

Essential Learning Prep to Year 10 Geography Curriculum Area

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Victorian Essential Learning Standards



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Introduction

Why is geography needed?

Geography is inherent in everyone's lives. It is all around us helping to instil consideration for the world, its environments and its peoples. Geography helps people to understand their individual world and the global world in spatial terms.

The human and natural characteristics of different places on the Earth's surface have an inherent attraction for Prep to Year 10 students. A sense of curiosity and wonder about places developed from observing reality first-hand or through photographs and multimedia is developed from an early age. Observing the characteristics of different places prompts the sense of inquiry about how and why these things are as they are, and why they are different from other things. Part of the challenge of geography is to try to explain the constantly changing patterns of human activity and natural phenomena of the world. Geographers ask questions about why things are located where they are, and in their particular patterns and arrangements in Earth space. Geographers go the next step and try to provide answers to such questions. In seeking answers and providing explanations, geographers draw on their ability to observe and analyse patterns, identify associations, connections and interactions, and integrate ideas about human activities, social interaction and the natural environment.

It is important for students to appreciate and understand the geography of their local area and of Australia, and their place in a changing world. However, it is also important that they have the opportunity to experience a diversity of places and scales within the content selected for study. Geography helps to develop an understanding of global citizenship and the ways in which places and environments are interdependent.

Geography enables primary students to develop a sense of where things are and where they are in relation to their own space, for example, at home, school, shops, playground, work. This developing spatial sense determines the geography of their world. Geography is important because it helps people to develop a spatial understanding of their own immediate world and of other places in other parts of the globe. Through Geography students develop the ability to describe where they are (location) in reference to where other things are (distance, direction, distribution).

Secondary students develop the ability to apply their knowledge and understanding to provide explanations and make informed decisions and justify recommendations about issues which have a strong spatial component.

Geography provides the identification and understanding of a spatial perspective – one that enables people to observe things in Earth space, identify distribution patterns and associations, and explain such patterns, associations and interconnections. The strength of geography is its understanding that there is a rational arrangement of things in space (as distinct from being chaotic, random and haphazard) and its ability to apply a spatial perspective to new situations.

Geography, through its ability to synthesise and integrate data, can contribute to problem solving on issues as diverse as salinity, global warming, drought, famine, population growth, and pandemics such as Acquired Immune Deficiency Syndrome (AIDS). Geographers are able to provide an integrated spatial view of issues and assist in making predictions about their future implications and, where appropriate, actively and responsibly participate in decision making about a range of contemporary issues.

Most of the decisions that humans individually make:

- Where will we go for our next holiday?
- Would it be better to buy a house here or there?
- What is the best route to take to get to the football tonight?
- Where should we go shopping?

or collectively as nations make:

- Which areas of Victoria/Australia are most affected by drought?
- Why is salinity a problem in the Murray–Darling River Basin?
- How many people from overseas should be allowed to settle in Australia?
- What are the likely environmental impacts of global tourism in this region?

are decisions that have a strong spatial component.

Thus geography is an essential domain of learning that enables students to link information together to enable it to be applied to spatial decisions about most aspects of life at all levels:

- government – for example, dispatching emergency services
- private businesses and companies – for example, deciding where to build a store or factory, or new housing estate
- individual – for example, selecting a safe route to school.

Geography, experienced at a young age through fieldwork and travel, often stimulates ... a life-long enthusiasm for the countryside, a respect and responsibility for conservation and human diversity, and an understanding of the interconnected nature of the world and the need for sustainable management of its resources. Increasing international travel serves to illustrate the interconnected nature of the world and associated globalisation and economic dependence. Understanding of such issues and responsibilities, together with awareness of the [increasingly] multicultural societies we all live in today are necessary for citizens and employees of the future, and are central to geography.
[Royal Geographical Society and the Institute of British Geographers]

In short, geography is, in its broadest sense, an education for life and for living. An understanding and enthusiasm for geography, and the development of geographical knowledge is essential for the 21st century in a world where population growth, rapid development, global environmental change, social and economic inequality, and resource depletion threaten the very planet on which we live. These problems place increasing burdens on cultural tolerance, the sustainable management of societies and natural resources, including bio-diversity. Geographers have a key role to play in understanding and actively helping to solve these issues.

What *is* geography?

Some people may think geography involves knowing a lot of facts about countries and exotic places, and the names of rivers, seas, mountains, and minerals. This is sometimes referred to as ‘capes and bays’ geography. It was commonly taught as Geography in the early 1920s. Unfortunately, popular board games and quiz shows tend to perpetuate this view of geography. Fortunately, subject Geography has evolved significantly in the last 90 years.

Contemporary geography is about observing and describing the reality of the surface of the Earth and about analysing and providing deep understanding and explanations, from a spatial perspective, of human and natural phenomena and their complex interactions in different parts of the world. Geography relates learning to the real world. Students’ evolving understanding of the real world provides a basis for developing and evaluating strategies for the sustainable use and management of the world’s resources. As an outcome of their studies in geography, students should be able to make an informed, active and responsible contribution to local and global citizenship.

Contemporary geography has been defined in a variety of ways.

Geography is the science of place and space. Geographers ask where things are located on the surface of the Earth, why they are located where they are, how places differ from one another, and how people interact with the environment.

[Association of American Geographers]

Geography is the integrated study of the Earth’s landscapes, peoples, places and environments. It is, quite simply, about the world in which we live. It is unique in bridging the social sciences (human geography) with its understanding of the dynamics of cultures, societies and economies, and the earth sciences (physical geography) in the understanding of physical landscapes and environmental processes. Geography puts this understanding of social and physical processes within the essential context of places and regions – recognising the great differences in cultures, political systems, economies, landscapes and environments across the world, and the links between them.

[Royal Geographical Society and the Institute of British Geographers]

Geography is the study of the interaction between people and environments. It develops knowledge and understanding of the distribution of human and natural phenomena. The spatial perspectives underpinning the discipline provide a means for describing and interpreting patterns and processes affecting the surface of the Earth. Geographers apply these spatial perspectives at a range of scales which may vary over time and space.

[Geography Teachers Association of Victoria]

Although these definitions are expressed somewhat differently, there are a number of commonly occurring elements. These elements constitute the essential key ideas of modern Geography:

- space and a spatial perspective – where things are on, or near, the surface of the Earth
- places – the uniqueness of different places as well as their similarities
- human and natural phenomena and environments
- interactions, linkages and connections between people and natural phenomena and environments (natural and human)
- distributions, patterns and processes
- application of a range of scales, local, regional, national and global
- knowledge and understanding of environmental change and sustainable development toward a better shared future for the world.

Two dimensions of geography can be identified – Human Geography and Physical Geography. However, while each of these two broad dimensions exists in its own right, the power of subject Geography is that it combines them to provide a capacity for the study and understanding of the interactions between people, and between people and the physical environments in which they live and upon which they ultimately depend, both locally and globally.

Geography is an *integrative* discipline that brings together the physical (natural) and human dimensions of the world in the study of people, places, and environments. Its subject matter is the Earth's surface and the processes that shape it, the relationships between people and environments, and the connections between people and places.

It is essential that any study of geography should provide students with information and understanding of both the human and physical components and the interaction of both of these components that produce the patterns and variety of the Earth's surface.

In its core role as an integrative discipline, geography provides an ideal framework for relating and synthesising other fields of knowledge. It is not surprising that those trained as geographers are highly sought for employment in a range of fields and are able to contribute substantially to decision making which requires the application of a spatial perspective, for example, the management of resources and environments.

The concept of scale is essential to geography. The scale at which phenomena are studied determines the amount of information available and the level of explanation that can be made. Geography develops the ability to recognise and interpret the relationships among patterns and processes at multiple scales – local, national, regional and global.

The essence of geography is that it views the world from a *spatial perspective*. Geography is concerned with the ways in which patterns on the surface of the Earth reflect and influence physical and human processes. It seeks to recognise and interpret patterns and understand the changing spatial organisation and characteristics of the Earth's surface. A spatial perspective focuses on how phenomena are related to one another in particular places, and seeks to understand and interpret the implications of the changing associations, relationships and interconnections among phenomena and places.

Maps: Essential tools for geography

The main tools of the geographer are maps of different kinds and at different scales. One way that people make spatial sense of their world, and are able to operate effectively in it, is through the development of their own mental maps. The simplest way to show spatial relationships and connections between places is through a map, which can be as unsophisticated as one drawn in the sand or on a scrap of paper, to the beautiful, detailed Ordnance maps and maps produced from satellite imagery.

When practical to do so, geographers collect and map data at first hand from field investigations rather than rely solely on information collected and presented by others. Geographers like to go and observe for themselves, to collect information, record it and process it and present it to answer certain questions. The use of maps and spatial data are fundamental to Geography – students develop the ability to create and interpret maps and spatial data, to pose and solve questions, and to identify the patterns and relationships depicted in different maps and spatial arrays.

Geographers can identify and analyse spatial associations and relationships between different Earth phenomena using the relatively simple technology of a base map and a series of map overlays. The availability of geographic information systems (GIS) combined with remotely sensed aerial or satellite images has provided multiple sources of data. Geographers provide a spatial perspective to the interpretation of the associations and interrelationships of a multiplicity of phenomena and provide answers to issues which have a strong spatial component. This is why there has been a tremendous growth in the need for geographers, not only to be able to use the information provided by GIS but, more importantly, to be able to interpret it spatially – the skills of the geographer are needed to make sense of such relationships.

By the end of Year 10 it is expected that a Geography student will have made significant progress in the development of skills in the use of GIS. The demand for geospatial skills is growing world wide as the technology of high-resolution imaging satellites is available to provide high-quality data. Areas of application include environmental, civil government, defence, real estate, security and transportation. To utilise the data produced by this advanced technology requires people with a deep understanding of underlying geographic concepts.

Geography's core concepts

Geographers use a number of key (core) spatial concepts (also known as key geographic ideas) as tools to help them to investigate, interpret and explain patterns on the surface of the Earth and the processes that created them. These spatial concepts provide the key to determining measures of the spatial variation between places. This provides a unique conceptual structure and framework of ideas for a geographic investigation of phenomena.

Spatial concepts help the geographer to organise the vast amount of information and ideas that geography covers in contributing to an understanding of the regularities, intricacies and uncertainties of occurrences on the Earth's surface. The key spatial concepts in geography (outlined in detail below) are:

- location
- distance
- direction

- distribution
- movement
- region
- spatial change over time
- spatial association
- spatial interaction
- scale.

Other concepts such as sustainable development or sustainable relationships between humans and environments are important and relevant to geography but are not unique to geography, nor are they necessarily spatial.

Each individual spatial concept is interdependent with at least one other spatial concept and to some degree they overlap each other. In studying phenomena in different locations, the geographer may draw more heavily on some spatial concepts than others.

The concept of *scale* embraces all of the other spatial concepts, which, themselves, can be applied at a range of scales – local, national, regional and global. In all cases, the concept of scale is applicable because it determines the level of generalisation and explanation that can be drawn about the phenomena being studied.

Where things are

Location, distance and direction

Geography is concerned with where phenomena are located on the surface of the Earth in terms of both absolute location and relative location. The concepts of distance and direction enable the relative location of phenomena to be described and measured.

Examples: The absolute location of a school or a river can be shown on a map, and their relative location, and the distance and direction from other phenomena can be calculated and described from the map. Actual distances can be measured and calculated by applying the map's scale. People also develop a perception of distance which may bear little relationship to the actual distance. For example, the time taken to travel a short distance in heavy traffic can be far greater than the time it would take to walk the same distance.

How things are distributed

Distribution

Geography is concerned with identifying patterns of distribution in the arrangement and spread of similar phenomena across many parts of the Earth's surface.

Examples: Ski chalets are distributed in the valleys in alpine areas; franchised fast food outlets are distributed within urban areas, with easy access for vehicular traffic, at main road intersections.

How things are related and how they interact

Spatial association

Geography is concerned with the extent to which two or more different phenomena are similarly arranged and distributed over space. The concept of spatial association influences the search for connections, links and explanations. Such associations do not necessarily imply a causal relationship between the phenomena. An effective way of illustrating the association between phenomena is by use of a base map and overlays. The availability of geographic information systems (GIS) has made the task of identifying associations and relationships between multiple dimensions of phenomena much easier.

Examples: Grapevines planted on particular soil types; the amount of rainfall and relief; mortality rates and the age of a population.

Spatial interaction

Geography is concerned with understanding the types of spatial interdependence and the reciprocal effects of forces and objects on each other. The Earth's surface is a zone of intense multi-dimensional interaction.

Examples: The beach is a zone of physical interaction between the movement and energy of the waves and the deposition or erosion of sand. In addition, human activity such as the building of groynes can provide further interactions.

How things move

Movement

Geography is concerned with the concept of movement or flow as an expression of the expenditure of energy to create changes in the location and distribution of phenomena across the Earth's surface.,

Examples: Movement of sediments by streams in a drainage basin; movement of a glacier and movement of different types of moraine by a glacier; cyclical movement of air masses influenced by the El Niño effect; daily movement of pressure systems across southern Australia; movement of crude oil after an oil tanker disaster.

How things change

Spatial change over time

Geography is concerned with changes in the spatial location and spatial distribution of phenomena over time. The dynamic nature of the world means that areas are constantly changing, and either slowly or at a rapid rate at different times. Changes influenced by human activities usually occur at a more rapid rate than those arising from natural processes such as the weathering of rocks. However the *interaction* of human activities and natural processes can increase the rate of change, for example, soil erosion as a result of poor farming practices.

Examples: Changes in the spread of housing on the fringe of a large city; changes in the distribution of sand at a beach; changes in the daily movement of people to and from work.

Identifying the common characteristics of areas

Region

Geography is concerned with identifying and classifying places – at various scales – that have characteristics and features that distinguish them from other areas, according to the elements used to define them. Regions are areas about which generalisations can be made based on a synthesis of their common natural and human characteristics. A region is a useful concept in organising information and identifying places which are similar or different. It can provide a manageable way of explaining why such differences matter.

Examples: A school's student population region; Melbourne's Docklands region; Victoria's Wimmera–Mallee region; Canada's Prairie region; Asia–Pacific Region.

Scale and the depiction of reality on maps

Scale

Geography is concerned with the scale at which information is presented as this determines the kind and level of generalisations that can be made. All of the other spatial concepts are applicable to small or large areas. However, the scale of an investigation makes a great difference to the kinds of information that can be obtained and the level of generalisation that can be drawn. The scale of a map provides information about the relationship between the size of an area on the map and the actual size of the mapped area on the surface of the Earth. Scale also relates to the scope of the area being studied: local, national, regional, global.

Examples: Street directory maps of areas of suburban Melbourne are drawn at large scales to show the type and amount of information a user would require; for example, 1 centimetre on the map representing 200 metres of actual distance. Alternatively, on a topographic map of the Phillip Island area, 1 centimetre may represent 2.5 kilometres of actual distance, and on an atlas map of Australia 1 centimetre may represent 150 kilometres.

Geography's core skills

Geography equips people with a wide range of cognitive skills and thinking skills, including geographic literacy, broader language literacy, numeracy, problem solving, research, teamwork and information and communications technology (ICT). This is in addition to the subject-specific knowledge, and specific skills such as fieldwork, map interpretation and laboratory analysis.

The traditional language of geography is the map, and in a world where over 75% of the data is referenced spatially to a location, this remains a vital skill. In the world of the 21st century, traditional map work has been augmented by computer-based Geographical Information Systems (GIS) and remote sensing from satellites and aerial photography.

[Royal Geographical Society and the Institute of British Geographers]

The core and essential skills developed in Geography are the ability to identify and collect evidence from primary sources (including fieldwork) and from secondary sources (including maps at a variety of scales, photographs, satellite images, statistical

data, and ICT-based resources), and record and represent data in different types of maps, graphs, tables, sketches, diagrams and photographs.

Geography's essential **methodology** incorporates an *inquiry-based approach* through which it develops cognitive and metacognitive skills: inquiring, processing information, creative thinking, reasoning, problem solving, evaluation.

Inquiry skills

Inquiry skills are essential in geography and are developed by asking questions and seeking well-researched information.

Identification of geographical questions, issues, hypotheses:

- What is there?
- Where is it?
- Why is it there?
- What are the effects of it being there?
- How has it changed over time?
- Should it be like this?
- What will it be like in the future?

Establishment of an appropriate inquiry-based approach (observe, describe, analyse, explain, synthesise and evaluate):

- identifying and collecting a range of appropriate evidence from primary sources, especially fieldwork, and from secondary sources
- recording, processing, organising and presenting the data collected
- describing, analysing, synthesising a range of data to provide an explanation
- drawing conclusions and applying knowledge and understanding to make recommendations for future action
- evaluating methods of data collection, the results and the conclusions.

Inquiry skills are not unique to geography. What makes geographic inquiry distinctive is its spatial perspective and the spatial concepts that underpin the kinds of questions asked, together with the use of maps, fieldwork techniques and other visual and graphic information sources and representational techniques.

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To be able to conduct **geographical inquiry**, students need to acquire and apply skills and techniques in relation to:

- map work
- fieldwork
- communication.

Mapping skills

Geography develops students' skills in reading and interpreting maps of different kinds and at different scales, including street directories, atlas maps, ordnance survey maps, topographic maps, GIS maps. Over time students develop a range of skills that would include, for example, being able to apply map scale to measure actual distance; locate points using grid references; determine direction of one point from another; interpret contour patterns; apply legend to identify physical and human features and interpret their relationship; use maps in association with photographs of the same area.

Students also develop the ability to draw sketch maps (incorporating map conventions) as a means of processing and representing spatial data from fieldwork observations and from photographs to depict, visually, locations of and relationships between phenomena.

Fieldwork skills

Geographers gather information from both primary secondary sources. The most important primary source is information gathered from fieldwork studies.

Fieldwork enables students to acquire knowledge by making first-hand observations, taking field measurements, mapping and recording phenomena in the real world in a variety of settings, including the school grounds, in the local area, and at more distant sites, in a range of environments.

Fieldwork is not always conducted in a 'field' (the countryside) – it can be done in densely populated urban areas, for example, counting and recording the numbers and movement of people within the central business district (CBD) at a particular time of day.

Students collect fieldwork data through techniques such as observing and recording, preparing and conducting surveys and interviews, collecting and testing samples, sketching and annotating, measuring and counting, photographing and taking notes.

Students collate and process the fieldwork data through techniques such as tabulating, graphing, listing, drawing maps and overlays, and constructing diagrams. Finally, they analyse and interpret the data and report their results in a variety of ways, including as an annotated visual display, a written report, a series of maps and photographs, a GIS database.

Thus the purpose of geography fieldwork is to identify and test hypotheses, gather relevant information, make and justify recommendations for change or maintenance of a situation. Where appropriate, students may be able to become actively involved in implementing changes.

Fieldwork studies with younger students would be organised and guided by the teacher. By Year 10, students would take more responsibility for planning and conducting their own investigations in the field.

Communication skills

Geography applies generic communication skills to express geographical information, ideas and issues clearly and succinctly using, where appropriate, written reports, fieldwork evidence, papers and essays and oral presentations, supported by cartographic, mathematical, and visual and graphic forms of representation.

Geographic literacy

Geography requires students to read information from a variety of text sources – books, reports, magazines and periodicals – to be able to develop and use effectively specialised geographic language and terminology in both written reports and oral presentations. In addition, geographic literacy requires the ability to read, comprehend and interpret a variety of other kinds of information sources, for example:

- maps
- statistics, graphs, tables
- diagrams – block or flow diagrams
- photographs – horizontal, aerial and oblique and satellite photographs of different landscapes
- audiovisual materials – video, CDs, DVDs
- databases and geographic information systems (GIS)
- websites.

Visual and graphic representation

Geography uses visual and graphic skills to record, represent and present fieldwork and other data: maps, graphs, tables, photographs, diagrams and sketches, observation schedules, audiovisual displays (annotated and interactive).

Mathematical representations

Geography applies mathematical ideas and techniques to display, analyse and interpret geographical data; for example, drawing different types of maps and graphs (such as bar graphs and scattergrams).

Information and Communications Technology

The use of ICT is essential in geography. The application of technology, especially computer technology and satellite imagery, is becoming increasingly significant in geography through the use of GIS.

The geospatial field is a growth area. It combines technological skills with an understanding of the underlying geographic concepts. Geospatial analysts utilise satellite images for information to help authorities make crucial decisions as varied as forest fires raging in California, foot and mouth disease in the British livestock industry, the development of El Nino and La Nina sequences, or the recent outbreak of severe acute respiratory syndrome (SARS).

By combining layers of spatially referenced data called geographic information systems (GIS), these high tech geographers have turned computer mapping into a powerful decision-making tool.

[V. Gewin, *Naturejobs*, 427, pp.376–77, 22 January 2004]

In Geography students develop information and communication technology skills using the latest technology, such as satellite imagery and digitised information systems, to assist them to apply their skills effectively. These include:

- interpreting photographs and satellite images
- use of databases, such as census and population data

- accessing and sourcing information on the Internet to investigate case studies of, for example, volcanic eruptions, desertification, floods
- applying computer software packages such as word processing, data presentation graphics and analysis techniques, Microsoft PowerPoint
- using spreadsheets
- research and presenting of course work.

Participation and personal skills

Geography's immediate relevance to the real world in which we live supports the development of students' ability to be actively involved in decision making about spatial issues. Geography encourages students to:

- actively participate in devising strategies and building solutions for shaping a better shared future for the world
- develop their interpersonal skills, to work cooperatively with others to more effectively provide a broad range of perspectives and insights on issues
- recognise and understand the complexity of processes required for responsible decision making
- evaluate and reflect on the consequences of their own and others' actions.