



GEOGRAPHY

ATAR course

Year 12 syllabus

Acknowledgement of Country

Kaya. The School Curriculum and Standards Authority (the Authority) acknowledges that our offices are on Whadjuk Noongar boodjar and that we deliver our services on the country of many traditional custodians and language groups throughout Western Australia. The Authority acknowledges the traditional custodians throughout Western Australia and their continuing connection to land, waters and community. We offer our respect to Elders past and present.

Important information

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Rationale

The study of geography draws on students' curiosity about the diversity of the world's places and their peoples, cultures and environments. It enables them to appreciate the complexity of our world and the diversity of its environments, economies and cultures and use this knowledge to promote a more sustainable way of life and awareness of social and spatial inequalities.

The Geography ATAR course provides a structured, disciplinary framework to investigate and analyse a range of challenges and associated opportunities facing Australia and the global community. These challenges include dealing with natural and ecological hazards, the impacts of globalisation, rapid change in physical environments and the sustainability of places.

Geography as a discipline values imagination, creativity and speculation as modes of thought. It provides a systematic, integrative way of exploring, analysing and applying the concepts of place, space, environment, interconnection, sustainability, scale and change. These principal geographical concepts are applied and explored in depth through unit topics to provide a deeper knowledge and understanding of the complex processes shaping our world. The ability of students to apply conceptual knowledge in the context of an inquiry, and the application of skills, constitutes 'thinking geographically' – a uniquely powerful way of viewing the world.

Through the study of geography, students develop the ability to investigate the arrangement of physical and human phenomena across space and time in order to understand the interconnections between people, places and environments. As a subject within the Humanities and Social Sciences, geography studies spatial aspects of human culture using inquiry methods that are analytical, critical and speculative. As a science, geography develops an appreciation of the role of the physical environment in human life, and an understanding of the effects human activities can have on environments. As a result, it develops students' ability to identify, evaluate and justify appropriate and sustainable approaches to the future by thinking holistically and spatially in seeking answers to questions. Students are encouraged to investigate geographical issues and phenomena from a range of perspectives, including those of Aboriginal and Torres Strait Islander peoples.

Students learn how to collect information from primary and secondary sources, such as field observation and data collection, mapping, monitoring, remote sensing, case studies and reports. Fieldwork, in all its various forms, is central to geographical inquiries as it enables students to develop their understanding of the world through direct experience.

Students develop a range of skills that helps 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 hazard risk management, the unequal distribution of resources throughout the world, cultural diffusion, land cover change, urban planning and sustainable development practices.

The Geography ATAR course promotes students' communication abilities by building their skills of spatial and visual representation and interpretation through the use of cartographic, diagrammatic, graphical, photographic and multimodal forms. In addition, students communicate their conclusions by written and oral means.

Aims

The Geography ATAR course enables students to:

- develop knowledge and understanding of the type, causes, distribution, impacts and management of natural and ecological hazards, globalisation in a range of spatial contexts, land cover change, and the challenges affecting the sustainability of places
- understand and apply the concepts of place, space, environment, interconnection, sustainability, scale and change through inquiries into geographical phenomena and issues
- critically use geographical inquiry methods and skills, and to think and communicate geographically
- identify, evaluate and justify alternative and innovative responses to the geographical challenges facing humanity, and propose and justify actions, taking into account environmental, social and economic factors.

Organisation

This course is organised into a Year 11 syllabus and a Year 12 syllabus. The cognitive complexity of the syllabus content increases from Year 11 to Year 12.

Structure of the syllabus

The Year 12 syllabus is divided into two units which are delivered as a pair. The notional time for the pair of units is 110 class contact hours.

Unit 3 – Global environmental change

In this unit, students assess the impacts of land cover change with particular reference to climate change or biodiversity loss.

Unit 4 – Planning sustainable places

In this unit, students examine the causes and implications of urbanisation as well as challenges that exist in metropolitan Perth or a regional centre and a megacity with particular reference to how people respond to these challenges to influence sustainability and liveability.

Each unit includes:

- a unit description – a short description of the focus of the unit
- unit content – the content to be taught and learned.

Organisation of content

The content in each unit is divided into an overview and two depth studies. The content descriptions associated with the overview are designed to be taught at a broad level and in a short timeframe.

The content descriptions associated with the depth study are designed to be taught in a more focused and detailed way and, therefore, take more time to teach.

The unit content that is listed after 'e.g.' is provided as suggested examples to guide teachers on relevant topics, which could be used to teach the content descriptions; teachers are not restricted to just the listed examples. Unit content that is referred to in a content description after 'including' is examinable content.

The cognitive verb used with each content description sets the upper limit in skill level for that content description. In developing assessment tasks, teachers and the examining panel may use verbs with the same or lower level skill, but not higher.

The Geography ATAR course has two interrelated strands: Geographical Knowledge and Understanding, and Geographical Inquiry and Skills. The organisation of the strands provides an opportunity to integrate content in flexible and meaningful ways.

Geographical Knowledge and Understanding

Geographical knowledge refers to the facts, generalisations, principles, theories and models developed in the Geography ATAR course. This knowledge is dynamic and its interpretation can be contested. Opinions and conclusions must be supported by evidence and logical argument.

Geographical understanding is the ability to see the relationships between items of knowledge and construct explanatory frameworks to illustrate these relationships. It is also the ability to apply this knowledge to new situations or to solve new problems.

Geographical Inquiry and Skills

This strand is about the skills required to conduct a geographical inquiry and the geographical skills needed to find and communicate information and data. It contains two sub-strands: Geographical Inquiry Skills and Geographical Skills.

Geographical inquiry is a process undertaken by individual students or groups to investigate geographical questions, information, data, problems or issues to deepen their understanding. This process requires students to apply the following geographical inquiry skills:

- observing, questioning and planning
- collecting, recording, evaluating and representing
- interpreting, analysing and concluding
- communicating
- reflecting and responding.

Inquiries may vary in scale and geographic context.

When using geographical information and data and communicating, students develop the following geographical skills:

- mapping skills (use of maps and atlases)
- remote sensing skills (use of remote sensing products, such as ground level photographs, aerial photographs, radar imagery and satellite imagery)
- geographical and statistical data skills (use of geographical and statistical data in formats such as tables, graphs, maps and diagrams)

- skills in the use of information and communication technology (ICT) and geographical information systems (GIS) in a geographical context
- fieldwork skills (use of fieldwork observations and measurements).

Relationships between the strands

The two strands are interrelated and the content enables integration of the strands in the development of a teaching and learning program. The Geographical Knowledge and Understanding strand provides the contexts through which particular inquiries and skills are to be developed. The same set of geographical skills has been included in each of the units to provide a common focus for the teaching and learning of content in the Geographical Knowledge and Understanding strand.

Representation of the general capabilities

The general capabilities encompass the knowledge, skills, behaviours and dispositions that will assist students to live and work successfully in the twenty-first century. Teachers should find opportunities to incorporate the capabilities into the teaching, learning and assessment program for the Geography ATAR course. The general capabilities are not assessed unless they are identified within the specified unit content.

Literacy

In the Geography ATAR course, students use their literacy skills to explore, interpret and evaluate geographical phenomena and issues and communicate geographically. Students work with oral, print, visual and digital texts to gather, synthesise and analyse information from a range of sources, and present and justify ideas, conclusions and opinions within a broad range of geographical contexts. They understand how language is used and modified for specific purposes, and question attitudes and assumptions embedded in texts.

Geography students also develop visual literacy skills as they make meaning of information communicated through maps, graphs, cartoons and other images.

Numeracy

In the Geography ATAR course, students use numeracy skills to identify and describe a wide range of patterns and relationships, including those that can be visually represented on a graph or map. Geography students also apply numeracy skills to interpret and manipulate data. These skills help students to recognise and describe change as it occurs over time. Students demonstrate numeracy capability by making connections between apparently diverse facts and suggesting solutions to problems in a range of circumstances; for example, the relationship between weather patterns and the likelihood of natural hazards, such as floods or landslides.

Information and communication technology capability

In the Geography ATAR course, students use information and communication technology (ICT) to develop geographical understanding and to support the application of geographical skills. They use digital tools, including spatial technologies, to support their inquiries into geographical phenomena and issues. They also use these tools to collect and analyse data, represent it in digital form, and access and manipulate databases. In addition, students critically analyse the quality of digital

information and sources of information. They also create multimodal and multifaceted reports and presentations to represent and communicate the results of geographical inquiry.

Students recognise the relative possibilities, limitations and consequences of using different forms of digital information and methods of distributing this information, and apply sophisticated understandings of social and ethical practices in the use of digital information and communications. In particular, they consider how geographical and demographic data may be used and the ethics involved.

Critical and creative thinking

Critical and creative thinking processes and skills are used by students when examining diverse interactions between people, perspectives, interpretations, phenomena and environments. Through multifaceted problem posing and solving, they explore the interconnections, uncertainty and consequences of these relationships.

Thinking laterally, visualising possibilities, testing options using criteria, and making judgements are essential skills for conducting geographical investigations connected with the environment, space, sustainability, scale and change. When seeking answers to questions, students think holistically and spatially, using skills such as analysis, interpretation, extrapolation from trends, synthesis of relationships and exploration of anomalies evident in patterns.

Through developing dispositions such as intellectual openness, curiosity and showing initiative, students investigate physical and human phenomena. As independent and autonomous thinkers who seek explanations and value discovery, they turn creativity and innovation into action, apply new knowledge to identified gaps, and justify their actions.

Personal and social capability

Personal and social capability involves students taking responsible personal, social and environmental action against, or in support of, decisions by organisations, governments or other bodies. Through the study of geography, students are provided with learning opportunities to assist them to develop, rehearse and refine their skills in listening to, respecting and acknowledging diverse perspectives and opinions. Students participate in collaborative investigative group work to make ethical, rational social decisions and solve problems that relate to their social and environmental contexts. Developing these personal and social capabilities positions them to advocate for opportunities and methods for change in a democratic society. Personal and social capability occurs when responsible social and environmental actions and participation are promoted, and this should be a logical outcome of many geographical investigations.

Ethical understanding

Ethical understanding plays an important role in geographical inquiry. Students uncover and assess ethical considerations, such as the links between human rights and responsibilities and the ways diverse perspectives, values and cultures impact on geographical issues. Through geographical inquiry, students have the opportunity to analyse, qualify and test their own attitudes, values and beliefs and explore how people's knowledge, attitudes and values affect judgements, decisions and actions as they apply to their interactions with environments. They become aware of the need for social responsibility when confronted with alternative opinions and when seeking to resolve

problems. Students apply ethical standards to guide their use of digital representations of phenomena and statistics associated with physical and environmental factors and relationships.

Intercultural understanding

Students deepen their intercultural understanding as they examine geographical issues in a broad range of cultural contexts. This involves students in developing their understanding of the complexity and diversity of the world's cultures and evaluating alternative responses to the world's environments and challenges. It enables students to find interconnections and sustainable solutions in an internationally integrated world, and consider the implications of their responses from different cultural responses.

Representation of the cross-curriculum priorities

The cross-curriculum priorities address contemporary issues which students face in a globalised world. Teachers should find opportunities to incorporate the priorities into the teaching and learning program for the Geography ATAR course. The cross-curriculum priorities are not assessed unless they are identified within the specified unit content.

Aboriginal and Torres Strait Islander histories and cultures

In the Geography ATAR course, there is a range of opportunities to learn about Aboriginal and Torres Strait Islander histories and cultures. Students can, for example, investigate how Aboriginal and Torres Strait Islander peoples are represented in the challenges faced by places; have contributed to land cover change in Australia through their land management practices over time; and have been affected by land cover change.

More broadly, students develop a range of capabilities that enable them to independently construct informed responses to the range of geographical issues involving Aboriginal and Torres Strait Islander peoples.

Asia and Australia's engagement with Asia

In the Geography ATAR course, students can investigate a wide range of contexts that draw on Asia and Australia's engagement with Asia. This priority can be addressed through: the study of natural and ecological hazards and how the risks associated with such occurrences can be managed to eliminate or minimise harm to people and the environment; the challenges faced by megacities in the Asia region; human-related land cover transformations; and other transformations taking place as a result of economic and cultural integration.

Sustainability

Students explicitly address sustainability in the Geography ATAR course through an investigation of the approaches to sustainability and through an evaluation of alternative responses to geographical issues and phenomena. In doing so, they use economic, social and environmental criteria to frame investigative questions and measure the capacity of something to be maintained indefinitely into the future.

Unit 3 – Global environmental change

Unit description

This unit focuses on the changing biophysical cover of the Earth's surface, the creation of anthropogenic biomes and the resulting impacts on either global climate or biodiversity. Land cover transformations have changed both global climate and biodiversity through their interaction with atmospheric and ecological systems. Conversely, climate change and loss of biodiversity are producing further land cover changes. Through applying the concept of sustainability, students are given the opportunity to examine and evaluate a program designed to address the negative effect of land cover change. Aspects of physical, environmental and human geography provide students with an integrated and comprehensive understanding of the processes related to land cover change, their local, regional and/or global environmental consequences, and possible sustainable solutions.

The Earth's surface is constantly changing and all environments are, to a greater or lesser extent, being modified by human activity. Students examine the processes causing change in land cover. The scale at which these processes are occurring is so extensive that very few truly 'natural' environments still exist and most are now, to some degree, anthropogenic in nature. Human action has altered local and regional climates and hydrology, damaged ecosystem services, contributed to the loss of biodiversity and altered soils.

This unit begins with an overview of land cover change drawn from different regions and countries. Two depth studies provide for a more focused and detailed way of teaching and learning. The first study focuses on the interrelationship between land cover and either global climate change or biodiversity loss. The second study focuses on how the impacts of land cover change are being addressed and evaluated.

In undertaking these depth studies, students develop an understanding of the use and application of geographical inquiry, tools such as spatial technologies, fieldwork and other skills, to investigate human–environment systems.

Unit content

This unit includes the knowledge, understanding and skills described below. This is the examinable content.

Geographical Knowledge and Understanding

Overview of type, rate, extent, causes and consequences of land cover change

Reference should be made to global forests, agriculture and urban land cover.

- define the concepts of environment, natural and anthropogenic biomes, land cover change, ecosystem structure and dynamics, biodiversity loss, climate change and sustainability
- describe the processes of land cover change, including deforestation, the expansion and intensification of agriculture, the growth of urban settlement and mining
- describe how remote sensing images are used to identify and measure the location, type, rate and extent of land cover change

- outline the impacts of world population growth on the type, rate and extent of land cover change
- outline the impacts of growing affluence and advances in technology on the type, rate and extent of land cover change
- explain how **two** of the following factors account for differences in land cover change between **two** countries: government policy; ideology; land ownership; type of economy; and culture
- explain the impact of Aboriginal and Torres Strait Islander peoples' land management practices on land cover over time
- explain **two** of the following impacts of land cover change: changes to the water cycle; soil erosion and/or degradation; loss of habitat and biodiversity; loss of ecosystem services; urban heat islands; the degradation of aquatic and/or marine environments

Students complete **two** depth studies, which are taught with the requisite geographical inquiry skills and additional geographical skills that are described as part of this unit.

Depth study one

Using fieldwork and/or secondary sources, students investigate the links between changes in land cover and changes in either global climate or biodiversity.

Global climate change

- describe the spatial distribution of the world's rainfall and temperature patterns
- describe the key elements of the following natural systems and the ways in which they influence the Earth's climate, including
 - heat budget, including the greenhouse effect
 - hydrological cycle
 - carbon cycle
 - atmospheric circulation
- explain **two** natural and **two** anthropogenic causes and the rate of global climate change
- describe **one** major type of evidence for climate change through geological time
- describe **one** major type of evidence for climate change in recent human history
- explain the interrelationships between land cover change and climate, including changes to surface reflectivity (albedo) and the process of natural carbon sequestration
- discuss the present and projected impacts of climate change in **one** natural and **one** anthropogenic environment (e.g. changes to: vegetation; ice sheets and glaciers; oceans; agriculture; urban settlements)

OR

Loss of biodiversity

- describe the spatial distribution of the world's biomes

- describe the key elements of ecosystem structure and dynamics, including
 - biotic and abiotic elements
 - food chains and webs
 - biomass
 - trophic levels
 - flows of matter and energy
- explain **two** natural and two anthropogenic causes and rate of declining biodiversity
- describe **one** major type of evidence for loss of biodiversity through geological time
- describe **one** major type of evidence for loss of biodiversity in recent human history
- explain the interrelationships between land cover change and biodiversity loss, including shifting ecological boundaries, evolutionary diversification and species extinction
- discuss the present and projected impacts of biodiversity loss in **one** natural and **one** anthropogenic environment (e.g. changes to: ecosystem services and species; ecosystem and genetic diversity; human foods and medicinal plants)

Depth study two

Using fieldwork and/or secondary sources, students investigate how the impacts of land cover change are being addressed and evaluated.

- discuss **three** ways human activity has adapted, or may be required to adapt, to either global climate change or loss of biodiversity
- discuss how **two** strategies aim to mitigate either global climate change or loss of biodiversity
- explain **two** strategies designed to address the impacts of land cover change on local and/or regional environments
- evaluate the **two** strategies designed to address the impacts of land cover change, using the concept of sustainability

Geographical Inquiry and Skills

All the following skills must be taught during the unit. Relevant skills will be emphasised for each depth study.

Geographical inquiry skills

Observing, questioning and planning

- formulate geographical inquiry questions
- plan a geographical inquiry with clearly defined aims and appropriate methodology

Collecting, recording, evaluating and representing

- collect geographical information, incorporating ethical protocols, from a range of primary sources (e.g. interviews, questionnaires, student's own experiences, field observations) and

secondary sources (e.g. online maps, websites, spatial software applications, print resources, and visual media)

- record observations in a range of graphic representations using spatial technologies and information and communication technologies
- evaluate the reliability, validity and usefulness of geographical sources and information
- acknowledge sources of information and use an approved referencing style

Interpreting, analysing and concluding

- analyse geographical information and data from a range of primary and secondary sources, and a variety of perspectives, to draw reasoned conclusions and make generalisations
- identify and analyse relationships, spatial patterns and trends, and make predictions and inferences

Communicating

- communicate geographical information, ideas, issues and arguments using appropriate written and/or oral, cartographic, multimodal and graphic forms
- use geographical language in appropriate contexts to demonstrate geographical knowledge and understanding

Reflecting and responding

- apply generalisations to evaluate alternative responses to geographical issues at a variety of scales
- propose individual and collective action, taking into account environmental, social and economic factors, and predict the outcomes of the proposed action

Geographical skills

The following geographical skills must be taught within each unit.

Mapping skills (use of maps and atlases)

- interpret a variety of topographic and thematic maps (e.g. physical, political, and social maps, synoptic charts and climate maps) at different scales, including local, national and global
- interpret and apply data from different types of statistical maps (e.g. isopleth/isoline maps, choropleth maps, proportional circle maps, overlay and dot distribution maps)
- interpret marginal information represented on maps, including title, conventional symbols contained in the legend, north point, numerical and linear scale
- establish position on a map using alphanumeric grid coordinates, eastings and northings, four figure area references, six figure grid references, and latitude and longitude expressed in degrees and minutes
- establish direction on a map using 16 point compass directions and bearings
- interpret and express scale in written, linear and ratio formats, and convert scale from one format to another

- apply the map scale to basic calculations to determine time, speed, distance and area
- interpret relief on a map using contours, height information and spot heights to describe the steepness and shape of a slope, including concave, convex and uniform, and calculate the average gradient expressed as a ratio
- identify different relief features and landforms, including hills, valleys, plains, spurs, ridges, escarpments, saddles, cliffs, types of natural vegetation cover and hydrological features, including land subject to inundation, perennial and intermittent water bodies
- interpret, construct and annotate cross sections to show natural and cultural features on the landscape
- construct simple annotated sketch maps using map conventions, including border, title, legend, north point and approximate scale
- identify and interpret natural features and cultural features on a map
- describe the site and situation of places
- identify, describe and interpret spatial patterns, including land use, settlement and transport, and spatial relationships between natural and cultural features on maps
- interpret and describe changing patterns and relationships that have taken place over time

Remote sensing skills (use of remote sensing products, such as ground level photographs, aerial photographs, radar imagery and satellite imagery)

- identify and describe natural and cultural features and their patterns on the Earth's surface using ground level photographs, and aerial photographs, including vertical and oblique, radar imagery and satellite imagery
- compare the different types of information available from remote sensing products with the information depicted on a topographic map
- use remote sensing products as an aid to interpreting natural and cultural features shown on topographic maps
- determine direction on remote sensing products
- apply scale to the calculation of distance on remote sensing products
- interpret the difference in scale between a photograph and a topographic map of the same place
- use combinations of remote sensing products and topographic maps to provide information based on change over time

Geographical and statistical data skills (use of geographical and statistical data in formats, such as tables, graphs, maps, diagrams)

- calculate and interpret descriptive statistics, including arithmetic mean, median, mode, maximum, minimum and range and frequency
- identify correlations between variables

- interpret and apply data from different types of statistical maps (e.g. isopleth/isoline maps, choropleth maps, proportional circle maps, overlay and dot distribution maps)
- interpret and construct tables and graphs (e.g. picture graphs; line, bar and compound graphs; histograms; scattergrams; climatic graphs; pie graphs; flowcharts, population pyramids)
- use systems and flow diagrams to identify relationships
- identify that statistical or spatial association does not prove a causal relationship

Skills in the use of information and communications technology and geographical information systems (in a geographic context)

- use the internet as a tool for geographical research
- use simple applications, software and online resources (e.g. Google Earth, Google Maps) to access atlases and remote sensing products (e.g. photographs, radar imagery, satellite imagery) for the purpose of describing and interpreting spatial patterns and relationships
- access databases (e.g. Australian Bureau of Statistics, Bureau of Meteorology) for spatial and statistical information
- use geospatial technologies to collect and map spatial data

Fieldwork skills (use of field observations and measurements)

- collect primary data using field techniques (e.g. surveys and interviews, observing and recording, listening, questioning, sketching and annotating, measuring and counting, photographing, note taking)
- collate primary data using techniques (e.g. listing, tabulating, graphing, constructing diagrams, mapping)
- analyse and interpret primary data

Unit 4 – Planning sustainable places

Unit description

Challenges exist in designing urban places to render them more productive, vibrant and sustainable. How people respond to these challenges, individually and collectively, will influence the sustainability and liveability of places into the future. While all places are subject to changes produced by economic, demographic, social, political and environmental processes, the outcomes of these processes vary depending on local responses, adaptations and planning practices.

Urban planning involves a range of stakeholders who contribute to decision making and the planning process. Students examine how governments, planners, communities and interest groups attempt to address these challenges in order to ensure that places are sustainable. They also investigate the ways in which geographical knowledge and skills can be applied to identify and address these challenges. 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 needs of the population as perceived by the different perspectives of the various stakeholders.

The unit begins with a global scale overview of the process of urbanisation and its consequences. Urbanisation not only affects the rate of world population growth, it has created a range of challenges for urban and rural places. The interconnected challenges faced in places, and other matters related to liveability, are a focus of this unit.

Two depth studies provide for a more focused and detailed way of teaching and learning. The first study focuses on challenges in metropolitan Perth or a regional urban centre in Western Australia. The second study focuses on challenges faced in a megacity. Students examine the concepts, processes and roles of planning in these selected contexts. This approach enables students to also develop an understanding of the challenges in two urban places.

In undertaking these depth studies, students will use and apply geographical tools, such as spatial technologies and skills, to investigate the sustainability of places.

Unit content

This unit builds on the content covered in Unit 3.

This unit includes the knowledge, understandings and skills described below. This is the examinable content.

Geographical Knowledge and Understanding

Overview of Places and their challenges

- describe the process of urbanisation
- describe the concept of liveability
- describe the implications of urbanisation on world population growth in urban and rural places
- outline the economic and environmental interdependence of urban and rural places

- describe the historical, cultural, economic and environmental factors that have contributed to the spatial distribution of urban and rural places in Australia
- outline the changing demographic characteristics, including age and gender, socioeconomic and cultural distributions, in urban and rural places in Australia
- define the processes of urban sprawl, invasion and succession, renewal, land use planning, land use competition, inertia and agglomeration
- select **four** of the following challenges facing places located outside major cities in Australia, and explain why each presents a challenge to these places: population loss; economic restructuring; employment; housing; service and water provision; concentrations of socially vulnerable populations; social exclusion; transportation; resource degradation; land use conflicts; declining political influence, isolation and remoteness; fly-in/fly-out work patterns.

Students complete **two** depth studies which are taught with the requisite geographical inquiry and additional geographical skills described as part of this unit.

Depth study one

Using fieldwork and/or secondary sources, students investigate **two** significant challenges in either metropolitan Perth or a regional urban centre in Western Australia and how these challenges are being addressed. For the purpose of this unit, a regional urban centre is a place which has a school offering education to Year 12 students.

For the selected place, students:

- describe the site, situation, internal and external morphology
- explain the following demographic characteristics: age, gender, socioeconomic and cultural distributions

Students study **two** of the following challenges:

- housing
- economic restructuring
- employment
- transportation
- environmental degradation
- waste management
- land abandonment
- urban sprawl
- socio-spatial inequality
- social exclusions
- water supply.

For **each** selected challenge:

- explain the scope and causes of the challenge, and the impacts for the place
- discuss the views of **two** stakeholder groups related to the challenge
- explain **two** planning strategies used to address the challenge
- evaluate the **two** planning strategies used to address the challenge, using the concept of sustainability
- evaluate the extent to which the **two** planning strategies used to address the challenge, have or will enhance the place's liveability.

Depth study two

Using fieldwork and/or secondary sources, students investigate **two** significant challenges faced in **one** megacity. For the purpose of this unit, a megacity is a metropolitan area with a total population in excess of 10 million people.

For the selected megacity, students:

- describe the site, situation, internal and external morphology
- explain the following demographic characteristics: age, gender, socioeconomic and cultural distributions.

Students study **two** of the following challenges:

- housing
- economic restructuring
- employment
- transportation
- environmental degradation
- waste management
- land abandonment
- urban sprawl
- socio-spatial inequality
- social exclusions
- water supply.

For **each** selected challenge:

- explain the scope and causes of the challenge and impacts for the selected megacity
- explain **two** planning strategies used to address the challenge
- evaluate **two** planning strategies used to address the challenge, using the concept of sustainability

- evaluate the extent to which **two** planning strategies used to address the challenge, has or will enhance the place's liveability.

Geographical Inquiry and Skills

All the following skills must be studied during this unit. Relevant skills will be emphasised for each depth study.

Geographical inquiry skills

Observing, questioning and planning

- formulate geographical inquiry questions
- plan a geographical inquiry with clearly defined aims and appropriate methodology

Collecting, recording, evaluating and representing

- collect geographical information, incorporating ethical protocols, from a range of primary sources (e.g. interviews, questionnaires, students' own experiences, field observations) and secondary sources (e.g. online maps, websites, spatial software applications, print resources, and visual media)
- record observations in a range of graphic representations using spatial technologies and information and communication technologies
- evaluate the reliability, validity and usefulness of geographical sources and information
- acknowledge sources of information and use an approved referencing style

Interpreting, analysing and concluding

- analyse geographical information and data from a range of primary and secondary sources, and a variety of perspectives, to draw reasoned conclusions and make generalisations
- identify and analyse relationships, spatial patterns and trends, and make predictions and inferences

Communicating

- communicate geographical information, ideas, issues and arguments using appropriate written and/or oral, cartographic, multimodal and graphic forms
- use geographical language in appropriate contexts to demonstrate geographical knowledge and understanding

Reflecting and responding

- apply generalisations to evaluate alternative responses to geographical issues at a variety of scales
- propose individual and collective action, taking into account environmental, social and economic factors, and predict the outcomes of the proposed action

Geographical skills

The following geographical skills must be taught within each unit.

Mapping skills (use of maps and atlases)

- interpret a variety of topographic and thematic maps (e.g. physical, political, and social maps, synoptic charts and climate maps) at different scales, including local, national and global
- interpret and apply data from different types of statistical maps (e.g. isopleth/isoline maps, choropleth maps, proportional circle maps, overlay and dot distribution maps)
- interpret marginal information represented on maps, including title, conventional symbols contained in the legend, north point, numerical and linear scale
- establish position on a map using alphanumeric grid coordinates, eastings and northings, four figure area references, six figure grid references, and latitude and longitude expressed in degrees and minutes
- establish direction on a map using 16 point compass directions and bearings
- interpret and express scale in written, linear and ratio formats, and convert scale from one format to another
- apply the map scale to basic calculations to determine time, speed, distance and area
- interpret relief on a map using contours, height information and spot heights to describe the steepness and shape of a slope, including concave, convex and uniform, and calculate the average gradient expressed as a ratio
- identify different relief features and landforms, including hills, valleys, plains, spurs, ridges, escarpments, saddles, cliffs, types of natural vegetation cover and hydrological features, including land subject to inundation, perennial and intermittent water bodies
- interpret, construct and annotate cross sections to show natural and cultural features on the landscape
- construct simple annotated sketch maps using map conventions, including border, title, legend, north point and approximate scale
- identify and interpret natural features and cultural features on a map
- describe the site and situation of places
- identify, describe and interpret spatial patterns, including land use, settlement and transport, and spatial relationships between natural and cultural features on maps
- interpret and describe changing patterns and relationships that have taken place over time

Remote sensing skills (use of remote sensing products, such as ground level photographs, aerial photographs, radar imagery and satellite imagery)

- identify and describe natural and cultural features and their patterns on the Earth's surface using ground level photographs, and aerial photographs, including vertical and oblique, radar imagery and satellite imagery

- compare the different types of information available from remote sensing products with the information depicted on a topographic map
- use remote sensing products as an aid to interpreting natural and cultural features shown on topographic maps
- determine direction on remote sensing products
- apply scale to the calculation of distance on remote sensing products
- interpret the difference in scale between a photograph and a topographic map of the same place
- use combinations of remote sensing products and topographic maps to provide information based on change over time

Geographical and statistical data skills (use of geographical and statistical data in formats, such as tables, graphs, maps, diagrams)

- calculate and interpret descriptive statistics, including arithmetic mean, median, mode, maximum, minimum and range and frequency
- identify correlations between variables
- interpret and apply data from different types of statistical maps (e.g. isopleth/isoline maps, choropleth maps, proportional circle maps, overlay and dot distribution maps)
- interpret and construct tables and graphs (e.g. picture graphs; line, bar and compound graphs; histograms; scattergrams; climatic graphs; pie graphs; flowcharts, population pyramids)
- use systems and flow diagrams to identify relationships
- identify that statistical or spatial association does not prove a causal relationship

Skills in the use of information and communications technology and geographical information systems (in a geographic context)

- use the internet as a tool for geographical research
- use simple applications, software and online resources (e.g. Google Earth, Google Maps) to access atlases and remote sensing products (e.g. photographs, radar imagery, satellite imagery) for the purpose of describing and interpreting spatial patterns and relationships
- access databases (e.g. Australian Bureau of Statistics, Bureau of Meteorology) for spatial and statistical information
- use geospatial technologies to collect and map spatial data

Fieldwork skills (use of field observations and measurements)

- collect primary data using field techniques (e.g. surveys and interviews, observing and recording, listening, questioning, sketching and annotating, measuring and counting, photographing, note taking)
- collate primary data using techniques (e.g. listing, tabulating, graphing, constructing diagrams, mapping)
- analyse and interpret primary data

Assessment

Assessment is an integral part of teaching and learning that at the senior secondary years:

- provides evidence of student achievement
- identifies opportunities for further learning
- connects to the standards described for the course
- contributes to the recognition of student achievement.

Assessment for learning (formative) and assessment of learning (summative) enable teachers to gather evidence to support students and make judgements about student achievement. These are not necessarily discrete approaches and may be used individually or together, and formally or informally.

Formative assessment involves a range of informal and formal assessment procedures used by teachers during the learning process in order to improve student achievement and to guide teaching and learning activities. It often involves qualitative feedback (rather than scores) for both students and teachers, which focuses on the details of specific knowledge and skills that are being learnt.

Summative assessment involves assessment procedures that aim to determine students' learning at a particular time, for example when reporting against the standards, after completion of a unit/s. These assessments should be limited in number and made clear to students through the assessment outline.

Appropriate assessment of student work in this course is underpinned by reference to the set of pre-determined course standards. These standards describe the level of achievement required to achieve each grade, from A to E. Teachers use these standards to determine how well a student has demonstrated their learning.

Where relevant, higher order cognitive skills (e.g. application, analysis, evaluation and synthesis) and the general capabilities should be included in the assessment of student achievement in this course. All assessment should be consistent with the requirements identified in the course assessment table.

Assessment should not generate workload and/or stress that, under fair and reasonable circumstances, would unduly diminish the performance of students.

School-based assessment

The *Western Australian Certificate of Education (WACE) Manual* contains essential information on principles, policies and procedures for school-based assessment that must be read in conjunction with this syllabus.

School-based assessment involves teachers gathering, describing and quantifying information about student achievement.

Teachers design school-based assessment tasks to meet the needs of students. As outlined in the *WACE Manual*, school-based assessment of student achievement in this course must be based on the Principles of Assessment:

- Assessment is an integral part of teaching and learning
- Assessment should be educative
- Assessment must be fair
- Assessment should be designed to meet its specific purpose/s
- Assessment should lead to informative reporting
- Assessment should lead to school-wide evaluation processes
- Assessment should provide significant data for improvement of teaching practices.

The table below provides details of the assessment types and their weighting for the Geography ATAR Year 12 syllabus.

Summative assessments in this course must:

- be limited in number to no more than eight tasks
- allow for the assessment of each assessment type at least once over the year/pair of units
- have a minimum value of 5 per cent of the total school assessment mark
- provide a representative sampling of the syllabus content.

Assessment tasks not administered under test or controlled conditions require appropriate authentication processes.

Assessment table – Year 12

Type of assessment	Weighting
Geographical inquiry/Fieldwork Students conduct investigations and fieldwork, process and translate information, and communicate findings following ethical protocols and procedures. Students actively engage in collecting and using primary and secondary information sources. Formats can include: assignment, research/fieldwork booklet, report, in-class validation and/or a combination of these.	20%
Response/Practical skills Questions can require students to respond to stimulus material and/or include the application of practical skills. Formats can include: map interpretation, data analysis, multiple-choice questions, short responses, sectionalised extended responses, extended responses, and/or a combination of these. Typically these tasks are administered under test conditions.	40%
Examination Typically conducted at the end of each semester and/or unit and reflecting the examination design brief for this syllabus.	40%

Teachers must use the assessment table to develop an assessment outline for the pair of units.

The assessment outline must:

- include a set of assessment tasks
- include a general description of each task
- indicate the unit content to be assessed
- indicate a weighting for each task and each assessment type
- include the approximate timing of each task (for example, the week the task is conducted, or the issue and submission dates for an extended task).

Reporting

Schools report student achievement, underpinned by a set of pre-determined standards, using the following grades:

Grade	Interpretation
A	Excellent achievement
B	High achievement
C	Satisfactory achievement
D	Limited achievement
E	Very low achievement

The grade descriptions for the Geography ATAR Year 12 syllabus are provided in Appendix 1. They are used to support the allocation of a grade. They can also be accessed, together with annotated work samples, on the course page of the Authority website at www.scsa.wa.edu.au.

To be assigned a grade, a student must have had the opportunity to complete the education program, including the assessment program (unless the school accepts that there are exceptional and justifiable circumstances).

Refer to the *WACE Manual* for further information about the use of a ranked list in the process of assigning grades.

The grade is determined by reference to the standard, not allocated on the basis of a pre-determined range of marks (cut-offs).

ATAR course examination

All students enrolled in the Geography ATAR Year 12 course are required to sit the ATAR course examination. The examination is based on a representative sampling of the content for Unit 3 and Unit 4. Details of the ATAR course examination are prescribed in the examination design brief on the following page.

Refer to the *WACE Manual* for further information.

Examination design brief – Year 12

Time allowed

Reading time before commencing work: ten minutes

Working time for paper: three hours

Permissible items

Standard items: pens (blue/black preferred), pencils (including coloured), sharpener, correction fluid/tape, eraser, ruler, highlighters

Special items: approved drawing and measuring instruments (i.e. dividers, drawing compass, string, protractor), up to three calculators, which do not have the capacity to create or store programmes or text, are permitted in this ATAR course examination

Provided by the supervisor

A broadsheet containing source material

Section	Supporting information
Section One Multiple-choice 20% of the total examination 20 questions Suggested working time: 30 minutes	Questions can contain verbs with the same or lower level skill, but not higher than stated in the Unit content description. Questions typically require the candidate to refer to source material on the broadsheet and apply geographical skills and knowledge.
Section Two Short response 40% of the total examination 7–12 questions Suggested working time: 70 minutes	Questions can contain verbs with the same or lower level skill, but not higher than stated in the Unit content description. Questions can consist of parts which are typically of increasing difficulty. Questions can require the candidate to refer to source material on the broadsheet and apply geographical skills and knowledge.
Section Three Extended response Part A: Unit 3 20% of the total examination One question from a choice of two Suggested working time: 40 minutes Part B: Unit 4 20% of the total examination One question from a choice of two Suggested working time: 40 minutes	Questions can contain verbs with the same or lower level skill, but not higher than stated in the Unit content description. Questions can consist of parts which are typically of increasing difficulty. Questions can require the candidate to refer to source material on the broadsheet and apply geographical skills and knowledge.

Appendix 1 – Grade descriptions Year 12

A

Geographical knowledge and understanding

Presents comprehensive discussions providing accurate and detailed integrated information about features, activities, strategies, spatial patterns and associations, processes, relationships and/or factors.

Makes detailed and frequent reference to relevant geographical models, concepts and/or theories.

Geographical terminology and concepts

Consistently uses relevant geographical terminology and applies related geographical concepts to develop cohesive, concise and accurate responses.

Geographical skills

Consistently applies a wide range of correct geographical thinking, skills and processes, and makes clear and direct links between them.

Accurately analyses and applies mapping and/or diagrammatic skills and processes in a wide variety of contexts to enhance responses.

Presents highly organised analytic responses, including extended responses with well-developed sentences and paragraphs.

Use of supportive evidence

Selects and correctly applies a wide range of appropriate supporting evidence, including examples, quotations, sources, statistics, data, maps and/or sketches when developing responses.

B

Geographical knowledge and understanding

Presents detailed discussions providing accurate information about features, activities, strategies, spatial patterns and associations, processes, relationships and/or factors.

Makes relevant reference to geographical models, concepts and/or theories.

Geographical terminology and concepts

Uses relevant geographical terminology and applies geographical concepts to develop appropriate responses.

Geographical skills

Applies correct geographical thinking, skills and processes, and makes clear links between them.

Accurately applies mapping and/or diagrammatic skills and processes in a variety of contexts to support responses.

Presents detailed effective responses, including extended responses with well-developed sentences and paragraphs.

Use of supportive evidence

Selects and applies a range of supporting evidence, including examples, quotations, sources, statistics, data, maps and/or sketches when developing responses.

C	Geographical knowledge and understanding Presents brief discussions providing mostly relevant general information about features, activities, strategies, spatial patterns and associations, processes, relationships and/or factors. Makes simple reference to geographical models, concepts and/or theories. Geographical terminology and concepts Uses some relevant geographical terminology and concepts to develop responses. Geographical skills Applies geographical thinking, mapping and/or diagrammatic skills and processes, and shows some links between them. Accurately applies a small range of mapping and/or diagrammatic skills and processes to support responses. Presents responses, including extended responses that are mostly descriptive in nature with basic sentence and paragraph structure. Use of supportive evidence Selects and applies some supporting evidence, including examples, quotations, sources, statistics, data, maps and/or sketches which may develop discussions.
D	Geographical knowledge and understanding Presents limited discussions providing simplistic information about features, activities, strategies, spatial patterns and associations, processes, relationships and/or factors. Rarely makes reference to geographical models, concepts and/or theories. Geographical terminology and concepts Makes limited use of relevant geographical terminology and concepts. Geographical skills Applies limited geographical thinking, mapping and/or diagrammatic skills and processes. Makes limited use of mapping skills and/or processes in some contexts to support responses. Presents mostly unstructured responses, which may include incorrect or irrelevant information. Use of supportive evidence Makes limited use of evidence to support statements and generalisations.
E	Does not meet the requirements of a D grade and/or has completed insufficient assessment tasks to be assigned a higher grade.

* These grade descriptions will be reviewed at the end of the second year of implementation of this syllabus.

Appendix 2 – Glossary

This glossary is provided to enable a common understanding of the key geographical terms in this syllabus.

Adaptation

Alteration or adjustment in response to a changed environment.

Agglomeration

A group of similar, but not necessarily the same, land uses that locate in the same area in order to benefit from common infrastructure and each other's operation.

Anthropogenic biomes

Biomes that are the result of sustained direct human interactions with ecosystems.

Biodiversity

The type, number and variety of living organisms within a given environment.

Biodiversity Loss

The extinction of species (plant or animal) worldwide, and also the local reduction or loss of species in a certain habitat.

Biome

A community of life forms adapted to a large natural area.

Change

The concept of change involves both time and space. Geographical phenomena are constantly changing, and can often be best understood by investigating how they have developed over time periods ranging from a few years to thousands.

Climate change

Climate change is a long term change in the statistical distribution of weather patterns over periods of time that range from decades to millions of years. It may be a change in the average weather condition or a change in the distribution of weather events with respect to an average; for example, greater or fewer extreme weather events. Climate change may be limited to a specific region, or may occur across the whole earth. Variations in temperature may result in either global cooling (i.e. ice ages) or global warming. In recent history, certain human activities have also been identified as significant causes of current climate change, often referred to as global warming.

Economic restructuring

Significant and enduring changes to the nature and structure of an economy.

Ecosystem services

Ecosystem services are the direct and indirect contributions of ecosystems to human wellbeing.

Ecosystem structure and dynamics

The ecosystem has a structure made up of the biotic and abiotic elements, with a hierarchy of organisms; that is, trophic levels, which includes, producers, consumers, and detritus. The ecosystem is dynamic; that is, there are relationships between biotic and abiotic elements, which includes the flow of energy between the elements (food chains and food webs). There is also an exchange of matter between biotic and abiotic elements within the system (i.e. nutrient cycle).

Ecosystem

A community of plants and animals in a non-living environment.

Environment

Where unqualified, environment means the living and non-living elements of the Earth's surface and atmosphere. It includes human changes to the Earth's surface; for example, croplands, planted forests, buildings and roads.

Fieldwork

Fieldwork is an integral part of geographical learning. It provides a planned opportunity for students to engage with the environment – to observe and investigate in the real world the geographical phenomena, issues and processes studied in the classroom. There are multiple approaches to fieldwork ranging from the observational to the fully participatory. Fieldwork can be undertaken in a range of settings, including the school grounds. It includes virtual fieldwork – the use of the internet to virtually visit a site and engage in a guided geographical inquiry. A virtual field trip provides the opportunity to investigate geographical phenomena not normally accessible due to distance or cost.

Geographical inquiry methodologies

An approach to the study focused on the development of a wide variety of skills, such as observing, reading, gathering, organising, preparing, presenting, analysing, interpreting and synthesising geographic information from a variety of sources, including spatial technologies and fieldwork. It involves the skills needed to formulate questions and initiate, plan and implement an inquiry relevant to a geographical issue, process or phenomenon.

Geographical processes

The combination of physical and human forces that form and transform our world.

Globalisation

The increased interconnectedness and interdependence of people and countries resulting from the expanding integration of trade, finance, people, and ideas in one global marketplace. Advancements in technology, communication, science, transport and industry have accelerated the pace of this integration over the past few decades.

Inertia

Resistance to movement; for example, factories that would benefit from changing location but instead decisions are made to keep them where they are located.

Interconnection

The concept of interconnection emphasises that no object of geographical study can be viewed in isolation. It is about the ways in which geographical phenomena are connected to each other through environmental processes, the movement of people, flows of trade and investment, the purchase of goods and services, cultural influences, the exchange of ideas and information, political power and international agreements. Interconnections can be complex, reciprocal or interdependent, and have a strong influence on the characteristics of places.

Invasion and succession

Refers to the gradual invasion of one land use type into an area dominated by a different land use, succession has occurred when the invading land use has almost completely transformed the land use in that particular area.

Land cover

The physical surface of the earth, including various combinations of vegetation types, soils, exposed rocks and water bodies as well as anthropogenic elements, such as agriculture and built environments. Land cover classes can usually be discriminated by characteristic patterns using remote sensing, e.g. trees, grass, crops, wetlands, water, buildings, and pavement.

Land cover change

The changes that have taken place in natural environments due to a variety of natural and/or human induced causes.

Land use

The purpose for which land is used, based on the functional dimension of land for different human purposes or economic activities (i.e. how people use the land); categories include residential, industrial, recreational, commercial, transport, primary industry, water, medical or natural protected areas.

Land use competition

The competition that occurs between different land use functions when more than one land use can benefit from a particular location. This competition increases the land value and usually the land use that can deliver the highest return on investment will locate in that particular area. For example, the centre of an urban or rural area is usually the most accessible and therefore desirable and the most expensive.

Land use planning

Planning policies and regulations that play an important role in shaping the land uses and characteristics of urban and rural places. Land use planning includes land use zoning, transport planning, grouping of compatible land uses, creation of buffer zones between incompatible land uses, determining residential densities, renewal project and planning for future growth.

Liveability

The quality of space and the built environment. The concept of liveability has been linked to a range of factors; for example, quality of life, health, sense of safety, access to services, cost of living, comfortable living standards, mobility and transport, air quality and social participation.

Megacity

A metropolitan area with a total population in excess of 10 million people.

Metropolitan

A region with a densely populated core urban area and its less populated surrounding suburbs that are mutually dependent upon infrastructure and industries.

Mitigation

Mitigation involves the implementation of the strategies to eliminate or minimise the severity of a hazard or similarly adverse occurrence.

Natural carbon sequestration

The process of capture and long term storage of atmospheric carbon dioxide by the natural biogeochemical cycling of carbon.

Natural system

A set of naturally occurring interrelated parts with distinct inputs, throughputs and outputs.

Perspective

A way of viewing the world, the people in it, their relationships to each other and their relationships to communities and environments.

Physical processes

The atmospheric, biological, chemical and physical processes that take place in the lithosphere, hydrosphere, atmosphere and biosphere. They can be further broken down; for example, soil forming processes, mass wasting, cloud forming processes, fluvial processes, marine processes, glacial processes and biogeochemical cycling.

Place

Places play a fundamental role in human life. The world is made up of places, from those with largely natural features, for example, an area of rainforest, to those with largely constructed features, such as the centre of a large city. They are where we live and grow up. Our most common relationships are likely to be with people in the same place. The environmental and human qualities of places influence our lives and life opportunities.

Places are, therefore, cultural constructs. They are sites of biodiversity, locations for economic activity, centres of decision making and administration, sites for the transmission and exchange of knowledge and ideas, meeting places for social interaction, sources of identity, belonging and enjoyment, and areas of natural beauty and wonder. They are where major events occur, from natural disasters and financial crises to sporting events.

Places can also be laboratories for the comparative study of the relationships between processes and phenomena, because the uniqueness of each place means that similar processes and influences can produce different outcomes in different places. The importance of Country/Place to Aboriginal and Torres Strait Islander peoples is an example of the interaction between culture and identity, and shows how places can be invested with spiritual and other significance.

Planning strategies

Typically form part of an overarching strategic urban planning policy framework which includes strategies that aim to address specific challenges identified within the policy framework.

For example, a strategy to address congestion within a government strategic urban plan for a metropolitan area. Strategies may be implemented by various levels of government to address the challenge.

Remote sensing

The science of obtaining information about objects or areas from a distance, typically from aircraft or satellites

Rural places

The ABS identifies rural places in Australia as having population clusters under 1000 people. In addition, according to the ABS, 'Bounded Localities' (also classified as Rural) can include some large localities with populations greater than 1000. For more information refer to the *Australian Statistical Geography Standard (ASGS): Volume 4 - Significant Urban Areas, Urban Centres and Localities, Section of State, July 2016* at <https://www.abs.gov.au>.

Scale

The concept of scale is used to analyse phenomena and look for explanations at different spatial levels, from the personal to the local, regional, national and global. Different factors can be involved in explaining phenomena at different scales; for example, in studies of vegetation, climate is the main factor at the global scale, but soil and drainage may be the main factors at the local scale. Deciding on the appropriate scale for an inquiry is, therefore, important.

Scale is also involved when geographers look for explanations or outcomes at different levels. Local events can have global outcomes, for example, the effects of local actions such as permanent vegetation removal on global climate. National and regional changes can also have local outcomes, as in the effects of economic policies on local economies.

Scale, however, may be perceived differently by diverse groups of people and organisations, and can be used to elevate or diminish the significance of an issue; for example, by labelling it as local or global.

Social exclusion

The processes by which individuals and even entire communities are systematically blocked from rights, opportunities and resources; for example, housing, employment, healthcare, civic engagement, democratic participation and due process that are normally available to members of society, and which are key to social integration.

Socio spatial inequality

Social and economic inequalities across space, including unequal access to essential goods and services depending on the area or location in which a person lives.

Space

The concept of space includes location, spatial distribution and the organisation of space. Location plays an important role in determining the environmental characteristics of a place, the viability of an economic activity or the opportunities open to an individual, but the effects of location on human activities also depend on the infrastructure and the technologies that link places, and the ways in which these are managed by businesses and governments.

Spatial distribution, the second element in the concept of space, underlies much geographical study. The geographical characteristics of places have distributions across space that form patterns, and the analysis of these patterns contributes to an understanding of the causes of these characteristics and of the forms they take in particular places. Spatial distributions also have significant environmental, economic, social and political consequences.

The organisation of space concerns how it is perceived, structured, organised and managed by people within specific cultural contexts, and how this creates particular types of spaces.

Spatial association

The relationship between the distribution patterns of different phenomena on the Earth's surface.

Spatial distribution

The arrangement of geographical phenomena or activities across the Earth's surface.

Spatial technologies

Any software or hardware that interacts with real world locations. The use of spatial technologies forms the basis of many geographers' work practice. Global positioning systems (GPS), Google Earth, geographic information systems (GIS) and the use of satellite images are the most commonly used spatial technologies to visualise, manipulate, analyse, display and record spatial data.

The use of spatial technologies is integral to the inquiry and skills process. The spatial technology application links geographic locations to information about them in order to:

- find information about places across the globe or locally
- analyse relationships between locations
- make decisions on the location of facilities
- map the demographics of target markets
- integrate maps with information from a variety of sources.

Sustainability

Meeting the needs of current and future generations through simultaneous environmental, social and economic adaptation and improvement.

Stakeholder groups

Stakeholder groups can include political parties, government departments/agencies, community organisations, industry groups, and interest groups who hold a view and are affected by the challenge. They include groups who may contribute to the decision making and planning process. For the purpose of Unit 4, individuals and generalised groups (e.g. car drivers, residents, cyclists) are not considered stakeholder groups.

Thinking geographically

To think geographically involves the application of the discipline's organising concepts to investigation of geographical issues and phenomena. It is conceptual knowledge — the ideas we use to enhance our knowledge and understanding of the world. The organising concepts in senior secondary geography are place, space, environment, interconnection, sustainability, scale and change.

Urbanisation

The proportion of people living in urban areas compared to rural areas.

The process of urbanisation refers to the increasing percentage or proportion of a population living in urban areas of a country. This typically involves the movement or shift of people from rural to urban areas or a large influx of migrants into urban areas at a greater rate than into rural areas.

Urban places

The ABS identifies urban places in Australia as having population clusters over 1000 people.

Urban renewal

The rehabilitation of urban areas, by regeneration, replacement, repair or renovation, in accordance with comprehensive plans, typically larger scale redevelopment projects, usually initiated by government.

Urban sprawl

Refers to the outward spread of typically low density residential and urban development on the periphery of urban areas.

Variety of scales

The geographical view of processes and phenomena at different levels on a continuum from the local to the international and global scales. It may include: comparative studies at the same scale; studying the same issue and phenomenon at a range of scales; or seeking explanations at a different scale to the one being studied.

Appendix 3 – Glossary of key words in the formulation of questions

This glossary is provided to enable a common understanding of the verbs to be used when constructing questions for assessment.

Account

Account for: state reasons for, report on.

Give an account of: narrate a series of events or transactions

Advise

Recommend or inform

Analyse

Identify components and the relationship between them; draw out and relate implications

Apply

Use, utilise, employ in a particular situation

Argue

Make a case, based on appropriate evidence, for and/or against some given point of view

Assess

Make a judgement of value, quality, outcomes, results or size

Calculate

Ascertain/determine from given facts, figures or information

Choose (multiple-choice)

Decide or select the most suitable from a number of different options

Clarify

Make clear or plain

Classify

Arrange or include in classes/categories

Comment on

Make reference to and expand upon

Compare

Show how things are similar and different

Complete

Finish an outlined task

Consider

Reflect on and make a judgement/evaluation

Construct

Make; build; put together items or arguments

Contrast

Show how things are different or opposite

Correlate

Demonstrate a mutual or complementary relationship

Create

Make, invent something

Critically (analyse/evaluate)

Add a degree or level of accuracy depth, knowledge and understanding, logic, questioning, reflection and quality to analyse/evaluate

Debate

Develop a logical (sometimes persuasive) argument, giving differing views in response to a topic

Deduce

Draw conclusions

Define

State meaning and identify essential qualities

Demonstrate

Show by example

Describe

Provide characteristics and features

Determine

Decide, find out

Discuss

Identify issues and provide points for and/or against

Distinguish

Recognise or note/indicate as being distinct or different from; note differences between

Draw (diagrams etc.)

An instruction, as in *draw a circle*

Evaluate

To ascertain the value or amount of; appraise carefully

Examine

Inquire into

Explain

Relate cause and effect; make the relationships between things evident; provide why and/or how

Explore

Investigate, search for or evaluate

Extract

Choose relevant and/or appropriate details

Extrapolate

Infer from what is known

Identify

Recognise and name

Illustrate

Similar to 'explain' (see above), but requires the quoting of specific examples or statistics or possibly the drawing of maps, graphs, sketches etc.

Interpret

Draw meaning from

Investigate

To plan, search or inquire into; examine in order to obtain the true facts

Justify

Support an argument or conclusion; give reasons for your statements or comments

Label (and annotate)

Identify by placing a name or word used to describe the object or thing

List

Provide a series of related words, names, numbers or items that are arranged in order, one after the other

Name

Provide a word or term used to identify an object, person, thing, place etc. (something that is known and distinguished from other people or things)

Outline

Sketch in general terms; indicate the main features of

Predict

Suggest what may happen based on available information

Prepare (e.g. in Accounting)

Take the necessary action to put something into a state where it is fit for use or action, or for a particular event or purpose

Present (an argument)

Offer or convey something such as an argument or statement to somebody formally; a discussion that offers different points of view on an issue or topic; debate

Propose

Put forward (for example, a point of view, idea, argument, suggestion) for consideration or action

Recall

Present remembered ideas, facts or experiences

Recommend

Provide reasons in favour

Recount

Retell a series of events

Respond to ...

Provide an answer; reply

Select

Choose somebody or something from among several

Show

Give information; illustrate

Sketch

A picture or diagram that is done quickly, roughly; a brief outline

State

Express the main points of an idea or topic, perhaps in the manner of 'describe' (see above)

Summarise

Express, concisely, the relevant details

Synthesise

Put together various elements to make a whole; gather all ideas and combine them into a complex whole; combine all parts

