidence from the photographs to suggest likely processes that may account for physical and cultural features.

Statistical skills

- understand and apply measures of statistical correlation between at least two variables i.e. tables, graphs and interpreting the correlation coefficient.

Information and communications technology

- read online or CD-based data sets and maps to interpret spatial patterns
- identify and collect spatial data, and understand the application of GIS methods to the development of maps, graphs and models.

Forms of geographical communication

- use of geographical language including presenting an argument (exposition) that includes justifying personal stances that considers the range of viewpoints and evidence presented by others
- use a variety of combinations of verbal, numerical and visual forms of representing data when processing, translating and communicating geographical information
- examine own values position inherent in represented viewpoint and analysing the values position of others
- predict consequences, make decisions and propose solutions, selecting communication forms appropriate to potential strategies, solutions and audience.

Assessment

The four types of assessment in the table below are consistent with the teaching and learning strategies considered to be the most supportive of student achievement of the outcomes in the Geography course. The table provides details of the assessment type, examples of different ways that these assessment types can be applied and the weighting range for each assessment type.

Weighting Stage 3	Types of assessment
20%–30%	<p>Geographical inquiry A range of scientific and observational methodologies are used when investigating geographic phenomena. Geographical inquiry is a process where students plan and conduct investigations, process and translate information, and communicate findings following ethical protocols and procedures. Both primary and secondary information sources are used e.g. ABS (Australian Bureau of Statistics). <i>Examples: project, assignment, report, presentation.</i></p>
10%–20%	<p>Fieldwork/practical skills Fieldwork involves students actively engaged in collecting primary data. This can be done through field observations and the use of data gathering techniques such as surveys, questionnaires and interviews. Practical skills involve the collection and interpretation of data from a number of sources. These can include maps, photographs, tables, graphs and statistics. <i>Examples: coastal landscape excursion, CBD (Central Business District) study, forest investigation.</i></p>
25%–35%	<p>Short and extended responses Short and extended response assessments require students to answer questions that demonstrate ability to understand the key concepts in the geography course. These assessments are usually completed in class and can involve a response to stimulus material. <i>Examples: tests, essays, multiple-choice questions.</i></p>
25%–40%	<p>Examination Examinations are major assessments held at the completion of a unit or pair of units. Exams require students to demonstrate their knowledge and understandings of key geographical content and skills.</p>

UNIT 3BGEO

Unit description

The focus of this unit is the **geography of climate change over geological time**. This global phenomenon possesses the capacity to affect significant areas of the planet. Climate change, including the greenhouse effect, is created by both natural and human processes that have local and global consequences. The human response to climate change is affected by social, economic and political considerations, and resource access and distribution. Students will investigate policies and strategies designed to guide future action used to address the effects of the climate change.

Unit learning contexts

The focus of this unit will be on **climate change**. Understanding the mechanisms of climate change will be developed at a global scale.

Students will then study **one** of the following activities only in terms of human influence on sustainability.

- agriculture e.g.
 - shifting agricultural boundaries and regions
 - energy and new technologies

OR

- urban settlement and industry e.g.
 - planning for sustainable living
 - energy consumption and water supply.

Unit content

For the selected human activity, this unit includes knowledge, understandings and skills to the degree of complexity described below:

- explain the concept of sustainability
- define the concepts of climate change and the greenhouse effect
- outline the key elements of the following natural systems that drive the Earth's climates: heat budget, hydrological cycle, carbon cycle, atmospheric circulation.

Place and change

Location and spatial distribution

- outline the evidence for climate change through geological time, as well as in recent human history e.g. palaeoclimatology, atmospheric circulation changes, sea level changes, enhanced greenhouse effect and frequency of extreme weather events
- identify and account for variations in the spatial patterns linked with the heat budget, hydrological cycle, carbon cycle and atmospheric circulation.

Spatial association

- account for climatic cycles and variations in spatial patterns associated with natural processes e.g. solar output, orbit variations, geological patterns and processes, volcanoes, atmospheric gases and chemistry, El Nino and La Nina effects, Pacific decadal cycle, North Atlantic variations, polar ice variations
- explain how the following cultural patterns and processes and their interaction with natural systems affect climate change i.e. agricultural land use, urban land use, including power generation, transport, industry, pollutants and aerosols, human sources of greenhouse gases.

Spatial interaction

- explain the impact of climate change upon spatial patterns in the natural and cultural environments e.g. the distribution of plant and animal communities and the location of human settlement and land uses
- examine the impact of climate change upon the spatial patterns of agriculture or human settlements.

Human influence on sustainability

For the selected human activity:

Factors that impact on decisions about sustainability

- outline the extent to which climate change impacts upon sustainability from local to global scales
- discuss the key environmental, economic, social and political factors that impact upon decisions about sustainability.

Values and viewpoints in people's use of places

- outline the different viewpoints which stakeholders have towards strategies that aim to minimise the effects of climate change e.g. wealthy nations, developing/emerging nations, state and regional governments, environmental groups, multinational corporations, non-government organisations.

Care of places

- discuss the current and proposed strategies implemented to reduce the adverse effects of climate change
- discuss how human activity has adapted or may be required to adapt to climate change.

Geographical thinking, skills and processes

Refer to pages five and six for a list of generic skills included in this unit.

Geographical thinking and questioning

- devise research tasks using general and specific research questions and, where appropriate, hypotheses

- develop focus questions that explore different viewpoints and perspectives
- identify the most appropriate geographical methods
- use geographical language to examine and apply theories about spatial interactions.

Geographical inquiry skills

- use information obtained from a variety of maps (i.e. topographic maps, atlas maps, sketch maps, cadastral maps, road maps and synoptic charts), photographs (i.e. oblique, aerial and satellite) and satellite imagery to identify, locate and describe natural and cultural landscape features, patterns of features (formal regions), interrelationships between features and spatial interaction between features (functional regions)
- assess data and information for bias, viewpoint, values, importance and reliability and draw inferences from this
- refine and organise information to support the needs of the investigation
- interpret information obtained from a variety of maps, images, photographs, graphs, tables and diagrams to identify and account for interrelationships and likely processes between elements described in the data
- understand the connectedness between ideas shown and elaboration of ideas
- justify attitudes and opinions in the context of events and time periods.

The skills listed below are in addition to the core skills, which students develop in Units 1A–3B.

Generic mapping skills

- general compass directions (16 points) and bearings, given the north point
- identify that a line scale and a representative fraction are the two main ways of showing the scale of maps
- convert a representative fraction into a written statement or a line scale
- apply the map scale to basic calculations i.e. determining the time taken to cover a distance given the speed of a moving object (time, speed, distance); calculating the approximate area of features.

Thematic mapping skills

- construct, identify and interpret location quotient maps and proportional circle maps.

Topographic maps

- calculate the average gradient of slopes, using the map scale and height information from contours and spot heights to express the gradient as a ratio of change in height to horizontal displacement.

Photographs and satellite imagery

- use evidence from the photographs to suggest likely processes that may account for physical and cultural features.

Statistical skills

- understand and apply measures of statistical correlation between at least two variables i.e. tables, graphs and interpreting the correlation coefficient.

Information and communications technology

- read online or CD-based data sets and maps to interpret spatial patterns
- identify and collect spatial data and understand the application of GIS methods to the development of maps, graphs and models.

Forms of geographical communication

- use of geographical language including presenting an argument (exposition) that includes justifying personal stances that considers the range of viewpoints and evidence presented by others
- use a variety of combinations of verbal, numerical and visual forms of representing data when processing, translating and communicating geographical information
- examine own values position inherent in represented viewpoint and analysing the values position of others
- predict consequences, make decisions and propose solutions, selecting communication forms appropriate to potential strategies, solutions and audience.

Assessment

The four types of assessment in the table below are consistent with the teaching and learning strategies considered to be the most supportive of student achievement of the outcomes in the Geography course. The table provides details of the assessment type, examples of different ways that these assessment types can be applied and the weighting range for each assessment type.

Weighting Stage 3	Types of assessment
20%–30%	<p>Geographical inquiry A range of scientific and observational methodologies are used when investigating geographic phenomena. Geographical inquiry is a process where students plan and conduct investigations, process and translate information, and communicate findings following ethical protocols and procedures. Both primary and secondary information sources are used e.g. ABS (Australian Bureau of Statistics). <i>Examples: project, assignment, report, presentation.</i></p>
10%–20%	<p>Fieldwork/practical skills Fieldwork involves students actively engaged in collecting primary data. This can be done through field observations and the use of data gathering techniques such as surveys, questionnaires and interviews. Practical skills involve the collection and interpretation of data from a number of sources. These can include maps, photographs, tables, graphs and statistics. <i>Examples: coastal landscape excursion, CBD (Central Business District) study, forest investigation.</i></p>
25%–35%	<p>Short and extended responses Short and extended response assessments require students to answer questions that demonstrate ability to understand the key concepts in the geography course. These assessments are usually completed in class and can involve a response to stimulus material. <i>Examples: tests, essays, multiple-choice questions.</i></p>
25%–40%	<p>Examination Examinations are major assessments held at the completion of a unit or pair of units. Exams require students to demonstrate their knowledge and understandings of key geographical content and skills.</p>

Outcome progressions

Outcome 1: Geographical inquiry Students investigate the interactions that occur within natural and cultural environments in order to make informed decisions and communicate findings.						
	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
	Students plan investigations by devising questions; use several sources to obtain information; evaluate information for its usefulness; and present conclusions based on personal points of view.	Students select sources and methods to obtain and accurately record information from various perspectives; and begin to generalise beyond the immediate context when presenting findings that convey an informed opinion.	Students analyse and clarify the purpose of an investigation to formulate questions; select from a range of sources and methods to record information; and use supporting evidence to explain patterns and draw conclusions that generalise beyond the immediate context and justify a particular viewpoint.	Students negotiate and formulate research questions for an investigation; identify the main aspects to be considered and decide on the most effective data sources and recording techniques; and justify own conclusions by logically examining the viewpoints and the evidence presented by others for accuracy, bias and omission.	Students identify a geographical issue and plan an investigation by devising general and specific research questions and, where appropriate, hypotheses; modify and adapt the conduct of the investigation based on resources and evidence available; and analyse the validity and consistency of own conclusions and those of others.	Students devise and develop a research proposal and design and conduct a balanced geographical investigation; form conclusions that are consistent with the evidence; and evaluate decisions in terms of conflicting and inconsistent information and values.
Students:						
<ul style="list-style-type: none"> • plan ways to gather and organise geographical information. • conduct investigations by using geographical inquiry methods. • process and translate information gained from geographical investigations to form conclusions. • evaluate, apply and communicate findings of geographical investigations to suit a purpose or an audience. 	<ul style="list-style-type: none"> • given structures and guidance, plan an investigation by devising questions using a simple framework, identify possible sources of information, and make simple predictions based on personal experiences. • gather information from several sources and record useful information using a variety of given techniques. • recognise key ideas and patterns, discard irrelevant information and transform information into structured forms for display. • justify decisions from a personal point of view using limited evidence and reflect on original understandings when communicating findings. 	<ul style="list-style-type: none"> • identify the types of questions, observations, data and sources appropriate to a topic; and negotiate how they will be used to gain information. • apply given geographical inquiry techniques to collect and record accurate information from a variety of perspectives. • identify, select and combine information from a variety of sources and perspectives, connecting similar ideas and making generalisations. • develop an informed opinion based on evidence and communicate this with a particular purpose or audience in mind. 	<ul style="list-style-type: none"> • analyse a topic by formulating questions with a critical focus and plan ways of investigating it. • select from a range of sources and recording methods that enhance the specific purposes of an investigation. • collect evidence from a variety of sources and explain patterns in the evidence to draw conclusions that present a particular viewpoint. • communicate findings showing consideration of the facts, opinions and motives for a particular viewpoint when justifying conclusions. 	<ul style="list-style-type: none"> • analyse a problem, formulate own research questions/hypotheses, use geographical concepts to identify the main aspects to be considered and make predictions. • select information from a variety of sources and recording techniques to develop an argument or viewpoint. • use evidence to develop an argument by analysing viewpoints for accuracy, bias and omission. • communicating findings, developing and justifying conclusions through logical discussion and consideration of viewpoints and evidence. 	<ul style="list-style-type: none"> • devise general and specific research questions and hypotheses to guide the investigation of a geographical issue. • modify and adapt an investigation in response to resources available and the nature of the evidence. • draw valid conclusions consistent with the evidence gathered, and question whether the evidence is sufficient to support the conclusions drawn. • communicate findings based on evidence gathered, according to the purpose of the investigation; and evaluate own and others' conclusions. 	<ul style="list-style-type: none"> • present a research proposal and design a comprehensive research plan using methods of geographical inquiry. • conduct a balanced investigation in by applying appropriate geographical methods. • draw conclusions that are consistent with the evidence and allow for uncertainty in the data. • communicate findings recognising the uncertainty of data and taking into account any conflicting information and values to form conclusions that are justified.

Outcome progressions

Outcome 2: Features of places Students understand that features of places are shaped by natural and social systems over time.						
	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
	Students understand that features of places result from various natural processes and human activities.	Students understand that similarities in the natural and cultural features, processes and activities of different places create patterns on the Earth's surface.	Students understand that spatial patterns are caused by the interrelationship between natural processes and human activities within natural and social systems.	Students understand that spatial patterns change over time and from place to place as a result of the interrelationships within natural and social systems.	Students understand that geographical concepts and theories may be applied to account for variations in spatial patterns.	Students understand that the complex and changing nature of natural and social interactions influences spatial patterns on the Earth's surface.
Students:						
<ul style="list-style-type: none"> • understand that places consist of natural and cultural landscape features. • understand that the features of places are influenced by natural processes and human activities. • understand that natural and social systems form patterns of features on the Earth's surface that change over time. 	<ul style="list-style-type: none"> • understand that a variety of natural and cultural features exist in different places. • understand that a variety of natural processes and human activities affect the features of places. • understand that natural processes and human activities form characteristic patterns of features on the Earth's surface. 	<ul style="list-style-type: none"> • understand that similar natural and cultural features may be classified into various types. • understand that similar natural processes and human activities may be classified into various types. • understand that relationships between natural processes and human activities create spatial patterns of features. 	<ul style="list-style-type: none"> • understand that features of places are linked to various natural processes and human activities. • understand that natural processes and human activities consist of linked events and actions. • understand that interrelationships between natural and social systems create spatial patterns of features. 	<ul style="list-style-type: none"> • understand that over time, variations occur within the types of features found in different places. • understand that natural processes and human activities change over time. • understand that the interrelationships within and between natural and social systems change over time and influence spatial patterns. 	<ul style="list-style-type: none"> • understand that differences in landscape features may be explained by factors that lead to variations in processes. • understand that change in natural processes and human activities may be explained in terms of theories and principles of spatial interaction. • understand that change in natural and social systems and the resulting spatial patterns may be explained using models and theories. 	<ul style="list-style-type: none"> • understand that changing landscape features result from the complex and dynamic nature of natural and social interactions. • understand that natural processes and human activities interact in complex ways to produce spatial patterns. • understand that over time changes in the relative importance of processes in natural and social systems results in dynamic and complex spatial patterns.

Outcome progressions

Outcome 3: People and places Students understand that the interdependence of people and places is shaped by the ways that people interact with their environments and the degree to which they adopt sustainable practices.						
	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
	Students understand that the use people make of different places is affected by natural and built features and their values and attitudes; and affects sustainability.	Students understand that people and places are interdependent; that people have different views about their relationships with their environments; and that their views influence their adoption of sustainable practices.	Students understand that a range of factors, processes and values influence the interdependence of people and places, leading to different environmental approaches.	Students understand that, over time, the interaction of factors, processes and values causes variations in the interdependence of people and places and in people's commitment to sustainability.	Students understand that the ways in which people value places are influenced by the nature of interaction and level of interdependence between them, and by the degree to which sustainable practices are adopted.	Students understand that planning and management are used in balancing competing demands for the use of places and the implementation of sustainable practices.
Students:						
<ul style="list-style-type: none"> • understand that there is an interdependent relationship between people and places. • understand that people view and value their environments in different ways. • understand that the degree to which people adopt sustainable practices and solutions influences the nature of their impact on their environments. 	<ul style="list-style-type: none"> • understand that people's lifestyles are affected by their natural and built environments. • understand that there are a variety of viewpoints and values towards the environment. • understand that sustainability is an important concept and value in relation to human use of the environment. 	<ul style="list-style-type: none"> • understand that people and their environments influence each other through an interdependent relationship. • understand that people have different viewpoints about their degree of interdependence with their environments. • understand that people act to sustain the environment according to their viewpoints and values. 	<ul style="list-style-type: none"> • understand that a range of factors and processes in the natural environment and human societies affect the nature of the interdependence between people and places. • understand that people's values affect the nature of the interdependence between people and places. • understand that differing viewpoints and values cause people to manage the sustainable development of their environments in different ways. 	<ul style="list-style-type: none"> • understand that, over time, the interaction of a range of factors and processes in the natural environment and human societies changes the nature of the interdependence between people and places. • understand that, over time, changes in people's values alters the nature of the interdependence between people and places. • understand that, over time, people's commitment to ecological sustainability has influenced their care and management of places. 	<ul style="list-style-type: none"> • understand that the ways in which people interact with places and the degree to which they are dependent on them influences their views of those places. • understand that people's belief systems, their social, economic and political systems, and their level of technology influences the type and nature of their interdependence with places. • understand that the relative weight given to different viewpoints influence the decisions that are made on sustainable development. 	<ul style="list-style-type: none"> • understand that planning processes and management decisions are human responses to the interdependence of people and places. • understand that planning processes and management decisions are the result of a complex interaction of social, cultural, economic and environmental considerations that reflect people's values. • understand that public decision-making on the uses of place and space involves consideration of people's diverse views and values about ecological sustainability.