

TOWARDS A NATIONAL GEOGRAPHY CURRICULUM FOR AUSTRALIA

Background report — June 2009

Geography explains the past, illuminates the present and prepares us for the future. What could be more important than that?

Michael Palin, author and documentary presenter

Seventy to eighty percent of the queries on Google have a geographical component.

Raul Vera, Engineering manager — Geo, Google Australia

Over the years, I have run several organisations that require social scientists, and whenever geographers applied, they fared well. This is not because they had any special knowledge of the substantive field in which they were to work, but because geography graduates were literate and numerate, they could understand the way in which our society is spatially organised, and there was also an understanding of people and place. They were always able to examine how people and place fitted together and, as a result, contributed enormously to policy development and analysis.

Dr Adam Graycar, Dean, School of Criminal Justice, Rutgers University

Geography is important because we are the ones who will have to deal with the environmental problems in the future.

Student respondent to project's online survey

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Prepared on behalf of the

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SUMMARY

Geography has been identified as a subject to be included in the second phase of the national curriculum being developed by the National Curriculum Board (NCB)¹. Three national geographical associations in Australia recognised the need to consult widely, undertake research and prepare material that can inform the second phase work on the national geography curriculum.

This report is prepared for the Australian Geography Teachers Association Ltd (AGTA), Royal Geographical Society of Queensland Inc (RGSQ) and the Institute of Australian Geographers Inc (IAG). Other geographical associations in Australia have been included in the consultation process. The comments relate to geography in Australian primary and secondary schools.

This report supports a view reported in the Erebus Report (2008) commissioned by the Department of Education, Employment and Workplace Relations to undertake a study into the teaching of geography in years 3-10 that:

It is neither equitable nor nationally acceptable that some students are well-prepared to understand the world around them and the forces that have, and will continue to shape this world, while others are not. Both the curriculum and school practice should facilitate the students' cumulative understanding of geographical concepts and their development of geographic skills at increasing levels of complexity and in different contexts. All Australian students should have these opportunities, not just the lucky few. (Erebus International, 2008, p. 7)

Four alternative approaches to organising the geography curriculum at different stages of schooling are presented based on approaches in published reports, National Curriculum Board Framing Papers, an overseas geography curriculum and submissions. One of the submissions supported incorporating Overview, Bridging and Study in depth components (as proposed in the NCB's History Framing Paper) and indicated that they might be applied to geography in the following way.

- Overview components would use a detailed understanding of places to help students understand spatial patterns associated with phenomena in natural and human environments
- Bridging components using case studies would provide the context for deeper understanding.
- Depth studies would provide students with the opportunity to apply and extend their geographical skills and understanding to issues of particular significance.

An analysis of submissions to this report and feedback from consultation meetings strongly endorse the conclusions presented in the Erebus Report that:

The study of geography in one form or other has long been part of the Australian school curriculum.

¹ The National Curriculum Board will be replaced by the Australian Curriculum, Assessment and Reporting Authority (ACARA) during 2009.

Geography teacher professional associations have lobbied strongly to re-introduce geography as a core subject, as a strategy to reverse the significant decline in the number of students in Australia studying this subject in any depth. They rightly point to the challenges facing the discipline now and into the future if the number of teachers with sufficient knowledge and skills in the area is not significantly increased.

The consultation phases of this project indicated that there is strong support for a national geography curriculum that is shaped by the fundamentals of the discipline of geography education, namely:

- a study of specific content based on organising (second order) concepts that are distinctive to geography
- content that provides:
 - for a study of both physical and human geography
 - flexibility to study core and optional topics in geography
 - an engaging and intellectually challenging study
 - opportunities for depth of study
- progression of each student's geographical learning appropriate to their level of schooling
- an inquiry-based approach that investigates key questions about geographical topics at a range of scales
- the application of geographical skills including those using ICT
- the opportunity to link study with the personal world of students
- the development of students' prior knowledge and skills in a way that avoids repetition
- the selection of content that demonstrates relevance and clear links to students' future lives including their employment opportunities
- the development of positive attitudes and values to the environment, sustainability and cultural diversity
- students' understandings gained through fieldwork.

In addition, a national geography curriculum will:

- be a concisely written document avoiding jargon and with judicious use of geographical terms
- specify the amount of time in the curriculum that will be used for the teaching of geography at each level of schooling

- require competent, enthusiastic and qualified geography teachers at all levels who have the opportunity to continually improve their knowledge and skills
 - require appropriate government funding to support implementation of the new curriculum and professional learning
 - prepare students to become geographically literate citizens
 - demonstrate the value of a geographical understanding to the wider public
 - address key government initiatives and policies, including recognition of indigenous perspectives, civics and citizenship, and studies of Asia.
-

INTRODUCTION

TERMS OF REFERENCE

The terms of reference for this report were as follows:

- provide a foundation to inform future work on a national geography curriculum in the second phase of the work of the National Curriculum Board and its successor Australian Curriculum, Assessment and Reporting Authority (ACARA)
- consult with individuals and groups about the nature of the geography curriculum
- gather research data regarding geography curriculums from Australia and elsewhere
- describe models in which geography curriculums can be organised
- describe approaches used in the teaching of geography
- identify the needs for professional learning to support the teaching of geography
- communicate with geographers, geography teachers, curriculum decision makers and educational authorities using different media.

METHODOLOGY FOR THE REPORT

This report used the following approaches:

- documenting the reasons for including geography as a subject in the national curriculum
- undertaking a literature search and provide a summary of key findings and recommendations from Australia and elsewhere
- consulting with teachers of geography in primary and secondary schools, geographers in tertiary institutions and professional employment, and geographical associations around Australia
- gathering research findings into geography curriculum from Australia and elsewhere
- presenting alternative models for organising a geography curriculum
- presenting ways of teaching geography appropriate to different contexts
- recommending ways of taking the national geography curriculum project to its next stage.

Consultation for the report included:

- provision of an online and paper-based survey to gather responses to key questions
- creation and maintenance of a project website

- organisation of consultation meetings
- recording of feedback from consultation meetings
- listing of people and organisations providing feedback
- summarising responses from consultation
- communicating details of the project through a variety of media.

HOW SHOULD GEOGRAPHY BE DEFINED IN THE CURRICULUM?

It is important that geography be defined in a manner that is clearly understood by students, teachers and the general community. The Council of the Institute of Australian Geographers (CIAG) addressed this issue in the following manner.

Academic geographers frequently refuse to define geography, on the grounds that the discipline is too diverse and too contested to be able to define, or that definition confines the subject and constrains innovation (Bonnett 2008, p 112, who also refers to geography's 'awkward nature'). However, such a position is unhelpful in any attempt to promote geography in the school curriculum, as parents and decision makers want a description of the subject that they can immediately understand, and which demonstrates the value of a geographical education. Yet as Holloway, Rice and Valentine (2003, p. xiv) wrote: 'Sociologists have society, biology living things, economists the economy and physicists matter and energy. But what is at the very core of geography?' Their answer was to identify the core of geography as a set of concepts, but we do not believe that this is an acceptable definition for a school subject. Geography needs a definition that is similar to other disciplines with which it is competing for time in the school curriculum, and this requires a subject matter as well as concepts and methods of inquiry. (Council of the Institute of Australian Geographers, 2009, p. 1)

The CIAG submission also provided a list of examples of approaches students would use to study places. This list can be found in a following section titled Procedural Knowledge.

The recent publication provides a definition of geography as “the study of places – their environments, populations, economies and communities – and how and why these places are changing.” (Australian Academy of Science National Committee for Geography et al, 2007, p. 2)

The publication *Geography: It's essential* includes the following definition of the subject.

Geography is the study of the interaction between people and environments. It develops knowledge and understanding of the distribution of human and natural phenomena. Spatial perspectives underpinning the discipline provide a means for describing and interpreting patterns and processes affecting Earth and its people, and providing students with an understanding, identification and sense of place. For geographers, place is an identifiable part of the Earth's surface with spatial boundaries.

A spatial perspective provides a unique conceptual structure for the investigation of phenomena. Using spatial concepts geographers define and elaborate their understanding of phenomena.

By investigating spatial dimensions of topics and issues, students analyse the impact of the interaction between people and environments, and consider appropriate responses. (Geography Teachers' Association of Victoria, 2008, p. 7)

It is noted that the terms of reference for the Erebus Report (2008) did not include a requirement to define geography.

EXAMPLES FROM AUSTRALIA

An examination of statements about geography in current Australian secondary school syllabuses provides one starting point. Extracts from these are reproduced below.

VICTORIAN ESSENTIAL LEARNING STANDARDS

Geography is the study of physical and human environments from a spatial perspective. It provides students with the knowledge and skills to observe and describe places on the surface of the Earth and to analyse and provide explanations from a spatial perspective of human and physical phenomena and their complex interactions.

NEW SOUTH WALES BOARD OF STUDIES, GEOGRAPHY YEARS 7-10

Geography is a rich and complex discipline involving two key dimensions the:

- spatial dimension – where things are and why they are there
- ecological dimension – how humans interact with biophysical environments.

SOUTH AUSTRALIA SSABSA, YEARS 11 AND 12 GEOGRAPHY CURRICULUM STATEMENT

Geography is the study of the spatial interrelationships of people, places, and environments. Geographers are concerned with place, with differences in features on the Earth's surface and with explaining these differences. Geographers pose and seek answers to the questions 'Where?', 'Why?', and 'How?', and evaluate alternatives. Geography develops an understanding of how people interact with environments differently in different places and at different times, and of the opportunities, challenges, and constraints of different locations.

VICTORIAN CERTIFICATE OF EDUCATION STUDY DESIGN, GEOGRAPHY

Geography is the study of where geographical features are located and why they are there, and what makes one place different from another, and how and why these differences matter. It looks at the interaction between human activities and natural processes, and develops understanding of the distribution of human and natural phenomena on or near the surface of the Earth from a spatial perspective.

QUEENSLAND STUDIES AUTHORITY, SENIOR GEOGRAPHY

Geography is the study of the human and natural characteristics of places and the interactions between them. Geography is a rich and complex discipline which includes two vital dimensions:

- the spatial dimension, which focuses on where things are and why they are there
- the ecological dimension, which considers how humans interact with environments.

WESTERN AUSTRALIA CURRICULUM COUNCIL, SENIOR SECONDARY GEOGRAPHY

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

TASMANIAN CERTIFICATE OF EDUCATION, SENIOR SECONDARY GEOGRAPHY

Geography is the study of patterns and interactions between people and their environments.

An examination of statements about geography from a selection of international secondary school syllabuses provides further insights. Extracts from these are reproduced below.

EXAMPLES FROM OTHER COUNTRIES

UNITED KINGDOM

Department for children, schools and families, Standards for Geography Key Stage 3

The objectives of this course imply a definition of geography that allows students to acquire and apply knowledge and understanding of four aspects:

- *the ability to undertake geographical enquiry and use geographical skills;*
- *knowledge and understanding of places;*
- *knowledge and understanding of geographical patterns and processes;*
- *knowledge and understanding of environmental change and sustainable development.*

(Department for children, schools and families, 2009)

QUALIFICATIONS AND CURRICULUM AUTHORITY

Maintains that geography is about 'Seeing the whole picture'

There is more to geography than learning the location of places and reading maps. Much of the subject is about enquiring into how, why and 'what if'. Geography gives pupils an insight into links between people, places and environment. Pupils think about the effect of issues on themselves and others around the world. (Qualifications and Curriculum Authority (QCA), 2007)

SINGAPORE

The course of studies for the 2009 'N' Level Upper Secondary Geography syllabus requires students to have an understanding of physical and human landscapes and the physical-human interrelationships. (Singapore Education and Assessment Board, 2009)

CANADA

ONTARIO

The course of studies for Grades 9-12 implies a definition of geography that begins with the home region (Canada), extends to the Americas and then the world. In addition, it includes patterns, processes, and interactions in physical and human environments.

(Ministry of Education Ontario, 2000)

UNITED STATES

A Stanford University publication (MacKay, 2006) discusses the nature of geography and the work geographers do. It describes geography as

the relationship of the what, the where and the why, the crucial integration of the human and the physical

not fitting nicely into categories of natural science, social science or humanities. It fits into all of them

making a contribution to a wide range of natural and social sciences where there is a notion that place matters and that human activity is the result of the interaction of humans and place.

In the same publication it is noted that geographers, or people doing geography, can be found in the natural sciences, engineering and computer sciences, social sciences and humanities.

(Ministry of Education Ontario, 2000)

FINLAND

The National Core Curriculum for Basic Education 2004 describes geography as a study of the world and its various regions and regional phenomena.

(Finnish National Board of Education (FNBE), 2004)

HONG KONG

The New Senior Secondary Curriculum and Assessment Guide (Secondary 4–6) Geography jointly prepared by the Curriculum Development Council and the Hong Kong Examinations and Assessment Authority

The objectives of this course imply a definition of geography that allows students to

(a) understand how the natural environment influence human activities, and how human activities alter the natural environment;

(b) describe the major characteristics of chosen places and environments and to explain how these characteristics are created by interaction within and between a range of physical and human processes;

(c) describe how interactions within and between physical and human process create geographical patterns at different scales and lead to changes in places and environments over space and time;

- (d) understand and critically evaluate the concept of regional identity;*
- (e) understand “sustainable development”;*
- (f) recognize the role of perceptions, values and attitudes in decision-making about places and environments, and to use this understanding to explain the resulting changes;*
- (g) recognize how conflicting demands on the environment may arise and evaluate the different strategies for managing the environment;*
- (h) appreciate the increasing global interdependency in influencing their lives, their nation and the environment;*
- (i) identify geographical questions and issues and develop a logical sequence of enquiry based on their knowledge and understanding in geography;*
- (j) select and use appropriate geographical and generic skills for investigation of geographical questions and issues, to present and interpret their investigation findings in an effective way, and to draw conclusions based on evidence.*

(Hong Kong Examination and Assessment Authority, 2009)

It is interesting to note that in the Hong Kong example quoted above that the first three objectives are similar to those mentioned during the online survey and forum consultations for this project.

EXAMPLES FROM OTHER SOURCES AND SUBMISSIONS

Associations of professional geographers also provide an important reference point and a selection of statements from such organisations is provided below.

IGU COMMISSION ON GEOGRAPHICAL EDUCATION

Questions and Concepts in Geography

Geography is the science which seeks to explain the character of places and the distribution of people, features and events as they occur and develop over the surface of the earth. Geography is concerned with human - environment interactions in the context of specific places and locations. Its special characteristics are its breadth of study, its span of methodology, its synthesis of work from other disciplines including the physical sciences and the humanities and its interest in the future management of people - environment interrelationships.

Geographers ask the following questions:

Where is it?

What is it like?

Why is it there?

How did it happen?

What impacts does it have?

How should it be managed for the mutual benefit of humanity and the natural environment?

Pursuing the answers to these questions necessitates investigating the location, situation, interaction, spatial distribution and differentiation of phenomena on earth. Explanations of current situations come from both historical and contemporary sources. Trends can be identified which indicate possible future developments.

Some of the central concepts of geographical studies are:

Location and distribution,

Place,

People-Environment Relationships,

Spatial Interaction,

Region.

(Commission on Geographical Education of the International Geographical Union, 1992)

ASSOCIATION OF AMERICAN GEOGRAPHERS

What is geography?

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.

There are two main branches of geography: human geography and physical geography. Human geography is concerned with the spatial aspects of human existence - how people and their activity are distributed in space, how they use and perceive space, and how they create and sustain the places that make up the earth's surface. Human geographers work in the fields of urban and regional planning, transportation, marketing, real estate, tourism, and international business.

Physical geographers study patterns of climates, land forms, vegetation, soils, and water. They forecast the weather, manage land and water resources, and analyse and plan for forests, rangelands, and wetlands. Many human and physical geographers have skills in cartography and Geographic Information Systems (GIS).

Geographers also study the linkages between human activity and natural systems. Geographers were, in fact, among the first scientists to sound the alarm that human-induced changes to the environment were beginning to threaten the balance of life itself. They are active in the study of global warming, desertification, deforestation, loss of biodiversity, groundwater pollution, and flooding.

(Association of American Geographers, 2009)

What is geography?

Geography is the study of the earth's landscapes, peoples, places and environments. It is, quite simply, about the world in which we live.

Geography is unique in bridging the social sciences (human geography) with the natural sciences (physical geography).

Geography puts this understanding of social and physical processes within the 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. Understanding the causes of differences and inequalities between places and social groups underlie much of the newer developments in human geography.

(Royal Geographical Society with Institute of British Geographers, 2008)

SUBMISSIONS FROM GEOGRAPHERS

Submissions from geographers provide different differentways of defining geography and they are shown below.

GEOGRAPHY IS THE STUDY OF THE PLACES THAT CONSTITUTE THE WORLD

Geography examines why places² are like they are, the meaning and significance of their characteristics, why places differ from each other, and how and why they are changing. A place can be a suburb, a town and its hinterland, a river catchment, a coastal zone, a metropolitan area such as Melbourne, a region such as the wheat belt of Western Australia, or a whole country.³ The characteristics of places that geographers study include both their biophysical environment—climate, landforms, soils, vegetation, water resources, minerals and scenic quality—and their

² Note that this definition refers to 'places', specific portions of the earth's surface, and not to 'place', a concept.

³ The Macquarie Dictionary defines place as 'a particular portion of space, of definite or indefinite extent'. A further definition of place is provided by Hubbard as follows: 'For many geographers, place thus represents a distinctive (and more-or-less bounded) type of space that is defined by (and constructed in terms of) the lived experiences of people. As such, places are seen as fundamental in expressing a sense of belonging for those, who live in them, and are seen as a locus for identity.'

Hubbard, 2004, p. 5

Hubbard, P, Kitchin, R. & Valentine, G. (2004) *Key Thinkers on Space and Place*, London: Sage

populations, built environment, economy, communities and culture.

The use of place as an idea in geography has been described as follows:

Thinking about place ... provides students with the tools to get beyond the specifics of a particular case study and to approach any number of 'real world' geographies imaginatively and thoughtfully. Teaching place, in other words, is a lot more than teaching about shopping or immigration or cyberspace, though it can be about these things too. It also produces a degree of self-reflection about the relationship between humanity and the planet Earth that lies at the heart of the discipline. (Cresswell, 2008)

Human geography is the study of places. It is, of course, many other things, but it is, on an intuitive level, which has place as one of its principle objects of study. (Cresswell, 2004)

The definition of place, like any concept, is contested. At its heart, though, lies the notion of a meaningful segment of geographical space. ... Places, then, are particular constellations of material things that occupy a particular segment of space and have sets of meanings attached to them. (Cresswell, 2008, pp. 134-5)

Similar definitions of geography were expressed in separate submissions in the following manner.

- Geography is the discipline that helps us find answers to questions about the world in which we live – about where things are and how they got there. It seeks to explain the character of places and the distribution of people, features and events on or near the earth's surface. It is concerned with the processes that shape the earth's surface and the ways people interact with the environment.
- Geography focuses on change over time and space. The outcomes of such changes are locations or places that are spatially different. The study of geography helps us to understand the nature and scope of these changes and to predict what might occur in the future.
- Geography is the study of the natural and human characteristics of places and the interrelationships between these characteristics and these places. In geography primary and secondary sources are used to study the processes and spatial patterns in physical and social environments on Earth at a range of scales.
- Geography is the study of places and people as well as the interaction between people and environments in different places.
- Geography is concerned with the world at different scales or resolutions ranging from the small area/large scale to the large area/small scale.
- The characteristics of a place can be understood through a variety of geographical methods of inquiry. One of these is an integrative perspective, which studies how various phenomena and processes interact to create the unique character of each place. For example, the economy of a place is influenced both by its environmental resources and by the knowledge and culture of its population. Another is a spatial perspective, which examines how

individual phenomena vary from place to place, creating distribution patterns across space that can be understood as the result of environmental and social processes. For example, the economy of a place is also influenced by its location relative to other places, and its position in a hierarchy of settlements. Through these and other methods geography examines not only the characteristics of places, but also the significance of location and place in human life, how environmental features and human activities are spatially distributed across places, and the interrelationships between humans and their biophysical environment.

- The NSW Geography Stage 6 Syllabus 1999 examines the term ‘environment’ and provides the following discussion regarding the use of the term.

In this syllabus the term environment describes the ‘total surroundings’. It includes biophysical interactions as well as people in their cultural, social, political and economic contexts. Geographers explore the spatial dimensions of environments examining linkages, flows, associations and patterns. Perceptions of the environment are also influenced by personal experience and information gained from the media and other information technology. These perceptions influence the way people interact with their surroundings affecting our use of resources, environmental management and our attitudes towards sustainability. (NSW Board of Studies, 2009)

- Geography builds on this knowledge to examine some of the significant contemporary issues affecting places, such as environmental change, natural hazards, land degradation, sustainability, outmigration, rapid population growth, planning of the built environment, regional economic trends, the effects of globalisation, inequalities in welfare and opportunity, and the changing nature of community. It also seeks solutions to these issues that are specific to particular places, because generic solutions that do not take account of the different conditions in each place are unlikely to be fully successful. Geography therefore not only develops a knowledge and understanding of the real world in which we live and work, through the study of the places that constitute that world, but also of ways of managing and improving that world.
- Defining geography as ‘the study of place’ is consistent with the definition of history as ‘the study of the past’ in the framing paper for the national curriculum for history (National Curriculum Board, 2008b). (National Curriculum Board, 2008b). It has a long tradition in geography, beginning with the writings of Greek, Roman, Islamic and Chinese scholars about the world as known to them. In the second half of the 1700s Immanuel Kant identified history as the description of things and events in time, and geography as the description of things and events in space. More recently ‘place’ has been put forward as a focus for geography by (Johnston, 1991) and (Johnston, 1996) and (Unwin, 1992).

However, the contemporary study of place is not the same as the earlier study of regions, which was widely criticised as excessively descriptive, with severely limited ways of understanding and explaining. What is advocated here is not a geography organised place by place, but a geography that is focused on understanding the characteristics of and differences between places through the integration of a study of places into each of the

topics within the geography curriculum (Johnston, 1991). A very recent example of this approach is the Companion encyclopedia of geography, which is focused on ‘... the concept of place and the tensions of writing about local responses to different scales of change. It explores the nature of places, documents and exemplifies forces and actors producing different kinds and rates of change, and considers the role of the geographical imagination and responses to challenges of the future’ (Douglas, Huggett, & Perkins, 2007, p. xxxiii).

- Geography is the study of natural and human environments and how people interact with, use and manage these environments. It examines the causes and impacts of the relationships between people and their environments.

Consultation forums consistently advocated a definition of geography as the study of natural and human environments and interactions between them. In addition, the forums used the following terms when defining geography: change over time, future orientation, interaction between people and the environment, interactions, places and space, processes, regions, social and physical processes, spatial integration, spatial literacy, sustainability. They also strongly supported the view that geography is a subject bridging the natural and social sciences and that it uses fieldwork to develop skills and understandings.

A significant number of online responses identified the interaction between humans and the biophysical environment as the focus of geography.

GEOGRAPHY IS THE STUDY OF THE EARTH AND THE CHANGES THAT TAKE PLACE IN THE ENVIRONMENT OVER TIME

- It examines the world we live in, its peoples and the natural processes that take place between them. Geography provides a ‘big picture’ view of the world.
- A majority of online responses referred to geography being a study of the world or Earth, however, these responses generally were extended to include such phrases as human and natural processes, spatial patterns, physical and natural environments, past, present and future changes.
- Geography takes account of geology, geomorphology, hydrology, anthropology, botany, meteorology, demography, history, economics, politics, and other disciplines to achieve holistic understanding of humanity in its environment.

One of the written submissions expressed a concern regarding the way students develop of a globalised world view as follows.

What is clear is that what we have learned to refer to as our ‘globalised world’ has become enormously complex and interconnected via trade, telecommunications, finance, travel etc. When analysed however, for the ideologies lying behind the processes of globalisation and its dynamic driving motivations, we find that it is overwhelmingly about money. It’s about trade, business and profits. The economy as it is short-handed has become the be-and-end-all for most decision making. And, since the 1980s, the economy and its handmaiden, the hidden hand of the market has been

established to be global in its range and so has managed to trump political, social and environmental decision making which are rarely more than national and often regional or local.

SELECTION OF CONTEMPORARY DEFINITIONS OF GEOGRAPHY

One of the submissions provided a selection of definitions drawn from recently published works. They are presented below.

GEOGRAPHY AS THE STUDY OF RELATIONS BETWEEN SOCIETY AND THE NATURAL ENVIRONMENT

Geography is the study of relations between society and natural environment. Geography looks at how society shapes, alters and increasingly transforms the natural environment, creating humanized forms from stretches of pristine nature, and then sedimenting layers of socialization one within the other, one on top of the others, until a complex natural-social landscape results. Geography looks at how nature conditions society, in some sense of creating the people and raw materials which social forces “work up” into culture, and in an ongoing sense of placing limits and offering potentials for social processes like economic development. The ‘relations’ between society and nature is thus an entire system, a complex of interrelations. ... Thus, the synthetic core of geography is a study of nature-society relations. (Peet, 1998, pp. 1-2)

A POST-STRUCTURALIST VIEW OF GEOGRAPHY

‘... post-structuralist theory and human geography have much in common: they both examine nature-society interactions and concern themselves with the (spatial) consequences of these interactions. ... post-structuralism’s interest in heterogeneous relations – that is, in mixtures of the natural and the social and the human and the non-human can help geographers reach across the human-physical divide.’

(Murdoch, 2006, pp. 2-3)

‘It is suggested that post-structuralism’s influence manifests itself in two main ways: first it leads to a concern for spaces of multiplicity; second, it challenges some of the basic geographical assumptions about the make-up of space itself. On particular, it proposes that space is made not of structures but of relations. Thus, a new geography of spatial relations has evolved.’

(Murdoch, 2006, p. 24)

The submission also made reference to two perspectives of geography seen to be useful in understanding the nature of the subject.

CULTURAL GEOGRAPHY

[Cultural geography involves] ... ‘the ideas, practices and objects that together form cultures – and how these cultures form identities through which people recognise themselves and others. It will track through a range of scales as it ponders the role of states, empires and nations, firms and corporations, shops and goods, books and films in creating identities. Cultural geography looks at the

way different perspectives come together in particular places and how these places develop meaning for people. Sometimes we might be looking at the processes of a global scale, at other times we might be interested in the micro-geography of houses, the intimate and personal scale of things that form people's every day worlds.'

(Crang, 1998, pp. 2-3)

POLITICAL GEOGRAPHY

'Political geography, in the broadest sense, is the academic study of all these varied resource conflicts and the way in which they are resolved. In other words, it is about the forces that go to shape the world we inhabit and how they play themselves out in the landscape across the globe'

(Blacksea, 2006, p. 1)

'The challenge for political geography is how to retain its coherence in the face of demands that it interprets both an increasingly globalised political order and local populations that are ever more politicised. It is an exciting challenge ... one that is integral to understanding the dynamics of the modern world, where the revolution in communications has led to the fundamental restructuring of the relationship between time and space that is structuring the structures of political power at all levels.'

(Blacksea, 2006, p. 10)

FEEDBACK FROM CONSULTATION

Geography educators providing feedback to a range of definitions at consultation forums held in every Australian state and territory made the following points.

- A definition that refers solely to 'place' or 'places' was overwhelming considered to be too narrow a view of the study of geography.
- Comments from forum participants and submissions were concerned that a definition of geography as the study of place (or places) might be viewed as only requiring the demonstration of knowledge about places rather than the breadth that the discipline offers. Others were concerned about the absence 'people and environments' and felt that this would make it more difficult to include indigenous perspectives. A submission made the point that an "interpretation and understanding of place is dependent on a good grasp of spatial relationships" and that inclusion of a spatial perspective is crucial.
- One submission stressed the value of geography as being its capacity to synthesise data with a diverse range of characteristics.
- Overall, feedback supported a definition that included reference to spatial interactions between places, people and environments.

FACTORS TO CONSIDER WHEN DEFINING GEOGRAPHY

A single definition of geography should be:

- readily understood by students, parents, teachers, politicians and the community generally
- one that connects school geography to the popular geography displayed in magazines and television programs (Bonnett, 2003)
- a distinctive area of inquiry not shared with other school subjects
- one that encompasses the full range of contemporary geographical inquiry from landforms to sport, biophysical environments⁴ to political and cultural environments
- based on a perspective that combines an understanding of the characteristics of places and spatial patterns (Matthews & Herbert, 2004)
- a field of study that has both practical as well as educational value, and which can be a preparation for a range of careers.

⁴ Some respondents used the term ‘environment’ in a broad or general sense, whereas others when referring to the physical world preferred to use ‘biophysical environment’, ‘natural environment’ or ‘physical environment’ and when referring to the human world preferred to use such terms as ‘built environment’, ‘cultural environment’ and ‘socio-political environment’. Preferred use of these terms is often related to current curriculums or syllabuses in different states and territories.

WHY IS IT IMPORTANT FOR STUDENTS TO STUDY GEOGRAPHY?

Major research papers and policy documents indicate the importance of all students studying geography as follows.

Geography teaching is one of the disciplines that helps to provide order in children's real and virtual worlds.

Geography is a discipline that offers knowledge and skills to understand why people in different places arrange their environment in different ways within natural constraints. (Robertson & Gerber, 2000, p. 224)

Wildy and Smith describe the importance of geography being taught at primary levels in the following way.

Believe it or not you do teach geography!

There is much geography taught in the primary school classroom even if it is not called geography. If you teach skills, concepts and content that relate to local places and global places, distance and direction and identify and explain natural and human features of the landscape you are then teaching geography.

As a primary teacher it is important to identify those aspects of the curriculum that fall under the heading of geography and to facilitate the development of geographic skills, concepts and content over the primary years.

(Wildy & Smith, 2007, p. 12)

In December 2008 the Australian Education Ministers released a new national declaration on their aspirations for young Australians for the next decade and beyond. In it they committed to eight areas of action in support of these goals. These included a commitment to promoting world-class curriculum in eight agreed learning areas, and a commitment to strengthening accountability and transparency.

In the Commitment to Action geography is identified as one of the learning areas. These will have to provide breadth, balance and depth of learning appropriate to students' phases of development. In addition, schools and school systems will be responsible for delivering curriculum programs that have appropriate flexibility to meet local contexts. (Ministerial Council on Education, Employment, Training and Youth Affairs, 2008) (Ministerial Council on Education, Employment, Training and Youth Affairs, 2008)

A student's view of the importance of geography is illustrated in Jessica's experience.

'What's the point?' was my reaction to taking geography at GCSE level when the idea was suggested to me at options time. As far as I could see, there were far more interesting things to be learnt than how the odd rock formation came about, or where various volcanoes were. It all seemed so, well, fragmented and for that reason I chose history instead: there was, after all, a story in history!'

Lambert continues by noting that when it came to making her next decision, after completing her General Certificate of Secondary Education (GCSE), she returned to geography, taking the A level examination:

'Geography, it turned out, was an interesting subject, partly because it is constantly changing. Those rock formations that I had hastily pushed aside were actually quite important to understand and the volcanoes I had never thought much about before caused havoc in the lives of those people that lived at their bases. Geography is an incredibly broad subject encasing social, political, environmental and economic aspects of what is happening in the world today. It has taught me to understand that we can be affected by events all over the world; for example, El Niño doesn't just affect the weather off the coast of Peru, but it has in the past caused freak weather in most continents. Of course geography is not just about weather. During the A-Level course I also learnt about development and disparity in Los Angeles (the 'ecology of fear!'), about wilderness areas and the threats towards them and (maybe most importantly) about poverty, how it comes about and how people try to deal with it.' (Lambert D. , 2004, p. 1)

A further example of a geography student recognising the value of their study is demonstrated in Tilly's account of her experience at the time of the Asian tsunami.

Tilly Smith, 11, from Oxshott, Surrey, spotted key signs in the sea in Phuket, Thailand, that she remembered from a geography lesson two weeks earlier.

She persuaded her parents, seven-year-old sister and other tourists to flee their beach and hotel.

When the tsunami struck, no-one was killed on that beach.

(BBC News, 2005)

Tilly's geography teacher Andrew F. Kearney said, "What Tilly described as happening was exactly the same as I'd shown on a video of a tsunami that hit the Hawaiian Islands [in 1946]."

Kearney said topics for year-six pupils (age 10 to 11) include tectonic plates, earthquakes, and volcanoes.

"We covered tsunamis because they can be caused by earthquakes, volcanoes, or landslides," he added.

Kearney uses audiovisual teaching aids such as interactive white boards to harness geographic information online. Tilly's class had looked up U.S. Web sites about tsunami early-warning systems.

"I have a computer on the desk and can project different Web pages onto the whiteboard," Kearney said. "It's helped make great strides in teaching geography—it really brings [the real world] into the classroom."

Children are also given practical tasks. One of these was to build models of an earthquake-proof house out of balsa wood. "I put [the models] on a box and shake it to see which model remains intact the longest," Kearney added.

(National Geographic, 2005)

A recent article by two geography teachers describing the importance of teaching geography begins by stating that “It is irresponsible of us as educators to send geographically challenged students out into the world.” It continues by emphasising that geography should be an essential part of all students’ education throughout their school years, including their primary years. The authors point out that “topics studied by students in geography in primary school lay the foundation in spatial awareness that underpins many other subjects they may go on to study in their secondary and tertiary years.”

(Chlebnikowski & Puszka, 2009, p. 24)

The following sections consider how the value of studying geography in school can be summarised using a number of key strands.

UNDERSTANDING THE CHARACTERISTICS OF PLACES

Students have a natural curiosity about the characteristics of places in their world. Geography enables them to gain a better understanding of places in their own environment and those beyond their own direct experience.

In order to gain an understanding of the characteristics of places and of the spatial distribution of these characteristics geography draws on the combined knowledge from the natural sciences (as in the study of the hydrological cycle), the social sciences (as in the application of the concepts of agglomeration economies or environmental perception) and the humanities (as in studies of the personal meanings of places). This gives the subject considerable value in broadening a student’s education.

DEVELOPING WORLD KNOWLEDGE AND UNDERSTANDING

The study of geography provides the background knowledge essential to understand many important global issues. Examples of these issues include the:

- implications of economic and social differences
- effects of international migration on communities and regions
- consequences of globalisation
- changing availability of water resources
- consequences of climate change
- impact of urbanisation on fragile natural environments
- impact of development on natural resources
- degradation of land and its impact on biodiversity
- promotion of stewardship of the Earth
- Sustainability of using environmental resources.

The majority of respondents to the project's online survey identified the need for students to gain a sound world knowledge as the main justification for including geography as a subject in the curriculum. Including geography will ensure that students have a well rounded education that includes a sound knowledge of the world.

UNDERSTANDING THE INTERACTION BETWEEN SOCIETY AND THE NATURAL ENVIRONMENT

Geography allows students to bring together knowledge and skills for an understanding of both the natural and human elements of the world and how they relate to each other. This enables students to better understand the impacts of humans on natural environments. As such, geography is the subject in which students are educated about, in, and for the environment and society in which they live.

The second greatest number of respondents to the project's online survey identified the need for students to gain an understanding of the interaction between human and natural environments as being unique to the subject and therefore a strong justification for including geography as a subject in the curriculum.

BEING INFORMED AUSTRALIANS AND GLOBAL CITIZENS

Students need a knowledge of the geography of their nation and its distinctiveness. Students need to know about the environmental, economic, demographic and social characteristics of the places in which they live, work, study and play, and how and why these characteristics are changing. They should also have a knowledge of the places with which they are connected through environmental processes, population movements, trade and investment, tourism, cultural influences and political relationships.

Through a study of geography students can examine some of the important issues facing individuals, communities and governments in Australia. With this knowledge they will be better equipped to make informed decisions on personal, local, regional and national issues in the future. In the Australian context these issues include the:

- effects of human settlement on Australian environments, and the ways in which these effects are being managed
- engagement of different cultural groups (e.g. indigenous, settler, immigrant) with the Australian environment
- management of water resources and drought
- management of coastal areas, where human pressures interact with physical processes to threaten some of Australia's most popular environments
- impact of Australia's centralised population in a few cities, and how the problems resulting from the growth of these cities might be managed

- regional differences in economic and social well-being, and the implications of these differences for individuals, communities and governments
- impact of globalisation on Australian places
- movement of Australians between places, the causes of these movements, and their demographic, economic and social effects
- changing nature of ‘community’ and ‘identity’ in Australia, as a result of greater population mobility, international migration and settlement, the increased use of telecommunications, and social change governance of Australian places and environments.

The importance of preparing students for global citizenship has been described as follows. “One of elements of global citizenship is knowledge of the vast economic and social inequalities existing in today’s world and how these inequalities may affect our lives. [Students] who will live in this global village much longer than we will, need to understand that globalisation’s negative outcomes – exploitation of poor countries, for example – can affect their own lives. Our interdependence is economic, and it is also environmental. Global problems can only be solved globally.” (Zhou, 2009, pp. 26-7)

GAINING A HOLISTIC VIEW OF THE CONTEMPORARY WORLD

The subject encourages students to consider a variety of perspectives (or points of view) relating to geographical issues. By doing so they are better placed to formulate their own opinions and clarify their own values and attitudes. The Geography Education Standards Project 1994 describes perspectives as providing “a frame of reference for asking and answering questions, identifying and solving problems, and evaluating the consequences of alternative actions. ... It is also essential to realise that our perspectives incorporate all life experiences and draw upon knowledge from many fields of inquiry.” (Geography Education Standards Project, 1994, p. 57)

Perspectives, as used in this context, refer to the holistic way of viewing the world, the people in it, and their relationship with each other and with their biophysical environments. Geography students learn to be open to a wide range of explanations and apply a holistic view to geographic issues.

Geography is a contemporary and relevant subject area that seeks to encourage students to explore their place in the world from political, economic, environmental and socially responsible perspectives. Increasingly, our students are being called to not only be engaged with issues on a local level but on a global scale as well.

Given its holistic nature, geography represents an excellent curriculum framework for engaging with some of the great challenges facing humanity – climate change, water and land management, global inequalities, sustainable economic growth, habitat protection and management, the impacts of rapid urbanisation and our future energy needs. It also provides a level of cultural understanding that enables students to better understand some of the important geopolitical issues and challenges facing Australia and the world.

Stephen Twigg MP, Parliamentary Under-Secretary of State for Schools (2004) in his keynote address at UK’s Geographical Association annual conference described the unique contribution of geography as being “the preparation of students to engage in the real world, to make judgements about events,

to make responsible personal decisions and to understand the complicated interactions between places and people.” (Twigg, 2004, p. 2)

One of the submissions presented the following view.

The problem is, that in terms of people’s world-views today, the perspectives that dominate tend to be the economic and religious to the near exclusion of others. This is just not good enough in the light of the crisis of climate change. Understanding the problems and acting effectively will demand a much better feel for science and for Gaian interrelationships. This is what needs to be addressed and what I am arguing for here. Through an enhanced status of geography and revitalised geography curriculums we can be working towards the development of much healthier and sustainable world-views.

FUTURE LIVES AND CAREERS

Geography develops students’ participatory knowledge and skills enabling them to become informed decision makers at a local, national and global scale. In a global world we need future generations to understand:

- biophysical processes and the consequences of interfering with them
- how and why societies interact differently with biophysical environments
- interactions between countries and their impacts on one another.

As one online respondent said, “We cannot change the past. By educating students in geography maybe we can change the future.”

SUBMISSIONS AND OTHER SOURCES

Submissions from geographers provide other reasons why it is important for students to study geography.

Students learn a range of skills including problem solving, critical thinking, map reading and the ability to broadly investigate issues at the micro and macro levels. These skills are transferable beyond their years at school into adulthood and future careers.

Many geography students are now using Geographical Information Systems (GIS) to extend their skill basis and this will provide them with considerable future opportunities in one of the fastest growing employment areas.

The following points were also identified as being important reasons for students to study geography from a **primary level** perspective:

- understanding of the world around us – from our own backyard to local, regional and global scales
- understanding of other cultures and land practices in an ever shrinking world (travel is quick, easy and inexpensive)

- the connectivity between people and places
- understanding of the need to conserve and protect resources
- responsible and active citizenship
- skill development and transfer of skills from one discipline to another.

In the United Kingdom it has been noted that geography brings, uniquely to the primary curriculum, a focus on the study of places and of the natural and human environment. It explores the nature and features of places and environments, examines the structures, processes, interactions and patterns involved, and evaluates the issues and impacts that emerge. (Catling, 1999, p. 60)

Underpinning geography's place in the curriculum is its role in the development of children's spatial and environmental understanding, building on their experience in the environment, of their own and visited places and, increasingly through a variety of media, of real and virtual other places and environments in the wider world. This requires skills in reading and interpreting both visual and verbal media, particularly photographic (still and video, authentic and manipulated) images, maps of many types and scales, a range of graphs and charts and many styles of written information from the daily press to encyclopaedia summaries. Children need the skills to extract appropriate information relevant to and appropriate for the enquiries and investigations they are making, including literacy and numeracy and undertaking fair tests.

One submission explained that the best arguments for geography's place in the curriculum relate to the ways in which it "informs good decision-making for the benefit of economic, environmental and social life".

An examination of statements prepared by the International Geographical Union Commission of Geographical Education and organisations in the United Kingdom provide further insights about the importance of studying geography. Extracts from these are reproduced below.

INTERNATIONAL GEOGRAPHICAL UNION COMMISSION OF GEOGRAPHICAL EDUCATION

A geographical education offers foundations for students to develop:

- the ability to be sensitive toward and defend human rights;
- an ability to understand, accept, and appreciate cultural diversity;
- an ability to understand empathies and critique alternative viewpoints about people and their social conditions;
- a willingness to be aware of the impact of their own lifestyles on their local and broader social contexts;
- an appreciation of the urgent need to protect our environment and bring about environmental justice to local communities and regions that have experienced environmental devastation; and

- an ability to act as an informed and active member of their own and the global society.

(IGU Commission on Geographical Education, 2000)

QUALIFICATIONS AND CURRICULUM AUTHORITY

The study of geography stimulates an interest in and a sense of wonder about places. It helps young people make sense of a complex and dynamically changing world. It explains where places are, how places and landscapes are formed, how people and their environment interact, and how a diverse range of economies, societies and environments are interconnected. It builds on pupils' own experiences to investigate places at all scales, from the personal to the global.

Geographical enquiry encourages questioning, investigation and critical thinking about issues affecting the world and people's lives, now and in the future. Fieldwork is an essential element of this. Pupils learn to think spatially and use maps, visual images and new technologies, including geographical information systems (GIS), to obtain, present and analyse information. Geography inspires pupils to become global citizens by exploring their own place in the world, their values and their responsibilities to other people, to the environment and to the sustainability of the planet. (Qualifications and Curriculum Authority (QCA), 2009)

ROYAL GEOGRAPHICAL SOCIETY (WITH INSTITUTE OF BRITISH GEOGRAPHY)

The Royal Geographical Society (RGS) describes the importance of geography in the following manner:

Geography provides a useful framework for relating other fields of knowledge. It is not surprising that those trained as geographers often contribute substantially to the applied management of resources and environments.

(Royal Geographical Society with Institute of British Geographers, 2008)

GEOGRAPHICAL ASSOCIATION

The Geographical Association in the United Kingdom identifies the value of geographical education in position statement as follows. (Geographical Association, 2009, pp. 2-3)

Geography:

- *secures locational knowledge and understanding of spatial relations – how places are interconnected*
- *develops a knowledge and understanding of current events – from local to global*
- *explains geographical patterns and processes - physical and human*
- *enables well-informed judgements about environments and supports an understanding of sustainable development*
- *addresses the complexity of human and physical environments*

- *makes connections between natural, economic, social, political and technological systems*
- *develops the skill of visual literacy -interpreting maps, graphs, diagrams, aerial photographs and satellite images*
- *provides opportunities through fieldwork for the first-hand investigation of places, environments and human behaviour*
- *provides a meaningful context for developing transferable skills – literacy, numeracy, ICT, problem solving, team work, thinking skills, enquiry*
- *prepares for the world of work – geographers, with their skills of analysis and synthesis, are highly employable*
- *stimulates an interest in, and a wonder of, the world around us – it gives young people a desire to explore and enables them to travel confidently*
- *gives real purpose for using new technologies, such as Geographic Information Systems*
- *empowers all young people to become active global citizens*
- *helps students to understand that there may be more than one way of tackling specific real-life problems.*

GEOGRAPHY EDUCATION NATIONAL IMPLEMENTATION PROJECT (GENIP)

The Geographic Education National Implementation Project (GENIP) is a consortium of geographic associations committed to improving the status and quality of geography education in the United States. It was organised in 1985 by the

Association of American Geographers (AAG)

American Geographical Society (AGS)

National Council for Geographic Education (NCGE)

National Geographic Society (NGS)

In the GENIP position statement the importance of studying geography is addressed under the title 'Why geography?'

People need to know about the nature of their world and their place in it. Geography provides the concepts, skills, and tools for learning about the world.

- *Geography is important: we must know about the places, peoples, regions, and environments of the Horn of Africa, for example, in order to understand what is happening in Darfur or Somalia and we must know about tropical storms and global wind patterns to understand the hurricanes that impact the south-eastern United States.*
- *Geography is useful: it lets us understand the location of fast food restaurants in our neighborhood or analyze the potential impact of global warming on coastal cities.*

- *Geography is powerful: with tools such as GIS, we can create maps of the shortest route home or the changing spatial distribution of tropical forests.*
- *Geography is fascinating: we can learn about the connections among traffic volumes and the incidence of childhood asthma in cities or the way that William Faulkner used Mississippi as the basis for his Yoknapatawpha County.*
- *Geography is integrative: its great strength lies in its overarching qualities as a bridge between the humanities and the physical and mathematical sciences.*
- *Geography is fun: we can make our own maps of Tolkien’s Middle Earth or of the spread of starlings from a breeding pair released in New York City’s Central Park a hundred years ago.*

Geography enables people to understand their place in a complex and ever-changing world, to comprehend the connections between places, to recognize how local actions affect the global environment and vice versa, and to bring a spatial view to life situations. A geographically informed person is empowered to make wiser decisions in life contexts ranging from the school and family, the local community and society at large, and the workplace and civic government. Geography is for life: lifelong, life-sustaining, and life-enhancing.

(Geography Education National Implementation Project (GENIP), 2007)

WHAT IS KNOWN ABOUT THE WAYS IN WHICH STUDENTS LEARN IN GEOGRAPHY?

There is wide range of teaching methods and many of these have long traditions. Research data about the effectiveness of different teaching methods and styles is substantial, however, when the research focus is specifically on geography and related learning the findings are more limited.

STUDENTS' UNDERSTANDING OF THE WORLD

Research into the manner in which primary students in 13 NSW state schools acquired their world views and knowledge of places found that

Children retained a very Anglocentric view of the world despite many years of concerted efforts in Australian education systems to promote a more regional perspective. Their responses also indicated that they were strongly influenced by media representations of countries in the world and tended to stereotype places and people as a result of these. Many of these children obviously felt afraid of many parts of the world.

(Reynolds, 2004, p. 52)

A discussion of the effectiveness of different approaches to teaching geography requires a consideration of how students perceive the world and how they learn. Two leading Australian geographical educators addressed these issues in *The Child's World* (Robertson & Gerber, 2000). Robertson and Gerber state that “young people who will live most of their lives in the twenty-first century face dilemmas not experienced in the twentieth-century world. They approach the post-modern challenges of a global world in new ways that require new thought processes and new world views.” The authors identify the following key questions to guide further investigation about these processes and the development of students' world views.

- How do they construct their identity and sense of place?
- What are their relationships with the environment and nature?
- How do they communicate, and what kinds of imagery do they draw upon?
- How can they help us to better understand the effects of global time-space compression, and its opportunities?

STUDENTS' VIEWS OF GLOBAL ISSUES AND THEIR CAPACITY TO INFLUENCE CHANGE

Recent research examining students' views in three countries about global issues and ability to act for change found that they have:

- very real concerns for their own, local and global futures. Students from different countries have personal aspirations for the future which have much in common, despite their very different socio-economic and cultural backgrounds
- optimistic views about the future that is not related to personal socio-economic circumstances

- a need to be engaged in learning and action about local and global issues if they are to develop a positive view of their world.

(Holden, Joldoshalieva, & Shamatov, 2008)

Studies examining Korean and Pakistani student's views about environmental issues found that:

- about 60 percent of Korean students thought environmental problems would increase in the future in their local area, whilst only 14 percent thought the condition of the environment would improve
- 61 percent of Pakistani students were optimistic that environmental problems would decrease in future whilst 18 percent felt that the condition of the environment would become worse
- Korean students are concerned about a worsening environment and fear the extinction of the human species by natural disasters. They are less optimistic for the global future than they are for the future of their local community.
- Pakistani students expressed their greatest concern about war and violence in the global context, however, the majority of students thought there would be fewer environmental problems in the future.

(Huh, 2008) and (Dean, 2008)

Research undertaken in Spain regarding students' perceptions about their own role as active citizens found that:

- the majority of the students believed that they could contribute to making the world a better place
- when asked about effective ways of learning about global issues students referred to debates and discussions about such items world development, cultural differences, natural catastrophes, global warming and the environment.

(Naval & Reparaz, 2008)

It is noted that many useful resources developed for teaching about sustainability, global and social justice are available to support the teaching of such issues in geography.⁵

RELATIONSHIPS BETWEEN SUBSTANTIVE AND PROCEDURAL LEARNING IN GEOGRAPHY

Research into how primary and secondary school students learn in both history and the sciences identifies the development of an understanding and use of procedural knowledge as of crucial

⁵ The Global Education Project funded by AusAID has been instrumental in developing a wide range of resources and delivering professional learning to support geography teachers.

importance in developing historical or scientific understanding (National Research Council, 2002), (National Research Council, 2007). For example, Van Sledright and Limón (Van Sledright & Limón, 2006, p. 548), referring to their categories of knowledge, write: ‘... for learners [in history] to develop deep understandings of first-order ideas, the study of second-order concepts, thinking capabilities, and domain-specific procedural knowledge appears to be required.’ Some of the evidence for this comes from the experience of the Schools Council History Project in the UK. The same view is reported in the National Curriculum Board’s science framing paper.

In a recent evaluation of science learning in United Kingdom schools, the report by science Inspectors concluded that the main factor in the schools with the highest or most rapidly improved science learning was their commitment to science inquiry. In those schools students were given the opportunity to pose questions, and design and carry out investigations for themselves. The ability to pose and investigate questions in science inquiry is an important dimension of developing scientific capabilities. (National Curriculum Board, 2008b, p. 1)

There is also evidence that students with good procedural knowledge had a better retention of substantive knowledge. To achieve this aim, topics have to be studied in depth, and much of the teaching should be inquiry-based and student-centred. Inquiry-based methods are widely and successfully used in geography teaching in Australia, and were supported by many teachers in the online responses to this project. A geography curriculum for Australian schools should therefore recognise the importance of procedural knowledge—on geographical questions and ways of understanding and explaining, on concepts, and on methods and skills.

Research also suggests that the development of procedural knowledge should be complemented by other strands of learning interwoven in the geography curriculum. (National Research Council, 1997) These strands are outlined below.

Learning of substantive knowledge enables students to ask appropriate questions and interpret the answers, as well as providing them, in geography, with an essential knowledge of their world. Within substantive knowledge students develop an understanding of the principles, processes and factors that help them to understand and explain phenomena, so that they can link the ‘facts’ together in explanatory frameworks.

The opportunity for students to apply their knowledge and skills to problems which engage them facilitates this learning.

The opportunity for students to discuss their ideas and findings with other students and their teacher, and to learn how to see other viewpoints, ask questions, engage in constructive debate, and adopt a critical stance to facilitate their learning.

Leat, a British geography education academic, has suggested that student’s ability to engage in formal operational thinking is limited until the ages 11-14, and often even later. Such students have difficulty with tasks that ask them to ‘evaluate’, ‘analyse’ or ‘explain’, or to comprehend complex concepts, or to cope with more than two variables at a time (Leat, 2002a)⁶. His view is supported by

⁶ See also (Lambert & Balderstone, 2000, pp. 195-207)

research on science education which shows that the majority of children have not progressed beyond a stage of concrete operational thinking in early secondary school (Endler & Bond, 2008).

On the other hand, Taylor and Carmel (2003) state that research into education in history provides good evidence that eight-year-olds are capable of conceptual thinking, arguing a position, and engaging in historical problem-solving. Adolescents can use more advanced concepts, locate and interrogate sources, and collect evidence to construct explanations. Similarly, the US National Research Council's report on science education in Grades K-8 states that cognitive developmental research shows that primary school children can think in abstract as opposed to concrete terms, and are able to make sense of their world in terms of explanatory understanding and the construction of intuitive theories (National Research Council, 2007, p. 56). Their report also points to the great variation in when the thinking of children matures, and is critical of Piaget-based stages of cognitive development. Scoffham (Scoffham, 2004, p. 15), introducing a handbook on primary school geography, contends that 'the skills and competencies of young children appear to have been consistently underestimated' by researchers and teachers.

What all these sources agree on is that the intervention of teachers is essential to the development of children's cognitive abilities. Leat, for example, argues that the cognitive ability of students can be accelerated, and has developed a Thinking Through Geography program for teachers in the UK (Leat, 2002b), a program which has also been tested in the Netherlands (van der Schee, Leat, & Vankan, 2006). His approach is adapted from the Cognitive Acceleration in Science Education (CASE) project started in the UK in 1981, which was the subject of a small trial in Australia (Endler and Bond, 2001). A number of studies have shown that the CASE methods produce an improvement in measures of cognitive development and school examination results.⁷ Leat (Leat, 2002b, p. 117) concludes that his approach '... is more likely to equip pupils to handle complex information and relationships, tackle challenging tasks and transfer learning to new contexts. It is also more likely to keep them interested.' There was strong support in the project's survey for a curriculum that was engaging and intellectually challenging.

Leat (Leat, 2002a) also points to the importance of metacognition, an awareness of one's own thinking, in the ability of students to direct and enhance their learning. The US National Research Council's study of learning and understanding in high school science and mathematics found that:

To be effective problem solvers and learners, students need to determine what they already know and what else they need to know in any given situation. They must consider both factual knowledge about the task, their goals, and their abilities and strategic knowledge about how and when to use a specific procedure to solve the problem at hand. In other words, to be effective problem solvers, students must be metacognitive. Empirical studies show that students who are metacognitively aware perform better than those who are not. (National Research Council, 2002, p. 122)

Kriewaldt (Kriewaldt, 2006), an Australian geography education academic, argues that metacognition should be systematically developed in the geography curriculum, and explores

⁷ The use of other methods of developing thinking skills is reported by (Ashworth, 2002), (Tonizzo & staff, 2003) and (Fogarty, 2006), all practising geography teachers in Australia.

strategies that teachers can use to achieve this goal through more active and constructivist classroom learning processes. Concept mapping, a thinking strategy recommended by (Leat & Chandler, 1996), can help in this, and the US National Research Council's report on science and mathematics learning states that it can provide '... powerful metacognitive insights ...' (National Research Council, 2007, p. 123)

Another cognitive issue concerns students' comprehension of maps. Most of the studies of cognitive development in geography are about how people comprehend maps, and about the teaching and learning of map skills (Van Sledright & Limón, 2006). Some examine how a sequence of map work can be developed to match the stages of children's cognitive ability (Downs & Liben, 1991), (Downs, Liben, & Daggs, 1988), (Kleeman & Hutchinson, 2005), (Liben & Downs, 1994). The beginning of spatial reasoning starts very early, and research reviewed by (Scoffham, 2004) and (Kerkman, Friedman, Brown, Stea, & Carmichael, 2003) shows that 3-5 year olds can draw and use simple maps. (Blaut, Stea, Spencer, & Blades, 2003) believe that mapping abilities emerge very early in childhood as a universal cultural-ecological adaptation to the need to deal with their environment. However, the ability to understand more complex maps may not develop until around the age of 11. This research can inform the way students are taught about maps and other representations of the earth's surface through their school years.

A final cognitive issue is about young children's awareness of and interest in places. Research reported by (Scoffham, 2004), and the responses of teachers to the Steering Committee's survey, shows that young children are curious about and interested in distant places, and not just their local area. This supports the Committee's belief that early primary school geography should not be confined to local and nearby places, but should build on children's curiosity and encourage them to explore the whole world. On the other hand, children's knowledge of places can be distorted and stereotyped. Research in New South Wales primary schools on the views of children of the countries they knew was discussed at the start of this section. (Scoffham, 2004), reports similar findings from the UK, and argues that these stereotypes need to be challenged at an early age before they become entrenched and difficult to modify.

A submission to this project drawing on the ideas on cognition outlined above suggests that a geography curriculum could:

- be structured to enable a progression of learning that matches student cognitive capabilities, while allowing teachers to cater for students of different abilities
- be structured to build an increasingly comprehensive and sophisticated understanding of how phenomena can be understood and explained
- complement the present well developed teaching of concepts, methods and skills with a greater emphasis on geographical questions, perspectives and approaches, and on the development of geographical thinking and understanding
- focus on depth of understanding rather than breadth of content
- provide scope for inquiry-based and problem-solving methods of teaching and learning
- include the development of thinking skills, including thinking about thinking

- provide opportunities for the application of student knowledge to issues and problems that interest and concern them.

LINKING FIELDWORK EXPERIENCE TO CLASSROOM LEARNING

Through its long tradition of fieldwork⁸, geography takes students out of the classroom to study the real world, and this has been shown to contribute not only to their geographical knowledge but also to their personal development.

Geography teaching is renowned for its use of direct (field) and indirect (classroom and practical) methods of studying issues in the world. Field methods include place usage counts, movement mapping, vegetation study, landuse surveys, interviews, environmental appreciation studies, perception surveys and so on. Practical activities include the use of maps, aerial photographs, environmental impact reports, planning reports, historical documents, council minutes, media surveys, mental mapping, and model building among others.

The direct methods obviously are best used to study local issues and the indirect to study remote reality where the issue is largely inaccessible to direct involvement because of distance or the nature of the issue. Often a suitable mix of both is desirable. (McElroy, 1986, p. 102)

The importance of fieldwork is clearly outlined in reports from the UK's chief inspector of schools (Ofsted, 2005) and the Geographical Association (Geographical Association, 2008a).⁹

Participation in fieldwork provides an opportunity for students to link knowledge, concepts, skills and procedural values gained in classroom learning. These opportunities and links will only be properly grasped when students learn them by using them.

Students who participate in 'quality fieldwork' on a regular basis frequently comment positively about their experiences. Well-planned fieldwork in geography adds clear value to learning in the subject as well as providing a positive contribution to the wider curriculum. Pupils gain first-hand, practical experiences which support and reinforce knowledge, skills and concepts explored in the classroom. Memorable experiences support long-term learning and recall. Good fieldwork encourages geographical enquiry and frequently can lead to higher-order thinking and learning. This view is supported by the House of Commons Education and Skills Committee report on education outside the classroom, published in February 2005, which acknowledged that 'outdoor learning supports academic achievement'. Equally, it highlighted the contribution that outdoor learning, including geographical fieldwork, makes to developing students' social, interpersonal and collaborative skills.

Good practice is evident in those schools where there is strong management support which recognises the value of fieldwork. Fieldwork - that is, learning directly in the 'untidy' real world

⁸ At the primary level fieldwork might be considered as being part of an excursion activity.

⁹ In 2009 the Geographical Association launched a revised version of *Teaching Geography is Fundamental* under the new title *A Different View*.

outside the classroom - is an essential component of geography education. (Geographical Association, 2008a)

Fieldwork has a long and influential tradition in school geography in the UK. There is no substitute to 'learning outside the classroom' in the real world - at least for some of the time. In geography this is manifest in a special way: we call it fieldwork, although it is not always conducted in fields!

Increasingly, research shows us exactly why fieldwork matters. Many teachers do not need research to tell them:

'Is it all worthwhile you may ask? I can tell you the proof lies in the pudding. Having recently returned from taking Year 6 on a week-long residential visit to the Forest Of Dean, I can vouch for the hard work needed but also the rewards of hearing what the pupils really enjoyed – 'the night walk in the woods', 'the high bridge crossing the River Wye', 'the Peregrines on Symond's Yat', 'the hand operated ferry and so on. Peregrines you say, where on earth are they in the National Curriculum? I can tell you, they are in the little piece of magic those youngsters will carry with them for the rest of their lives. Long live fieldwork!' (Richardson 2006)

Ofsted is also perfectly clear about the value of fieldwork in geography. The 2008 Report explicitly links high quality geography with the opportunity provided for children and young people to experience a range of fieldwork – including in residential settings: 'Schools should recognise the value of fieldwork for improving standards and achievement in geography' (Ofsted, 2008)

The government has also endorsed fieldwork and invested in the Learning Outside the Classroom Manifesto:

'We believe that every young person should experience the world beyond the classroom as an essential part of learning and personal development, whatever their age, ability or circumstances.'

(Department for children, schools and families, 2005, p. 1)

PERSPECTIVES ON STUDENTS' THINKING

The following section outlines the findings of key themes of the Robertson and Gerber publication referred to previously in this section (Robertson & Gerber, 2000) drawing on both Australian and overseas research.

- Space, place and identity
Students are increasingly interacting with and gaining an understanding of less tangible spaces through their use of social networking via the Internet. This type of space contrasts markedly with material spaces such as home and school. This enables geography students to include less tangible places within their realm.

Research studies have shown that students experience difficulty in grasping the concept of 'nested places' in which they can simultaneously be located in the suburb Box Hill, in Melbourne, the State of Victoria, the country of Australia. Media presentation of many places especially on television, the expansion of student's travel experiences and enriched

learning resources have been shown to improve student's understanding of place. (Harwood & McShane, 1996)

Studies have concluded that primary school students prefer studies of other countries over their own and over time this preference declines. (Wiegand, 1992)

- Nature, aesthetics and place
Research indicates that student's interpretations of the environment are gained through subjective and emotional experiences. This suggests that geography students should be provided with opportunities for such interpretations to be gained by visiting different environments.
- Environmental cognition

The development of student thinking about the environment can occur through such things as fieldwork, environmental caring and map-making and interpretation. The value of direct experience gained through such activities as fieldwork is outlined in a number of studies for example, in (Cox, 1992), (Laws, 1989) and (Kimmel, 1996).

Direct experiences in the community and in environments involve geography students going out into the world. No matter where they live, geography students are able to go into some environment and learn about it first hand through fieldwork. One of the great advantages of fieldwork is that it can help students learn how to be geographers. They can become geographers by making careful observations of whatever they are studying outdoors. What they have seen and recorded becomes data for description and explanation. Then, knowing what things are like and why they are so, they can investigate consequences and review the decisions that have contributed to the present situation. (Cox, 1992)

Some of the other themes considered by researchers contributing to *The Child's World* include

- Experiences of place and space

Research conducted with primary school students in Finland (Rikkinen, H. 2000) showed strong connections between student's spatial acuity (spatial ability) and their level of geographical perception of the world.

- Spatial-visual reasoning

Children's understanding of their world is strongly linked to their capacity to understand and reason about spatial arrangements, patterns and representations that occur naturally or are constructed by human beings. (Robertson & Gerber, 2000, p. 173)

- Environmental experience: perceptions and judgements

A major national research study involving responses from 20,000 students regarding their views and concerns for the future of the UK environment showed that 'the young people of the UK have opinions and clear values and beliefs about environment, they show strong globally responsible, visionary and mature attitudes. However, they also show frustration to being

unable to bring about the necessary changes to maintaining present lifestyles.’ (Robertson & Gerber, 2000, p. 342)

FACTORS INFLUENCING EFFECTIVENESS OF GEOGRAPHY LEARNING

Data gathered from case studies of classroom geography in the UK identified the following features of schools, especially at primary levels, where effective geography learning was occurring.

(Richardson E. , 2009)

- Schools have a strong environmental ethos
- Regular relevant fieldwork is included in the curriculum
- Involvement occurs with the local community or neighbourhood
- Prior learning and interests are assessed and they direct further learning through students’ questions
- Students’ prior experiences are used to sharpen and develop their observational skills
- Stories, outdoor activities and role play are used to enhance students’ learning
- Learning activities are appropriate to the development of knowledge and understanding
- Learning activities have real purpose and also include active citizenship
- Opportunities are maximized to develop geographic vocabulary in context
- Students investigate what geographers do
- Good use is made of the local environment
- Skills development is integrated in appropriate contexts
- Enquiry is used as a process for learning with students having at least some ownership of formulating questions
- ICT and cross-curricula links are integrated when and where learning can be enhanced
- Curriculum flexibility is considered at all times and especially when it supports progression and continuity
- There is an effective geography coordinator providing leadership
- Staff receive appropriate subject-specific training
- The subject is well resourced.

The annual report of the chief inspector of schools in the UK noted that primary school students are sometimes insufficiently stimulated or challenged by learning tasks involving repetitious exercises

which lack well developed inquiry skills. The report cites over-directed tasks and a lack of opportunity to investigate geographical issues as leading to poor learning outcomes in geography. (Ofsted, 2005)

WHAT SHOULD BE THE OBJECTIVES OF A GEOGRAPHIC EDUCATION?

The list of objectives below indicates what a student of geography should be able to do by the end of Year 10, the last year in which geography is likely to be a compulsory school subject. These have been derived from consultation meetings, online and paper submissions.

The most important part of a statement of objectives for geography is to identify the specifically geographical elements of knowledge, understanding, skills, attitudes and values that students of the discipline should possess—what students should have learned that is geographical rather than generic. For example, what should students of geography be able to do, using their knowledge and skills that distinguishes them from students who have not studied geography? One submission emphasised that it is important that students gain knowledge through inquiry learning and decision making processes.

KNOWLEDGE AND UNDERSTANDING

Geography students should be able to:

- demonstrate a knowledge and understanding of
 - places in their local area (local scale)
 - other places in Australia, the Asia-Pacific region and the world (local, national, regional and global scale)
 - the relationships between their place and other places enabling them to compare their place with others
- understand how and why phenomena are spatially distributed across places, and of the importance of location for people and their economic activities
- discuss in an informed manner with others such as parents and members of their community
 - their place and what is happening to it
 - key geographical issues of their place
 - how their community is adapting to and managing issues associated with their place
- develop a knowledge of the world, and of some of the significant geographical issues of their own and other places through inquiry learning and decision making processes
- understand and explain the environmental, demographic, economic and social characteristics of and processes occurring in their own place, and how and why these are changing
- describe and explain processes operating and interactions existing between human and natural environments and draw conclusions about them

- develop a sound understanding of places in their own geographic area through the collection, interpretation and analyse of data collected in the field
- reflect and assess evidence, consider alternatives, evaluate assumptions, and participate in active learning
- understand the significance of the natural environment in human life, and the effects of human activities on the natural environment

CONCEPTS AND SKILLS

Geography students should be able to:

- apply the concepts, skills and methods of geographic inquiry that enable them to be informed decision makers during their schooling and future lives and careers
- use geographical tools including those using contemporary technologies to describe, analyse and evaluate data
- apply a holistic view to develop an understanding of geographic issues
- make informed decisions based on a sound knowledge of key concepts and research
- use and assess primary and secondary sources of data (including material accessed from the Web), based on such things as its origin, reliability and completeness
- describe and assess the significance of key environmental and social issues.

ATTITUDES AND VALUES

Geography students should be able to:

- develop values and attitudes that test out moral and ethical dilemmas in geographical issues and support empathy with other cultures
- respond to geographical issues by
 - developing a curiosity and appreciation of different viewpoints held
 - identifying and evaluating alternative responses that can be taken by themselves and others
 - making a personal commitment to take an appropriate course of action as an individual or member of a group or class
 - describing future responses that can be taken by themselves and others.

The inclusion of attitudes and values needs some comment, for it has been a matter of some debate in both geographical education and the media. Standish, commenting on the geography curriculum in the UK, writes:

...the only value that matters is knowledge. Other values, such as concern for the environment, empathy, a sense of social justice, and respect for diversity, are about moralising and have no place in a curriculum with the goal of intellectual and personal development of the individual. (Standish, 2004)

The role of teachers, he argues, is to teach students ‘the facts and theories about the world they live in’, and leave students to construct their own values and attitudes.¹⁰ Others disagree, and argue that values and attitudes cannot be divorced from many of the topics and issues that are studied in school geography (Huckle, 2002), (Kriewaldt, 2003) and (Wood, 2005). Issues such as land degradation, water management, environmental sustainability, the management of large city growth, and global inequality all involve different opinions about what is the problem and how it should be managed, and are therefore the subject of debate and disagreement. Avoiding discussion of these issues, which are regularly reported in the media, will simply leave students frustrated. Developing students’ ability to understand why other people, whether in their own society or in other societies see issues differently, is an important goal for geography. We therefore suggest that one important objective of a geographical education should be to help students to develop informed opinions on geographical questions and issues through a combination of study, discussion and a critical analysis of different viewpoints, including their own.¹¹ The role of the teacher should be to ensure that opinions are informed and debated. Generally, any other approach is likely to be counter productive with young people. In some cases there may be no pre-determined view of what is responsible, moral or ethical, particularly when there is no agreed position in the general community.¹² However, there are also instances when moral and ethical imperatives require teachers and students to recognise that certain responses in our society are inappropriate and unacceptable.¹³

Geography provides some good examples of the difficulty of making moral judgements when issues are examined from several perspectives. Others writers have also reflected on the importance of perspectives in student’s understanding of geographic issues.

Students should recognise that their world view is not universally shared

¹⁰ In a very recent and somewhat contentious book Standish (Standish, 2009) also argues that much teaching about global issues in geography imposes Western values on non-Western societies by failing to view these issues from the perspective of these societies.

¹¹ See (Kriewaldt, 2003, p. 46). In her study of the teaching of Australian history, Anna Clark found that what students most liked was the opportunity to debate opinions and interpretations (Clark, 2008, pp. 135-9).

¹² For example, on some current environmental issues in Australia, what some people regard as an environmentally responsible policy, others consider to be economically irresponsible.

¹³ For example, matters related to race, ethnicity and gender in Australia.

Everyone interprets the world from within a particular framework of perception and thought. Personal perspectives are shaped by such factors as age, class, creed, culture, ethnicity, gender, geographical context, ideology, language, nationality and race. There are difficulties and dangers inherent in using one's own perspective as a yardstick by which to judge the values and behaviour of others. (Greig, Pike, & Selby, 1987, p. 46)

The Geographical Association's statement of beliefs and priorities that makes the case for geography in schools, colleges and other settings in the UK describes a number of objectives under the title of *Living Geography* (Geographical Association, 2008a, p. 9). It is interesting to note that the following three statements support the objectives listed above.

- Is often local in its focus but has a scale 'zoom lens', so that the local is always set in a wider (global) context
- Is 'deeply observant' (looking beneath the surface), to seek to identify mechanisms that bring change to environments and societies
- Encourages a critical, conceptual understanding of a range of big ideas such as 'sustainable development', 'interdependence' and 'globalisation'.

INCLUSION OF A FUTURES ORIENTATION

Hicks has identified the importance of students thinking critically and creatively about the future. He discusses the need for a futures dimension in the geography curriculum and for students to develop a futures perspective on their lives and on the world. (Hicks, 2007) He maintains that the purpose of such a futures dimension is to help students:

- develop a more future-orientated perspective on their lives and events in the wider World
- exercise critical thinking skills and the creative imagination more effectively
- identify and envision alternative futures which are more just and sustainable
- engage in active and responsible citizenship in the local, national and global community, on behalf of both present and future generations

In addition, Hicks presents the following questions about futures in geography.

- What are the local-global issues that students need to understand in the early twenty-first century?
- How are students connected personally and in our communities to such wider global issues?
- Is it possible that students' learning about global issues may lead to disillusionment and despair?
- What responsibility do students have to engage in considered action for change?

- What is it that future generations might ask them here in the present if they could speak to them now?

Writing about the national geography curriculum in the UK, Hicks states that geography is the first subject in that country to take seriously the need for such critical and creative thinking about the future. It is to be hoped that the national geography curriculum in Australia will follow this lead.

GENERAL OBJECTIVES

There are also objectives of a more general nature that students should be able to apply to the study of geography. By the end of Year 10, students should be able to

- draw on their curiosity about the world around them to ask informed questions and formulate hypotheses for use in research
- understand the values of equity, social justice, sustainability and empathy
- hold an optimistic, emphatic outlook and vision of positive future
- understand the differences of opinion that exist about of key environmental and social issues
- apply, where relevant, principles supporting:
 - students from low socioeconomic backgrounds
 - Aboriginal and Torres Strait Islander students
 - students learning English as a second language
 - students of non-English speaking background
 - students who live in isolated rural communities
 - students who have a physical or intellectual disability. (Board of Studies NSW, 2007)

CORE GEOGRAPHICAL CONCEPTS AND SKILLS

CONCEPTS

The Geographical Association gives a useful starting point to the discussion of concepts by providing the following definition:

'A mental representation, idea or thought corresponding to a specific entity or class, which may be either concrete or abstract' (Colman, 2001, p. 152). So basically, a concept is a classifier, something that helps us make sense of a very complex world. Our shared concepts help us communicate, so if someone says 'farm' we have a basic idea what they're talking about, even if our idea 'farm' might be a bit different to theirs. (Geographical Association, 2008b)

The difference between substantive and organising concepts (second order concepts) has been explained in the following way 'Substantive concepts refer to the substance, or content, of the discipline However, second order concepts are the ideas used to organise the content and to shape questions within a discipline.' (Geographical Association, 2008b)

Whilst many concepts may be considered in geography the most useful are the distinctive organising concepts (second order) that enable an understanding of places. These organising concepts provide the constructs that enable students to make sense of the world. They also assist students to understand the linkages between phenomena and to gain new insights of the concept itself. Organising concepts are used to shape knowledge into a discipline and to focus inquiry questions across the whole range of subject content. For example, 'interaction' is an organising concept because it can be used to determine the relevant geographical content and frame geographical questions across the whole range of geography content, physical and human. A model showing how inquiry questions can be linked to some of geography's 'big ideas' and organising concepts is provided by the Geographical Association (Taylor, 2007) and (Taylor, 2008).

Online and consultation meeting responses were limited and in instances made statements or lists of topics rather than examples of concepts. Concepts suggested by online and paper-based submissions overwhelmingly referred to the following concepts (listed in order of the frequency of listing):

- natural environment (eg ecosystems, environmental health)
- spatial (eg location, relative location, spatial association)
- process-based (eg globalisation, desertification)
- society-based (eg poverty, technology)
- human environment (eg population, density)
- temporal (eg change, futures).

A submission from the CIAG provided the following list drawn from existing syllabuses in Australia and the UK, (Gersmehl, 2005), (Holloway, Rice, & Valentine, 2003), and (Jackson, 2006) and the IAG's own contribution.

- Place
- Region
- Location (incorporating proximity and distance, centrality and remoteness)
- Scale
- Integration (and interdependence)
- Interaction (incorporating movement, flows, connections, links)
- Systems
- Processes
- Cycles
- Sustainability
- Patterns
- Spatial organisation (incorporating agglomeration and dispersal)
- Change
- Culture
- Perception
- Power

The Erebus Report (2008) analysed the state and territory syllabuses and made the point that in most SOSE syllabuses for years 3-10 a wide range of concepts were listed and that it was difficult to identify those that were specifically geographic.

The GTAV publication *Geography: it's essential* includes the following discussion of spatial concepts (Geography Teachers' Association of Victoria, 2008).

Spatial concepts provide a framework that geographers use to interpret and represent information about the world. They are organising concepts used to describe and explain the patterns of geographic phenomena – both natural and human – and the processes that produce them.

Location

This refers to where natural and built phenomena are found on Earth's surface. The absolute location of something can be measured accurately using coordinates. For example, a capital city can be located by latitude and longitude, or by a six-digit grid reference on a topographic map. A place can

also have a relative location. This is the location of one phenomenon in relation to another and is measured by distance and direction.

Distance

This is the space between locations on Earth. The absolute or linear distance can be measured in units such as metres or kilometres. The relative distance is the length of time it takes to travel between locations, the costs incurred or convenience of the journey.

Scale

This is the relationship between the size of an area on a map and the actual size of an area on Earth's surface. It also refers to the size of an area being studied. For example, phenomena can be studied at a local, national, regional or global scale.

Distribution

This is the arrangement of phenomena at or near Earth's surface. Distribution can vary from ordered to apparently random patterns.

Region

A region is a definable area with one or more common characteristics. Regions can vary in size (local, national, regional, global) and be part of the natural or human environment. For example: Physical region: Antarctic, Political region: ASEAN, Socio-economic region: European Union (EU), Climatic region: arid Australia

Movement

This relates to the flow and transport of phenomena from one location to another, as in the flow of goods, people, ideas, energy, water or air. The pathway, method and speed of transport are important factors in studying movement.

Spatial interaction

This describes the strengths of the relationships between phenomena and places in the environment, and the degree to which they influence or interact with each other over space and time.

Spatial association

This is the degree to which things are similarly arranged over space. It compares distribution patterns. A strong spatial association occurs where two distributions are similar. A weak association describes little similarity. No association occurs when two distributions are dissimilar.

Spatial change over time

This is the degree to which an area has changed its geographic characteristics, features or patterns of use over a period of time. Change occurs at varying rates at different times and can be considered at different scales.

The GTAV document referred to above also provides an example of how the spatial concepts can be progressively introduced through years P to 12 as shown in the table below.

Learning progressions	Years P–4 Laying the foundations (VELS Levels 1–3)	Years 5–8 Building breadth and depth (VELS Levels 4–5)	Years 9–10 Developing pathways (VELS Level 6)	Years 11–12 VCE
<i>Spatial concept progression</i>	<i>Using familiar examples</i>	<i>Applying the spatial concepts and geographic language</i>	<i>Applying the spatial concepts and geographic language</i>	<i>Utilisation of the geographic language and combining the spatial concepts within selected case studies</i>
Location	Where is my school?	Students use the spatial concepts to underpin student inquiry-based learning.	Students use the spatial concepts to underpin student inquiry-based learning and develop and expand their geographic language.	Students use the geographic language to express geographic relationships in the case studies.
Scale	What does my school look like on a map?			
Distance	How far is school from home?			
Distribution	Where are the drinking taps?			
Region	Where is there another school like mine?			
Spatial change over time	What was here before the school?			
Movement		How do I get to school? Using familiar examples, such as how do I get to secondary school?	Apply the concept and geographic language.	
Spatial association		Introduce and apply the conceptual understanding with the use of the geographic language. Is there a relationship between my school location and transport routes? What interaction occurs between school buildings and students?		
Spatial interaction				

Teacher directed ← → Student initiated

While state and territory SOSE syllabuses list concepts they do not attempt to distinguish between substantive and procedural concepts nor do they identify those that are specifically related to geography.

Another set of suggested concepts drawn from the UK 2008 Key Stage 3 Curriculum (Qualifications and Curriculum Authority (QCA), 2009) follows.

- Place
- Space
- Scale
- Interdependence
- Physical and human processes
- Environmental interaction and sustainable development
- Cultural understanding and diversity

A useful way of expressing the diversity of concepts is to use the schema proposed by Pattison that identified four ‘traditions’ in geography (Pattison, 1964).

Spatial tradition (also called *Locational Tradition*): location, distance, scale, space, spatial change over time, spatial association, spatial interaction

Area studies tradition: place, region, areal differentiation, distribution, patterns, development, interdependence, classification, diversity, boundaries, connection, proximity

Man-land tradition (also called *Human-Environmental, Human-Land, or Culture-Environment Tradition*): natural and social environments, integration, resources, hazards, conflict, society, development, inequality, cause and effect, decision-making, planning, causation, conflict, futures, perception, cultural understanding

Earth science tradition: change, processes, systems, equilibrium, movement, landscape, time

A number of these concepts can be supported in more than one of these traditions.

A further way of identifying geographical concepts is based on different approaches to defining geography. The following listing of concepts draws on an earlier discussion of contemporary definitions of geography.

- Geography as the study of relations between society and the natural environment
 - Geographical concepts: natural environment; nature-society relations; natural-social landscape; economic development; system; palimpsest, scale, place
- A post-Structuralist view of Geography
 - Geographical concepts: nature-society; human-physical divide; space; spaces of multiplicity; identity; relational space

Two perspectives of geography seen to be useful in understanding the nature of the subject and the related geographical concepts.

- Cultural geography
 - Geographical concepts: cultural identity; scale; hierarchy; place; perspective
- Political geography
 - Geographical concepts: resource; resource conflict; landscape (place); globalisation, world order; local-global nexus; scale; time-space compression; structures of power

The development of geographical understanding requires sustained attention to key concepts and skills, which in turn are grounded in specific bodies of geographical knowledge. One way of identifying the key areas of knowledge (discussed later in this section) is the use of use of domains such as environment-society interaction, environmental processes and human processes. For a detailed examination of this approach see (National Research Council, 1997, pp. 32-9).

GEOGRAPHICAL SKILLS

The need for students to develop sound geographical skills is referred to in many discussions of the subject; however, they seldom expand on those skills that are central to the discipline. (Erebus International, 2008)

The publication *Australians need Geography* identified the following skills.

Skills specific to Geography should increase in complexity and include:

- *thinking geographically, guided by the questions: Where is it and what is it like? Why is it there and how did it happen? How is it changing? What impacts does it have? How should it be managed?*
 - *fieldwork techniques such as planning, observing, interviewing, measuring, recording, photographing, sketching*
 - *acquiring, analysing and applying spatially referenced data, including using GIS*
 - *creating maps (including choropleth, land-use), graphs (including climate graphs, population pyramids), diagrams (including cross-sections), field sketches*
 - *using and interpreting those, and also satellite images, aerial photographs, atlases, topographic maps, orthophoto maps, synoptic charts, block diagrams.*
- (Australian Academy of Science National Committee for Geography et al, 2007, p. 8)

It is noted that online submissions also referred to developing practical skills using a range of simple instruments to gather data eg rain gauge, thermometer, tape measure, pH probe, turbidity tube, anemometer, inclinometer.

The Council of the Institute of Australian Geographers endorsed the value of fieldwork and incorporation of GIS techniques. They also suggest that there may be scope to incorporate some basic techniques of quantitative data analysis in Years 11 and 12, of phenomena such as rainfall, migration, population change and settlement systems, using readily available software such as the Analysis ToolPak in Microsoft Excel.

The Geography Teachers Association of Victoria publication *Geography: It's Essential* describes geospatial skills in the following manner.

Geospatial skills incorporate the development of the ability to read and interpret a wide range of geographic media, collect and analyse data, and present the data in an appropriate format.
(Geography Teachers' Association of Victoria, 2008, p. 14)

The US Rediscovering Geography Committee of the National Research Council provides a further view regarding the specific skills required to study place and space at a variety of scales. These skills are:

- Visual representation—through the use of maps

- Verbal representation—through carefully constructed written descriptions of landscapes
- Mathematical representations—through the use of models of space that emphasise location, regions and distributions
- Cognitive representation—through mental maps of the environment
- Digital representation—through the use of GIS and computer mapping. (National Research Council, 1997, pp. 40-4)

The progressive mastery of geographic skills from early to final years of schooling is considered in the US National Geography Standards. It notes that “Teachers and other curriculum developers will need to recognize that the students’ mastery of geographic skills must be sequenced effectively so that the students retain and build on their understanding.” (Geography Education Standards Project, 1994, p. 45)

The skills are

- asking geographic questions
- acquiring geographic information
- organising geographic information
- analysing geographic information
- answering geographic questions.

The National Geography Standards indicate the geographic skills students need to develop by the conclusion three key stages of development (Grades K-4, 5-8 and 9-12). An example of the skills that students should be given the opportunity to develop at each of these levels is provided below.

GRADES K–4 SKILLS : Students should be given the opportunity to

ASK GEOGRAPHIC QUESTIONS	ACQUIRE GEOGRAPHIC INFORMATION	ORGANIZE GEOGRAPHIC INFORMATION	ANALYZE GEOGRAPHIC INFORMATION	ANSWER GEOGRAPHIC QUESTIONS
Ask geographic questions—Where is it located? Why is it there? What is significant about its location? How is its location related to the locations of other people, places, and environments? Distinguish between geographic and nongeographic questions	Locate, gather, and process information from a variety of primary and secondary sources including maps Make and record observations about the physical and human characteristics of places	Prepare maps to display geographic information Construct graphs, tables, and diagrams to display geographic information	Use maps to observe and interpret geographic relationships Use tables and graphs to observe and interpret geographic trends and relationships Use texts, photographs and documents to observe and interpret geographic trends and relationships Use simple mathematics to analyze geographic data	Present geographic information in the form of both oral and written reports accompanied by maps and graphics Use methods of geographic inquiry to acquire geographic information, draw conclusions, and make generalizations Apply generalizations to solve geographic problems and make reasoned decisions

GRADES 5–8 SKILLS : Students should be given the opportunity to

ASK GEOGRAPHIC QUESTIONS	ACQUIRE GEOGRAPHIC INFORMATION	ORGANIZE GEOGRAPHIC INFORMATION	ANALYZE GEOGRAPHIC INFORMATION	ANSWER GEOGRAPHIC QUESTIONS
Identify geographic issues, define geographic problems, and pose geographic questions Plan how to answer geographic questions	Use a variety of research skills to locate and collect geographic data Use maps to collect and/or compile geographic information Systematically observe the physical and human characteristics of places on the basis of fieldwork	Prepare various forms of maps as a means of organizing geographic information Prepare various forms of graphs to organize and display geographic information Prepare various forms of diagrams, tables, and charts to organize and display geographic information Integrate various types of materials to organize geographic information	Interpret information obtained from maps, aerial photographs, satellite-produced images, and geographic information systems Use statistics and other quantitative techniques to evaluate geographic information Interpret and synthesize information obtained from a variety of sources—graphs, charts, tables, diagrams, texts, photographs, documents, interviews	Develop and present combinations of geographic information to answer geographic questions Make generalizations and assess their validity

GRADES 9–12 SKILLS : Students should be given the opportunity to

ASK GEOGRAPHIC QUESTIONS	ACQUIRE GEOGRAPHIC INFORMATION	ORGANIZE GEOGRAPHIC INFORMATION	ANALYZE GEOGRAPHIC INFORMATION	ANSWER GEOGRAPHIC QUESTIONS
Plan and organize a geographic research project (e.g., specify a problem, pose a research question or hypothesis, and identify data sources)	Systematically locate and gather geographic information from a variety of primary and secondary sources Systematically assess the value and use of geographic information	Select and design appropriate forms of maps to organize geographic information Select and design appropriate forms of graphs, diagrams, tables, and charts to organize geographic information Use a variety of media to develop and organize integrated summaries of geographic information	Use quantitative methods of analysis to interpret geographic information Make inferences and draw conclusions from maps and other geographic representations Use the processes of analysis, synthesis, evaluation, and explanation to interpret geographic information from a variety of sources	Formulate valid generalizations from the results of various kinds of geographic inquiry Evaluate the answers to geographic questions Apply geographic models, generalizations, and theories to the analysis, interpretation, and presentation of geographic information

TRANSFERABLE SKILLS

The submission by Institute of Australian Geographers describes the role geography plays in developing transferable skills.

An important feature of school geography is the emphasis placed on learning a wide range of transferable skills, possibly wider than in any other subject. These include the ability to communicate in written, numerical, graphical, cartographic and oral forms; to observe; to collect and analyse a very diverse range of information; to work collaboratively; to think critically; and to be open to a wide range of causes and consequences of the phenomena being studied. In some states geography students also have the opportunity to learn about geographic information systems. These are all skills that are valued by employers. Geography makes an important contribution to the development of all of the four key capabilities identified in a report on an Australian Certificate of Education (reading literacy, mathematical literacy, written English and ICT literacy), and all of the ‘employability skills’ identified by the Australian Chamber of Commerce and Industry and the Business Council of Australia, as also listed in the report. (Australian Council for Educational Research, 2006, pp. 77-84)

The important role geography plays in developing transferable skills is also discussed by the GTAV as follows.

Geography presents varied and stimulating opportunities to develop literacy and numeracy skills through qualitative and quantitative studies.

Students undertake purposeful reading and writing tasks (literacy) in a variety of forms ranging from reports to poetry. Constructive spoken communication (oracy) is encouraged in activities such as role-plays, presentations and fieldwork interviews.

Numeric skills are developed in contexts that can be both extrinsically and intrinsically motivating since they are concerned with real-life situations. For example, students might collect numeric data in activities such as stream monitoring and traffic surveys. They then process the data, and produce graphs and tables to present their findings. In using maps, students work with scale, distance and area.

Geography provides many opportunities to master ICT, which can be used in all phases of a geographic inquiry. Students might use GPS (global positioning system) in the field to identify a location, collect up-to-date information from the web, make observations using Google Earth or a webcam, or record information in a spreadsheet. Students can use GIS to help analyse and synthesise data. Students could present their findings by creating a website or exchanging information with a distant sister school electronically.

As well as spatial literacy, Geography builds the skills of graphicacy through work with visual images such as maps, satellite images, photographs and diagrams. Geography also develops skills in data manipulation – transforming data from one form to another. For example, numeric data can be changed to text and map formats, tabular data to graphs, and matrix and graphic data to written text.

Geography also makes a major contribution to students' acquisition of skills used in research, analysis, synthesis, decision-making and communication. (Geography Teachers' Association of Victoria, 2008, pp. 9-10)

One of the submissions received noted that whilst lists of skills have been developed for a number of curriculum documents the choice and timing of teaching these skills should be related to the content being taught. This problem might not arise if flexibility is provided to allow some skills such as those developed during fieldwork to occur at a time that is suitable to a school's organisational program.

The International Geographical Union Commission on Geographical Education addresses ICT's contribution to geographical education in one of its charters as follows:

In Geographical Education, media add general value to teaching in terms of serving as a resource for information from various, often contradictory sources, but also in terms of organizing, processing, interpreting and presenting information. The Internet, software in general and specific geographical software (such as computer simulations or the Geographical Information Systems GIS) and hardware (for example mobile tools such as Global Positioning Navigators GPS) add specific value to Geographical Education by providing easily accessible, up-to date information, new and innovative means for teaching and learning with web-based information, and enhance communication and cooperation, for example in the settings of E-learning and blended learning. The benefits of the use of ICT contribute to the aims and objectives of Geographical Education for sustainable development in a sense that ICT helps

- *to acquire up-to date knowledge easily*
- *to compare contradicting information*
- *to look at things from different, multi-perspective points of views*

- *to gain direct insight into the attitudes and perspectives of people who are personally affected by issues of sustainability (i.e. impacts of natural disasters, environmental pollution, economic crises)*
- *to analyze the world and its mental representations*
- *to better understand the conceptualizations and attitudes concerning issues of sustainability of people from different cultures*
- *to visualize multi-dimensional environmental issues related to sustainable development*
- *to promote higher thinking skills like synthesis and evaluation*
- *to develop understanding, skills, attitudes and values, necessary for sustainable behavior.*

(IGU Commission on Geographical Education, 2007)

CORE AREAS OF GEOGRAPHICAL KNOWLEDGE

A critique of geography in primary and junior/middle years of secondary education in Australia is difficult due to its current inclusion within humanities or studies of society and environment frameworks. This difficulty was noted as follows in the review of State and Territory syllabuses undertaken by Erebus International.

SOSE syllabuses are organised into complex structures of essential learnings, values, processes, strands and concepts, which do not adequately allow for a focus on geographical questions and their analysis. A concept-structured syllabus also makes it difficult to examine a geographical question from a variety of perspectives, using a variety of concepts, as is typically done in geographical inquiry. The experience of many teachers has been that the absorption of geography into SOSE has meant a loss of much of the content, rigour and skills taught when geography was a separate subject. They find that students taking up geography in the final years of high school are lacking much of the basic knowledge needed for that level of study. (Erebus International, 2008, p. 6)

Recent research (Spencer & Blades, 2006) examines theories of children's perceptions of space and place and explores how these theories are applied to the world of children. Their focus is on

- children in large real world spaces
- places that children live in, explore and learn from.

These spaces and places include classrooms, playgrounds, homes and yards, towns, communities, countryside, natural environments, and the wider world.

The authors noted that young children are often excluded from discussions of place-design on the presumption of lack of awareness. They have many environmental competencies which should lead to their consideration. Young students can read maps and study photographs, respond to the natural and man-made world with great sensitivity, and contribute considerably to the community.

This research (Spencer & Blades, 2006) also recognised the importance of matching certain geographical knowledge to the age of students.

A summary of key research into students' geographical knowledge concludes that students start to acquire knowledge about their own country by the age of five. Knowledge of other countries starts to be acquired at a slightly later age, with a significant increase in such knowledge at about eight years of age.

Research also supports that the organisation of students' large scale geographical knowledge is related to their general cognitive capabilities, and the overall developmental process appears to be one in which information about salient places is first acquired on an item by item basis, followed by the subsequent integration of this information into a more coherent mental map as further information is acquired and as the child's cognitive capacities develop.

(Wildy & Smith, 2007, p. 9)

A review of primary school syllabuses in the United Kingdom (Catling, 1999, p. 61) found that there was a strong focus particularly on:

- the study and comparison of the home and distant localities, their features, human activities and changing nature; the exploration of settlements and the wider world
- investigation of the physical environment, including landscapes, rivers and the weather
- analysis of human and natural environmental change and some of the issues that arise
- participation in field work investigations and the use of maps and photographs.

Within the curriculums of the constituent countries of the United Kingdom, there are some variations. These include developing children's appreciation of the regional geography (Education Department Welsh Office, 1995) and the recognition of the role and impact, for example, of boundaries within communities, in Northern Ireland (Department of Education for Northern Ireland (DENI), 1991)).

Drawing on a critique of senior secondary geography syllabuses undertaken by the CIAG the following points are made.

1. Studies of place and community are emphasised in the earlier years of schooling, but are missing from the senior years in all jurisdictions except Western Australia. The growing knowledge of students should be regularly applied to an understanding of their own place and its characteristics and issues, and to an awareness of the significance of place in their own lives.
2. While many syllabuses include a study of economic issues in developing countries, most devote little or no time to a study of the economy of Australian localities and regions, although economic issues are central concerns of households, communities and governments. All students completing geography at high school should be able to understand the geographical aspects of the local economy.
3. There is an absence of topics such as sport and popular culture, which provide opportunities for geographical study and are of interest to teenage students. For example, a potential classroom exercise could be to get students to recommend and justify a location for a new team in one or more of the national sports codes.

4. Opportunities to undertake geographical inquiry need to be enhanced so that a geographical education enables students to develop a deep knowledge within the discipline.

A paper discussing the standards in the US Geography Education Standards Project recognised the difficulty of deciding content to include and the following section provides an outline of their ideas. (Downs, 2009)

Geography is a "big" subject; how do you decide what is most important and most enduring?

So what did we choose to include? How exactly did we make the choices? Geography is concerned with earth as the home of people. To convey that idea, we made two decisions about what to include.

First, in order to look at the world geographically, students need to integrate an understanding of subject matter with skills and perspectives. Take a simple example, someone looking at a newspaper map of tropical rain forest destruction in the Amazon Basin. To understand this map, you have to know something about cartography, how maps are put together; you have to understand spatial context (the Amazon as a river in the equatorial region of South America) and spatial scale (it is a huge area); you have to know about ecosystems and people and migration and economic development. You have to think about the spatial picture—world trade in hardwoods—and ecological perspectives—possible impacts on global climate. In reading this map, knowledge, skills, and perspectives are inseparable; that is true for all of geography.

Second, the geographical way of looking at the world is broad: it encompasses physical and human dimensions, science and the humanities, systematic and regional approaches, environment and society, considerations near and far, local to global, practical to theoretical. All of these ways of looking at the world come together in the example of the map of tropical rain forest destruction in the Amazon. Geography asks us to see connections between places, to approach questions of "where" and "why" from as many perspectives as possible. (Geography Education Standards Project, 1994)

It is worth noting the view expressed in the NCB Science Framing Paper (National Curriculum Board, 2008c, p. 7) that “a curriculum that covers an extensive range of science ideas and knowledge has the potential to treat science concepts in a superficial way as teachers attempt to cover what is expected in the curriculum. The challenge, in terms of science content, is to identify the key science concepts and focus on developing understanding and skill development rather than memorisation of a great range of knowledge.” Whilst this view relates to the science curriculum a similar observation should be considered when determining the knowledge base of the geography curriculum.

Another approach to identifying the content to be included in an Australian geography curriculum was provided in a submission from the Council of the Institute of Australian Geographers (CIAG) as follows.

The CIAG submission distinguishes between substantive and procedural knowledge. Substantive knowledge for geographers refers to knowledge about something that exists (eg places and environments) and can also reveal the essence of the geographic concept in question. Procedural knowledge in geography refers to the knowledge gained through the process of conducting an activity or task and may also refer to the use of concepts and vocabulary to gain knowledge of places

and environments. See appendix A for full text of this section of the CIAG submission. (Council of the Institute of Australian Geographers, 2009)

SUBSTANTIVE KNOWLEDGE

A. CORE TOPICS

The following topics are suggested as a common core of knowledge about the characteristics of places that students should have studied by the end of year 10. We note the NCB's comment that: 'The Board will develop a national curriculum that provides for rigorous, in-depth study and will prefer that to breadth wherever a choice needs to be made' (National Curriculum Board, 2008a, p. 7). One way to meet this requirement is to adopt the approach being advocated in the history framing paper, with overviews introducing each topic, followed by a study in depth of one or more aspects of that topic (National Curriculum Board, 2008b, p. 3).

The CIAG submission (Council of the Institute of Australian Geographers, 2009) provided the following list of core topics but noted that they were not classified under physical and human geography, as they believe that students should not be encouraged to see geography as divided in this way.

1. Place
2. The biophysical environment
3. Biophysical environment and human life
4. Environmental change and sustainability
5. Settlement
6. Economy and employment
7. Population
8. Community and welfare

The CIAG continued by saying that a theme common to all these topics is that of change: how the characteristics of places are changing, how these changes can be explained and understood, and the effects of these changes. This could lead to a consideration of reasoned scenarios of the future characteristics of places.

In studying this content students should apply their growing knowledge and skills to an understanding of a variety of places. These should include a student's own place, and other places around the world with which the student's own place is connected through environmental processes, population movements, trade and investment, tourism, cultural influences and political relationships, or which illustrate particular aspects of geography. They should include a balanced selection of examples from around the world, for the aim of the syllabus should be to teach students about the world, and not just Australia. In the teaching of selected places, it will be important to avoid the two 'place study traps' identified by Johnston. These are '... to cover the required places as

a unique catalogue of facts and information (the singularity trap) or to see places only as examples for thematic work (the generalisation trap). ... It may be a very real danger, for instance, that Japan is studied only as an example of economic success, that Brazil is merely the background for rain-forest studies, and that Bangladesh is seen as the example of a Third World country coping with flood hazard' (Rawling, 1996, p. 261).

The geographical aspects of Indigenous Australians could be integrated into each of these topics, for example with discussion of Indigenous conceptions of place in Topic 1, Indigenous perception of and use of the environment in topic 3, Indigenous alteration of the environment in topic 4, the Indigenous economy in topic 6, Indigenous population distribution and trends in topic 7, and Indigenous welfare in topic 8.

The CIAG suggest that core topics should form no more than half the curriculum and time should be left for optional topics, developed by teachers, which extend or develop the core material and allow students to study in depth. (Council of the Institute of Australian Geographers, 2009)

B. OPTIONAL TOPICS

These could be:

- additional thematic topics that are likely to interest young people, like sport, recreation, fashion and popular culture, all of which can be studied geographically
- in depth studies of the processes that are changing places, such as globalisation, cultural change, migration, technology, climate change or land degradation
- integrated studies of types of places, such as coastal areas, suburbs, city centres, irrigation regions, arid environments or mining areas
- applied studies such as the planning and management of water resources or large cities
- topics with a vocational orientation, such as tourism, business, catchment management or GIS
- in depth studies of core content, such as natural hazards and uneven development.

These topics will vary from school to school, depending on the location of the school and the interests of its teachers and students. However, the CIAG cautions that the selection of 'global issues' topics should be balanced by topics on local issues and themes, as an undue emphasis on global problems can divert attention from the local problems that students will soon have some responsibility for as citizens. (Council of the Institute of Australian Geographers, 2009)

THINKING GEOGRAPHICALLY

A submission stated that to 'think geographically' involves the use of inquiry methods, questions and concepts to gain substantive geographical knowledge. Students who can 'think geographically' will have:

- a knowledge of ways of collecting and analysing spatial information¹⁴
- an ability to evaluate evidence, identify cause and effect relationships, and construct explanatory frameworks
- a knowledge of the different ways that the characteristics of places, the differences and similarities between places, and the spatial distribution of phenomena can be understood and explained
- an understanding of the significance of scale in explanation
- an ability to integrate explanations
- an understanding of the concepts that geographers use to order knowledge, frame questions and interpret answers
- an understanding of how and why places change
- an ability to identify and explain the opportunities that environments provide, and the constraints they set, for economic activity and population settlement
- an appreciation of the significance of location
- an ability to think spatially and to use spatial analysis to answer questions
- an awareness of place and its significance in people's lives
- an ability to use their knowledge to analyse problems and develop and evaluate possible solutions
- an ability to construct and evaluate scenarios of alternative futures
- informed attitudes and values towards places, environments and human well-being.

PROCEDURAL KNOWLEDGE

Procedural knowledge can be defined as knowledge of the perspectives, questions, methods and skills that geographers use to gain new substantive knowledge, and of the concepts they use to organise and make sense of that knowledge. The components of procedural knowledge in geography are described below through an outline of the stages of geographical inquiry. In schools a typical sequence is to ask 'what', 'where', 'why', and 'so what'. One submission suggested an alternative sequence of questions: 'what', 'where', 'why there', 'why care'. It was explained in this response that the 'why care' question allows students to empathise with other people's views.

¹⁴ One submission noted that many disciplines compare and analyse data, however, geography does so using spatial analysis and therefore data must be collected with spatial characteristics attached.

Selecting the object of study

Geographical inquiry starts with identifying some place, phenomenon or problem to study. In school education students should have the opportunity to consider how these choices are made. What is geographically ‘significant’ about something that makes it worth studying? What places, phenomena and issues rank as ‘significant’, and why? (Catling & Taylor, 2006). Students could also have the opportunity to influence what is studied, but only if they can explain what makes their suggestion ‘significant’, and to whom.

Data collection

This stage involves the collection of quantitative and qualitative data about the object of study, through observation, measurement, monitoring or interviews; from maps, air photos and satellite images; from primary documents such as reports; or from secondary sources such as the Census. Fieldwork is a particularly important component of geographical inquiry. This stage answers the ‘what’ question.

The stage can be extended to include an examination of how we know ‘what’, which involves the evaluation of evidence, an awareness of different ways of knowing, and an understanding of the contestability of knowledge. In geographical education it is particularly important to challenge students’ existing and often stereotyped perceptions, perspectives and imaginations, especially of other places and other peoples.

Data analysis

The information collected can be analysed in a search for patterns, regularities and associations using a range of quantitative and qualitative methods, including cartographic analysis and Geographic Information Systems techniques.

Understanding and explaining

Understanding and explaining ‘why’ involves asking questions. The ones listed below encompass the main questions that geographers ask when searching for an understanding and explanation of the phenomena that they study, which could be the characteristics of a place, a problem or issue in a place, or the spatial distribution of phenomena across places. The significance of these questions is that they guide students to examine phenomena and issues from a domain specific geographical viewpoint. This viewpoint may be expressed as a ‘why here?’ question rather than simply as a ‘why?’ question.

1. To what extent can the object of study be explained by its location, such as the effect of relative location on the economy, or of absolute location on climate? This is the ‘where’ question, used as an explanation rather than simply as a fact. Other questions might be based on contemporary ideas about space, for example absolute space, material space, representation of space and lived space.
2. To what extent can the object of study be explained by its interrelationships with other phenomena in the same place? This method has several long-established traditions:

- Study of the relationships between the components of the biophysical environment, such as the effects of rainfall on vegetation, and the processes that are involved in these relationships.
 - Study of the influence of the biophysical environment on human life, such as the effects of environmental resources on economic activity.
 - Study of human alteration of the biophysical environment.
 - Study of the relationships between the human characteristics of a place, such as the effects of economic conditions on population mobility, or of culture on economic activity, or of high levels of unemployment on the life opportunities of children. This approach may emphasise the differences between people of different class, race, gender or culture.
 - Investigating the influence of specific variables, such as rainfall or culture or policy, through a comparison of one place with others that differ in one or more key characteristics, or have developed different responses to similar problems.
3. To what extent can the object of study be explained by its interrelationships with phenomena and events *in other places*, such as the effects of air pollutant transfer on vegetation and human health, of drought on migration, of trade on regional economies, or of unequal relationships of power with people and institutions in other places? This might also involve the other ways of studying interrelationships such as spatial association, spatial interaction, place and the politics of identity.
 4. To what extent can the object of study be explained by the interaction of regional, national or supranational factors, such as the dominant political and economic ideologies or structural conditions like capitalism and patriarchy, with local environmental, economic and social conditions? This and the next question introduce the role of scale, an important component of geographical inquiry as investigating phenomena at different scales can uncover a range of explanations.
 5. To what extent can the object of study be explained by the interaction of global processes, such as climate change, technological development and globalisation, with local environmental, economic and social conditions?
 6. To what extent can the object of study be explained the spatial distribution across places of individual phenomena, such as rainfall or manufacturing? For example, spatial regularities, such as the distribution of rural settlements, can be used to explain the characteristics of individual places by their position within a spatial pattern. Similarly, the mapping of spatial variations in slope, soil drainage and vegetation may reveal the interrelationships between these phenomena.

7. To what extent can the object of study be explained by individual, group or organisational geographical behaviour¹⁵, such as decisions to locate an enterprise, or regulate the use of the biophysical environment, or move to a new place, or implement a plan, or challenge that plan, or attract inward investment? How are these decisions and choices constrained by the context in which they are made? One submission suggested that opportunities should be provided for students to consider alternatives to behaviourist explanations.
8. To what extent can the object of study be explained by the different ways that it is perceived, defined, constructed or represented by different people? This could include comparisons of the perceptions and representations of women and men, Indigenous peoples and immigrants, farmers and environmentalists, developers and residents, children and adults, and people in developed and developing countries. Do some groups have the power to ensure that their representation is dominant, and what are the consequences of this?
9. To what extent can the object of study be explained by the way it has developed over time? In physical geography the time span for these studies can be the length of geological time but mostly covers the Quaternary Period, while in human geography the time span may be only a decade, or as far back as there are historical and archaeological records.

In looking for answers through these questions students learn to evaluate evidence, identify cause and effect relationships, understand the structure of the environmental, social, economic and political processes that link phenomena, and construct models and explanatory frameworks. They should also learn how to integrate the answers to these questions. An influential review of geography in the United States argued that:

Places are natural laboratories for the study of complex relationships among processes and phenomena. Geography has a long tradition of attempting to understand how different processes and phenomena interact in regions and localities, including how an understanding of how these interactions give places their distinctive character (Rediscovering Geography Committee, 1997, p. 30).

The geography curriculum should be explicitly designed to foster this integration.

Evaluating

The next stage of geographical inquiry involves asking the ‘so what’ question. Does what is observed or identified matter? What makes something a ‘problem’ that should be addressed? This question can be asked in several ways.

1. Is ‘place’ important in people’s lives and identity?

¹⁵ Geographical behaviour is defined as behaviour that changes or maintains some characteristic of a place. This includes the locating, relocating or closure of activities and the movement of people between places.

2. Where place-based problems like land degradation or regional poverty are identified, do they matter, and if so why and to whom?

3. What are the environmental, economic, social and political consequences of spatial distributions across places and spatial inequalities between places? For example, what are the environmental consequences of Australia's distribution of population? What are the implications of national and global spatial inequalities in economic and social welfare, or of regional inequalities in service provision?

An integral part of this area of geographical inquiry is for students to reflect on their attitudes towards particular issues, such as environmental sustainability, spatial inequality, and diversity, a question addressed elsewhere in this report.

Applying geographical understanding

The knowledge and understanding gained through geographical inquiry can be applied to current problems and issues in several ways. One is to examine how a place is changing, and how the changes identified could be best managed, an exercise that includes evaluating the objectives of this management. Another is to apply geographical understanding and skills to a range of place-based, environmental, spatial or locational issues, such as environmental management, urban planning, the location of facilities, regional disadvantage and poverty, and housing. These are not just technical matters, but can also be approached from the perspective of Question 8 above to, for example, examine how different groups frame issues in different ways, and how these differences influence the way problems are managed. A third is to apply geographical knowledge to an examination of alternative futures, such as by constructing and evaluating scenarios of the future for a range of geographical topics, and determining how a preferred outcome could be achieved. Students' assessment of alternative scenarios or policies could be based on the three criteria of environmental sustainability, economic benefits and costs, and social equity.

Presenting

This stage involves the presentation of the outcomes of study in a wide variety of forms. In geography graphical and cartographic forms of presentation are particularly well developed. The use of ICT to present data when answering geographic questions is particularly relevant.

Concepts

Whilst concepts are discussed elsewhere in this report, their specific role in shaping procedural knowledge is discussed below.

The concepts used to order, investigate and understand phenomena are another aspect of procedural knowledge in geography. Following (Taylor, 2008, p. 54) this section focuses mainly on what she calls 'second order concepts', those which '... can be used to organise geographical content and ... mobilised to ask geographical questions across the whole range of geography content, physical and human.' These are distinguished from 'substantive' concepts like climate, which apply to specific areas of geography. The criterion for selection in the list in Table 1 is that the concept must relate to the questions outlined above, as a major role of a concept is to help frame questions and interpret answers. Probably all of them are shared with other subjects, such as the 'big ideas of

science’ identified in the framing paper for a national science curriculum (National Curriculum Board, 2008c) but the way some of them are used in the questions is more specifically geographical. The selection differs from some of the lists in Australian school curriculums in that it is not confined to spatial concepts.

Table 1: Key concepts in geography

Major concept or ‘big idea’	Related concepts
Order	Classification; generalisation; pattern; association; similarity
Diversity	Difference; uniqueness
Explanation	Evidence; hypothesis; model; cause and effect; ways of knowing; process
Place	Region; landscape
Location	Absolute and relative location; proximity and distance; real and perceived distance; centrality and remoteness; time-space convergence/compression
Environment	Biophysical environment; nature; environmental resources; ecosystem services; environmental opportunities and constraints; environmental sustainability; sustainable development
Space	Spatial distribution; networks; clustering and dispersion; agglomeration; spatial inequality; uneven development; regional comparative advantage
Interaction	Movement; flows; connections; links; interrelationships; systems; cycles; regional multiplier
Scale	Local-global interrelationships
Change and continuity	Prediction; projection; scenario
Behaviour	Decision-making; structure and agency; power
Perception	Perception; representation; construction; imagination
Culture	Values and attitudes

ROLE OF PROCEDURAL KNOWLEDGE IN GEOGRAPHY CURRICULUM

Procedural knowledge is important in distinguishing geography from other subjects. This differentiation can be achieved by applying one or more of the methods of inquiry below to the material being taught. For example, in teaching about climate change in Australia a geography teacher should not only ensure that students understand some of the science underlying climate change, but also examine how different places in Australia will be affected in different ways by climate change (Method 8 shown in 'Approaches to the study of places' below), and the potential influence of these differences on the spatial distribution of agriculture and population, and on the populations of cities like Perth, Adelaide and Melbourne (Method 2 shown below). Method 6 (shown below) could be used to compare the policy responses to drier climates in these cities with those in other cities around the world, while with senior students Method 9 could be used to examine the different viewpoints on climate change and its causes, and the different opinions on how to manage climate change within and between nations.

Procedural knowledge in geography comprises the methods of inquiry and types of explanation described below.

A. APPROACHES TO THE STUDY OF PLACES

Students should undertake geographic inquiry using a variety of approaches to the study of places. Examples include:

1. interrelationships between the elements of the biophysical environment
2. the influence of environmental resources on human settlement and economic activity
3. causes and consequences of human alteration of the biophysical environment
4. interrelationships between the human characteristics of place
5. relationships between phenomena in different places
6. comparative analysis of places
7. spatial distributions and variation of the same phenomenon across a number of places
8. local and regional effects of global processes
9. perceptions and experiences of geographical phenomena by different groups of people.
10. change over time of the characteristics and spatial distribution of places.

B. TYPES OF EXPLANATION

Contemporary geography has a variety of ways of trying to explain phenomena, as well as a variety of opinions on what explanation actually means. They ask different questions, provide different answers, and lead to different solutions or to no solutions at all. Whilst teachers need to be aware that there are different approaches to explanation they should be selectively introduced to students at senior levels.

Responses from forums and online submissions overwhelming referred to substantive knowledge.

- The escalation and constant change in the body of geographical knowledge requires a command of those skills needed to acquire knowledge contextual to particular geographical questions.
- In times of economic difficulties, there has been no economic geography in Years 11 and 12 for 30 years. Similarly, there has been little political geography and no electoral geography while a study of a region or regions has disappeared. Further, in a time of discussions of food sources and cholera in Zimbabwe, few students will study agricultural geography or medical geography.
- When considering transport at different scales, we must include a component of transport geography that may cover local issues where we plan for cyclists, pedestrians and cars, to the national scale where we discuss the future of rail transport, to the global issues of international trade.
- Contemporary issues that are 'in the news' and which are discussed and debated widely in the community.

SURVEY RESPONSES

An analysis of survey responses indicated that most provided lists of topics across of the breadth of geography, followed by topics that were specifically about physical geography, regional geography, issues-based topics and human geography.

One submission made a strong point for the inclusion of Australian-related content.

- Australia's place geography
- Australia's unique physical environment
- natural hazards in Australia
- the unique characteristics of Australia's human/cultural environment
- the changing economic character of Australia and how this impacts on communities
- factors causing change in Australian communities
- geographical issues affecting Australian communities
- Australia's geographical links with the Asia-Pacific region and the world.

An example of another response that listed a number of areas of substantive knowledge is provided below.

Content should be selected from:

- the location of significant places: all the continents and the oceans, and many of the major seas, regions, countries and cities of the world, as well as a knowledge of Australia's states,

territories and capitals, many of its major natural features, and its near neighbours in the Asia Pacific region; knowledge of their local region

- a knowledge and appreciation of the diversity of cultural aspects: level of development and living conditions of people around the world
- the diversity of land use: different types of land use, urban and rural land use, the factors affecting the patterns of land use, settlement patterns, the built environment, urbanisation
- the rudimentary concepts of the earth's rotation and orbit, and its impact on our measurement of time, time zones, seasonality and climate
- the major climatic zones of the world, and the factors affecting climate and weather
- the major ecosystems of the world
- biodiversity, forests and their natural services, the carbon cycle
- the water cycle and river catchments
- coastal processes
- plate tectonics, the rock/soil cycle, earthquakes and volcanic activity, mountain building; erosion and weathering
- natural disasters/hazards: the causes and consequences of natural hazards and extreme weather events, responses to natural disasters
- natural systems: how they operate, impacts on natural systems, including climate change, pollution, ozone depletion, land degradation, species loss, the degradation of selected ecosystems, managing environmental problems
- population studies: population growth and dynamics, migration, indigenous Australians, issues relating to rapid population growth and an ageing population, responding to population issues
- development studies: the global distribution of wealth, variations in living standards, the causes and consequences of poverty, how countries develop; globalisation, sustainable development
- resource development and use: water, fossil fuels, primary and secondary resources, sustainable use of resources.

One respondent indicated that it is important that content should be selected so that it matches the social and cultural development of the student.

Participants at the consultation forums and in the online surveys were asked to list topics that engaged students and those that do not. It was apparent that student attitudes towards certain topics were often influenced by local factors, for example differences in the manner in which individual teachers taught a topic may influence student's enjoyment more than the content of the

topic. In other cases, it appeared that some topics were less popular in a particular state than elsewhere.

HOW SHOULD THE NATIONAL GEOGRAPHY CURRICULUM BE ORGANISED?

It is recognised that there are different ways of organising the geography curriculum. Survey respondents and consultation forums considered the use of topics and concepts. In this section alternative approaches of organising the geography curriculum are presented. These have been drawn from submissions, consultation forums and respondents to the online survey along with examples drawn from overseas documents and academic papers. A discussion of the organisational underpinnings of NCB's Framing Paper for history is introduced. In addition, an example of how the NCB's Framing Papers for science could be applied to the geography curriculum. Finally outlines are presented of approaches to organising the geography.

ORGANISATION USING CONCEPTS AND TOPICS

Responses at discussion forums and online surveys presented no clear preference for the organisation of the geography curriculum to be based on concepts rather than topics.

Those who favoured the use of concepts said that they provide more flexibility to adapt to local situations, use of existing resources and to be applied at different scales. Others suggested that the use of topics also provide this flexibility as well.

The preference for using concepts to organise the geography curriculum was expressed by some respondents in the following manner.

A conceptual approach is the only way to give the subject congruence, consistency and integrity. Topic-based Geography is one the key reasons why the subject has declined in recent years — the subject becomes a social-issues 'catch-all' subject which allows non-specialists to teach everything and anything and leaves students with no sense of what Geography is really about.

We need to have a sense of progression to allow for the learning process in children to develop and grow as they get older. Concepts are an easier way to organise a structure. It is easier to assess, set work and visit topics at different stages of a student's learning. Teachers can use concepts to set bench marks.

For example when using the concept of 'rivers'. A Year 1 student can recognise rivers in a photograph and draw them. They can make deductions about how big they are and how deep they might be. Year 12 students can make the same deductions as the year 1 student but they may also understand how rivers differ by measuring its hydraulic radius, they may also know how to do further tests in order to assess the risk of flooding.

It is noted that the use of the concept of 'river' in the above example is not used as a second level organising concept as discussed in an earlier section of this report. One respondent noted that care needs to be taken to ensure that the concepts used are appropriate to the year level of the students.

Those favouring topics referred to this approach as being more accessible, more relevant and providing a greater chance of engaging students. In the view of one respondent topics are preferred because they make it:

- clearer what has to be taught

- easier for teachers, especially if new to the subject matter or if the teacher is inexperienced.

However, they also felt that topics should not be too prescriptive and that teachers should be allowed to explore approaches which suit their classes. The GTAV submission to the Erebus Report (Erebus International, 2008, p. 54) noted that “the subject should not avoid the sometimes depressing nature of topics they are studying, but develop a balanced approach and an optimistic outlook in their students. For this reason it is important for students to investigate how to respond to phenomena.”

Barrie McElroy notes in an AGTA publication that “The study of geographical topics can or should involve the investigation of disputes about the allocation, location, relocation or use of space, places and environments on the surface of the Earth.” (McElroy, 1986, p. 104)

Topics for investigation listed in the paper included:

- Local and human issues
- The environment
- Planning issues
- Equity geography
- Resource allocation studies
- Geographical theory and models.

Other respondents favoured a curriculum structure based on topics and concepts because it enables students to make sense of geographic ideas and gives them a framework for developing their skills and knowledge. It was also suggested that using both enables concepts to minimise rote learning of a content based curriculum whilst the use of topics provide teachers with a structure.

ORGANISATION USING GEOGRAPHIC QUESTIONS AND/OR TASKS

A different point of view from a respondent suggested that the organising structure should be one that has a central framework of questions such as *Where? Why? Who? What, What if? . . .* and that these questions should be linked to *spatial concepts*. So **location** is linked to *Where?* while **spatial interaction** and **spatial association** may be linked to *Why?*¹⁶

This respondent continues to say that the order in which questions may be asked will differ but the structure offered by these questions can be assigned to small work units of (say) several periods and/or may relate to large work units that cover several weeks. The use of spatial concepts as an organising structure is not conducive to an interesting curriculum.

The Geographical Association presents a similar approach in their *Teaching Geography is Fundamental (TGIF)* statement (Geographical Association, 2008a, p. 12).

¹⁶ See Biddle and Dear, *Readings in geographical education volume 2*.

Geography can engage with young people's fundamental curiosity and questions. These questions¹⁷ can all be addressed geographically:

- *Identity:* Who am I? Where do I come from? Who is my family? What is my 'story'? Who are the people around me? Where do they come from? What is their 'story'?
- *Place in the world:* Where do I live? How does it look? How do I feel about it? How is it changing? How do I want it to change? Can I influence this?
- *The Physical world:* What is the world (and this place) made of? Why do things move? What becomes of things?
- *The Human world:* Who decides on who gets what, and why? What is fair? Who decides? How do we handle differences of opinion?

A similar structure was suggested in the CIAG submission. (Council of the Institute of Australian Geographers, 2009)

How the teaching and learning of this material should be organised is not a matter on which the Council has a firm view. However, it may be more effective for student learning to integrate the elements of each topic around questions or problems, using an inquiry-based or problem-based learning method,¹⁸ than to teach blocks of content. The questions or problems could be specified in the curriculum, or left to teachers to devise in ways that best suit their students. However, teachers using an inquiry-based approach must ensure that adequate time is devoted to gaining an understanding of the basic environmental and human processes that are involved in the question or problem. The OCR (Oxford, Cambridge and RSA Examinations) topic GCSE¹⁹ in Geography A J380 shown below provides an example of a curriculum document that seems to achieve this goal.

Unit A671: Extreme Environments

The following questions will be considered:

- What do we know about them and how do people react to them?
- Where are they found?
- What are they like?
- How do people use them?
- What challenges do they pose?

¹⁷ The questions are adapted from research work undertaken by Howard Gardner (Gardner, 1999)

¹⁸ See Davidson (2002); Naish, Rawling and Hart (2002), and Pawson et al. (2006).

¹⁹ The General Certificate of Secondary Education (GCSE) is an academic qualification taken by students aged 14-16 in secondary education in England, Wales, and Northern Ireland.

Unit A672: You as a Global Citizen – the impact of our decisions

Task 1: Investigate how consumer decisions may have a positive or negative impact on people.

Task 2: Investigate a local retail area.

Unit A673: Similarities and Differences

1. Study of a location in the UK ('your place') considering the following questions:

- What constitutes 'your place'?
- How is it represented, seen and experienced by others?
- What are the major issues affecting your place?
- How does your place fit within the UK as a whole?

2. Study of a non-UK location considering the following questions:

- How is that place perceived?
- What are the similarities and differences with 'your place'?
- What are the links with 'your place' and your non-UK location?
- What might the future hold for your two chosen locations?

Unit A674: Issues in our fast changing world

Global Issues covered in this unit will be dealing with the following:

- Population change
- Our changing planet (global climate change and change through natural events)
- Trade, aid and superpowers
- The challenge of planning (urban, transport, food, water, leisure).

*The CIAG submission emphasises that geography is a study of the real world, and concepts are used to observe, order and explain geographical phenomena. **Concepts should therefore be applied to the study of these phenomena in topics, and not be used as the organising structure of the curriculum.** This does not prevent a teacher from using a concept to understand one topic, and then developing a deeper understanding of that concept by applying it to a different topic.*

STRUCTURE USING GEOGRAPHIC ELEMENTS

The National Geographic Standards (Geography Education Standards Project, 1994) provide a way of organising a geography curriculum using six elements and a set of standards. The six elements are:

1. The world in spatial terms

2. Places and regions
3. Physical systems
4. Human systems
5. Environment and society
6. The uses of geography

ORGANISATION USING THE 'FOUR TRADITIONS' OF GEOGRAPHY

A framework that can be used for organising content based on Pattison's four traditions of geography is shown below (Pattison, 1964).

1 – SPATIAL TRADITION (ALSO CALLED LOCATIONAL TRADITION)

- Mapping
- Spatial analysis
- Boundaries and densities
- Movement and transportation
- Quantitative techniques and tools, such as computerized mapping and Geographic Information Systems
- Central Place Theory
- Areal distribution
- Spatial patterns

2 – AREA STUDIES TRADITION (ALSO CALLED REGIONAL TRADITION)

- Description of regions or areas
- World regional geography
- International trends and relationships
- How regions are different from one another
- The chorographic tradition (regions)

3 – MAN-LAND TRADITION (ALSO CALLED HUMAN-ENVIRONMENTAL, HUMAN-LAND, OR CULTURE-ENVIRONMENT TRADITION)

- Human impact on nature

- Impact of nature on humans
- Natural hazards
- Perception of environment
- Environmentalism
- Cultural, political, and population geography

4 – EARTH SCIENCE TRADITION

- Physical geography
- The lithosphere, hydrosphere, atmosphere, and biosphere
- Earth-sun interaction
- Offshoots are geology, mineralogy, palaeontology, glaciology, geomorphology, and meteorology
- The study of the earth as the home to humans

ORGANISATION BASED ON NCB FRAMING PAPERS

An adaptation and summary of the elements used in NCB's History Framing Paper (National Curriculum Board, 2008b) to organise the curriculum is applied to geography below.

The curriculum should provide:

- overview components will use organising concepts to help students understand broad geographical patterns and processes
- bridging components will provide a context for closer studies in depth

depth studies will provide students with the opportunity to bring the skills of geographical understanding to bear on geographical themes of particular significance.

In addition it should provide:

- a sequence of learning, building on and consolidating earlier studies, but avoid excessive repetition
- substantial and flexible program
- a rich and descriptive to guide teachers with limited experience, but avoid excessive prescription that would hamper experienced and able teachers from exercising their skills
- clearly expressed guidelines
- for differences in interests, capabilities and future pathways of students

- components offering the opportunity for able students to undertake more advanced studies.

It is worthwhile noting a comment from an online survey that “Engagement by students is important but we must lead them to worthwhile topics at local, regional and global scale, not hope their own self interest will motivate them. This will perpetuate the self centred, in depth studies of a limited number of peripheral topics.” The GTAV submission to the Erebus Report (Erebus International, 2008, p. 53) made the point that “there should be scope for the study of case studies so that students can study some topics in detail”.

In a similar manner the NCB’s Science Framing Paper (National Curriculum Board, 2008c) has been adapted to three interrelated elements²⁰ of the geography curriculum.

Geographical understanding: Understanding of geographic concepts and explanations enables people to explain and predict natural and human phenomena and to apply that knowledge and understanding to new situations and events. These concepts and explanations are drawn from physical and human geography.

Geographical inquiry skills: Geographical inquiry consists of posing questions, data collection, analysis, presentation and communicating findings. Geographical inquiry is concerned with evaluating competing claims about issues from different groups and individuals. It also recognises that geographic issues change as new or different circumstances arise.

Geography and society: Geography relates to society through its investigation of social and ethical issues. Societal challenges and socio-political priorities influence the direction and development of geographic inquiry. This element highlights the need for informed, evidence based decision making about current and future social and environmental issues. It acknowledges that in making decisions about these issues their practices, moral, ethical and social implications should be considered.

All three elements of geography are important and should occur across each stage of schooling. In delivering the geography curriculum the focus is on understanding through the development of geographical concepts.

²⁰ Drawn from Curriculum Corporation 2006 and National Curriculum Board, National Science Curriculum: Framing paper 2008 p 5.

ALTERNATIVE APPROACHES TO ORGANISING CONTENT

Examples are presented below of ways in which content might be organised. Outlines are based on the work of Erebus International, the UK geography curriculum, an adaptation of the recently published NCB Framing Papers and an approach from a submission to this project.

APPROACH 1

The Erebus International report (Erebus International, 2008) outlined the following principles to guide the organising of content that addresses the needs and interests of students. It must ensure that students:

- address knowledge, skills, attitudes and values
- understand the world around them, recognise the relationship between human activities and the environment, and know how they can act to solve perceived problems
- develop skills through practical activities and fieldwork.

These principles were applied to the following extracts from the sample curriculum for the end of primary and secondary levels. Sample curriculums for early primary and early secondary can be found in the Erebus International report (Erebus International, 2008, pp. 61-2 and 65-67).

Level 3 (late primary)			
Key Learning Outcomes	Sample content		
	Knowledge	Skills	Attitudes and values
<p>Students should demonstrate an understanding of:</p> <ul style="list-style-type: none"> • the interrelationship between people and the environment including natural cycles and natural and human changes to the environment • the interconnectedness of the Australian and global environment • how individuals and groups can interact with the environment in an ecologically responsible and sustainable way 	<p>Students should know:</p> <ul style="list-style-type: none"> • <i>how people, products and information move around the globe, including where the goods and services they use come from</i> • <i>The role of technology in shaping the characteristics of places and the importance of scale</i> • <i>some patterns of migration to Australia, ancient trade routes of Aboriginal people</i> • <i>how people's involvement in environmental areas of Australia has changed over time, e.g. human use of rainforest areas or river systems</i> • <i>how people use an environmental area in other countries</i> • <i>how human changes to the environment can have positive and negative aspects</i> • <i>The influences and effects of regional labels and images</i> • <i>The processes of cultural diffusion</i> • <i>The spatial patterns of settlements in different regions of the world</i> • <i>How cooperation and conflict among the world's people contribute to political, economic and social divisions of the Earth's surface</i> 	<p>Students should be able to:</p> <ul style="list-style-type: none"> • <i>use maps and globes to locate global and Australian reference points, e.g. hemispheres, political states, lines of latitude and longitude, mountains and oceans, physical and cultural regions</i> • <i>draws accurate sketch maps of a known area and includes title, key, scale and direction evaluates a variety of ways of addressing environmental problems in Australia and other countries</i> • <i>select and use suitable media and modes of presentation (e.g. diagrams, maps, photographs, online resources) to illustrate and present researched information (e.g. to describe the ways in which people are a part of the water cycle and dependent upon water as a resource).</i> • <i>use geographical terminology and tools to locate and investigate environments (e.g. a water catchment, soil erosion, mining of a resource, forestry) through local fieldwork or other research, individually or in groups or teams,</i> 	<p>Students should be able to:</p> <ul style="list-style-type: none"> • <i>identify the different viewpoints that may be held by groups and individuals, including Aboriginal peoples, farmers and miners, about land use</i> • <i>appreciate the need for regulations, laws and practices associated with the management and care of natural and built features and sites</i> • <i>identify their own code of behaviour as it applies to their local area</i> • <i>examine issues associated with differing values about natural and built environments, using a variety of sources, including the media</i> • <i>express a personal point of view on an environmental issue and provides supporting evidence</i> • <i>identify the views and actions of diverse individuals and groups on environmental quality and preservation of places in a particular region or landscape now and in the future</i>

	<ul style="list-style-type: none"> • some ways in which Aboriginal management of environments contributed to ecological sustainability • how some aspects of religious and other belief systems can affect the way in which groups interact with the environment, e.g. the spiritual significance of the Ganges River in India • factors that may give rise to different views about the care of places, e.g. economic circumstances, occupation, age, gender, interest in heritage • some strategies practised by governments, and various people or groups including Indigenous peoples, around the world to sustain local/global environments. 	<p>including how the issue impacts on people and other living and non-living things, and how these issues are managed</p> <ul style="list-style-type: none"> • evaluate alternative views about the use of natural and built environments, e.g. economic, spiritual, sentimental, historical perspectives • compare the relative costs and benefits of different technologies used to modify and create environments, and benefits and costs, and the interests that various groups have in combating or perpetuating a problem. • participate in the maintenance or improvement of an environment, e.g. supports bush regeneration • examine and report on the implications of interrupting or changing interactions and relationships in natural and local environments, using relevant Australian or global examples • How to apply the geographic point of view to solve social and environmental problems by making geographically informed decisions 	
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Level 5 (End of compulsory education)

Key Learning Outcomes	Sample content			
<p>Students should demonstrate an understanding of:</p> <ul style="list-style-type: none"> • the global environment, according to such factors as location, natural and built features, changing populations, employment, resources, transport and government decisions. • relationships between individuals and groups in relation to valued community resources. • skills required to access, investigate, interpret and represent information from field-work, electronic systems and other research, in order to explain local and global interactions and relationships between people and environments. • responsibilities as an Australian within the global community 	<p>Knowledge</p> <p>Students should know:</p> <ul style="list-style-type: none"> • the operation of the major natural systems that are part of the biosphere and atmosphere; for example, the hydrologic cycle, plate tectonics or the weather • the interaction of human activities with the natural environment through a study of issues such as global warming and climate change, land degradation and desertification, and air and water pollution • the challenges of, and opportunities for, global interdependence • the characteristics of development that occur across the globe • global patterns of development, considering classifications used by United Nation agencies, Non Government Organisations (NGOs) and other organisations, and evaluating the relevance of such classifications at global, national, regional and local scales • the location of some natural and cultural World Heritage sites • the importance of World Heritage listing 	<p>Skills</p> <p>Students should be able to:</p> <ul style="list-style-type: none"> • classify features of the global environment as physical or human elements <ul style="list-style-type: none"> – air – flora and fauna – soil – solar energy (heat and light) – water • record patterns of physical and human elements of environments in different continents <ul style="list-style-type: none"> – economic – political – sociocultural – agricultural – industrial • identify patterns resulting from the interaction of the physical and human environments • analyses maps to explain associations and interrelationships between features • compares map and graph data about mineral and agricultural exports of the present with those of the past, and explores reasons for change over time • describes places in Australia and elsewhere according to their location, 	<p>Attitudes and values</p> <p>Students should be able to:</p> <ul style="list-style-type: none"> • Express and justify personal views about similarities and differences between regions, in Australia and globally • identify values inherent in a plan for the development of a place or resource, and reports on outcomes on the basis of ecological sustainability. • individually, or in teams, analyse published information for background material and strategies suggested by a range of interest groups, including those promoting the valuing and protection of Aboriginal heritage • evaluate research findings sourced from electronic information to identify examples of the values promoted in this learning area 	
	<ul style="list-style-type: none"> • legal obligations of governments to the preservation of World Heritage sites • the role of individuals, groups and governments in identifying and protecting World Heritage sites • different ways of creating environments according to differing cultural values, religious beliefs, technical, economic and political systems, to help facilitate understanding of the diversity of peoples and societies on Earth and the cultural richness of humanity • The changing nature of the world (globalisation), including: <ul style="list-style-type: none"> – the role of technology in the globalisation process – examples of economic and cultural factors that are part of globalisation – the impact of globalisation at an individual, local, national and global scale – ways in which global relationships are changing as a result of globalisation – global patterns of poverty and wealth – describe global variations in the access of people to a range of essential aspects of life – the changing importance of fossil fuels, nuclear power and alternative energy sources, consequences for communities as energy supplies change 	<p>natural and built features, and population and resources. Students explain interrelationships, including the effects of human modifications.</p> <ul style="list-style-type: none"> • recognise continents using different map projections • use latitude to describe the global pattern of climate, including the spatial and seasonal change in insolation • use longitude to explain world time zones • use geographical tools (including Spatial Information Systems) to measure and record elements of the local environment • present geographical information about the local environment using a range of written, oral and graphic forms, including electronically • collect, record, organises and evaluate data from field-work, print and electronic sources, in order to analyse local and global, environmental issues. • describe the interrelationship of the environment and a specific community • draw and describe the operation of a simple ecosystem <p>explain the links between human actions and the consequences for ecological sustainability on a global scale, including the spatial dimensions of the issue the ecological dimensions of the issue different perspectives and bias about the issue, including in media reports the actions of individuals, groups and governments in relation to the issue</p>		

	<ul style="list-style-type: none"> - describe different global life opportunities and quality of life, including those based on gender • how places and natural environments are valued or threatened, and discusses strategies related to ecological sustainability. • who and what benefits and loses from change changes in environments • how diverse lobby groups (e.g. farmers' groups, mining companies, corporations such as retail giants, environmental groups) contribute to and seek to affect environmental decision making • the responsibility of government to the community and its environment 		
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* The content of the sample geography curriculum above draws from a variety of sources, including the NSW Board of Studies k-6 Human Society and Its Environment syllabus; the NSW Geography 7-10 syllabus; the Queensland Society and Environment syllabus, UK geography curricula, the Victorian Essential Learning Statements; Geography, the US National Geography Standards, 1994 Geography for Life Washington: National Geographic Research & Exploration and the Australian Geography Teachers Association 2007 paper: *Australians Need Geography*.

APPROACH 2

A simplified presentation of how the geography curriculum in the United Kingdom is organised over the three key stages is shown below.

It should be noted that the key stages 1 and 2 for primary students remain as introduced in 1999, however, a new key stage 3 for geography was introduced for year 7 secondary students in September 2008. This cohort will be the first to experience the new programs of study in year 8 (from September 2009) and in year 9 (from September 2010). In summer 2011 they will be assessed using the new attainment targets for the first time.

	Key stage 1	Key stage 2	Key stage 3
Knowledge, skills and understanding	<p>1. Geographical enquiry Students should be taught to:</p> <p>a ask geographical questions for example, ‘What is it like to live in this place?’</p> <p>b observe and record for example, identify buildings in the street and complete a chart</p> <p>c express their own views about people, places and environments for example, about litter in the school</p> <p>d communicate in different ways for example, in pictures, speech, writing.</p> <p>2. Geographical skills ...</p> <p>3. Knowledge and understanding of places ...</p> <p>4. Knowledge and understanding of patterns and processes ...</p> <p>5. Knowledge and understanding of environmental change and sustainable development ...</p>	<p>1. Geographical enquiry Students should be taught to:</p> <p>a ask geographical questions for example, ‘What is this landscape like?’, ‘What do I think about it?’</p> <p>b collect and record evidence for example, by carrying out a survey of shop functions and showing them on a graph</p> <p>c analyse evidence and draw conclusions for example, by comparing population data for two localities</p> <p>d identify and explain different views that people, including themselves, hold about topical geographical issues for example, views about plans to build an hotel in an overseas locality</p> <p>e communicate in ways appropriate to the task and audience .</p> <p>2. Geographical skills ...</p> <p>3. Knowledge and understanding of places ...</p> <p>4. Knowledge and understanding of patterns and processes ...</p> <p>5. Knowledge and understanding of environmental change and sustainable development ...</p>	<p>1. Geographical enquiry Students should be taught to:</p> <p>a ask geographical questions for example, ‘How and why is this landscape changing?’, ‘What is the impact of the changes?’, ‘What do I think about them?’ and to identify issues</p> <p>b suggest appropriate sequences of investigation for example, gathering views and factual evidence about a local issue and using them to reach a conclusion</p> <p>c collect, record and present evidence for example, statistical information about countries, data about river channel characteristics</p> <p>d analyse and evaluate evidence and draw and justify conclusions for example, analysing statistical data, maps and graphs, evaluating publicity leaflets that give different views about a planning issue</p> <p>e appreciate how people’s values and attitudes for example, about overseas aid, including their own, affect contemporary social, environmental, economic and political issues, and to clarify and develop their own values and attitudes about such issues</p> <p>f communicate in ways appropriate to the task and audience</p> <p>2. Geographical skills ...</p> <p>3. Knowledge and understanding of places ...</p> <p>4. Knowledge and understanding of patterns and processes ...</p> <p>5. Knowledge and understanding of environmental change and</p>

			sustainable development ...
Breadth of study	<p>6. During the key stage, students should be taught the Knowledge, skills and understanding through the study of two localities:</p> <p>a the locality of the school</p> <p>b a locality <i>either</i> in the United Kingdom <i>or</i> overseas that has physical and/or human features that contrast with those in the locality of the school.</p> <p>7. In their study of localities, students should:</p> <p>a study at a local scale</p> <p>b carry out fieldwork investigations outside the classroom.</p>	<p>6 During the key stage, students should be taught the Knowledge, skills and understanding through the study of two localities and three themes:</p> <p>Localities</p> <p>a a locality in the United Kingdom</p> <p>b a locality in a country that is less economically developed</p> <p>Themes</p> <p>c water and its effects on landscapes and people, including the physical features of rivers for example, flood plain or coasts for example, beach, and the processes of erosion and deposition that affect them</p> <p>d how settlements differ and change, including why they differ in size and character for example, commuter village, seaside town, and an issue arising from changes in land use for example, the building of new housing or a leisure complex</p> <p>e an environmental issue, caused by change in an environment</p> <p>7 In their study of localities and themes, students should:</p> <p>a study at a range of scales – local, regional and national</p> <p>b study a range of places and environments in different parts of the world, including the United Kingdom and the European Union</p> <p>c carry out fieldwork investigations outside the classroom.</p>	<p>6 During the key stage, students should be taught the Knowledge, skills and understanding through the study of two countries and 10 themes:</p> <p>Countries</p> <p>a two countries in significantly different states of economic development, including:</p> <p>i the regional differences that exist in each country and their causes and consequences</p> <p>ii how and why each country may be judged to be more or less developed</p> <p>Themes</p> <p>b tectonic processes and their effects on landscapes and people</p> <p>...</p> <p>7 In their study of countries and themes, students should:</p> <p>a study at a range of scales – local, regional, national, international and global</p> <p>b study different parts of the world and different types of environments, including their local area, the United Kingdom, the European Union and parts of the world in different states of economic development</p> <p>c carry out fieldwork investigations outside the classroom</p> <p>d study issues of topical significance.</p>

(Department for Education and Employment and Qualifications and Curriculum Authority, 1999)

APPROACH 3

The NCB’s Science Framing Paper (National Curriculum Board, 2008c, p. 10) could provide a starting point for a similar approach to organising the geography curriculum as shown below.

	Curriculum focus	Source of interesting questions and the related geographical understandings	Relevant big ideas ²¹	Organising concepts, skills and contexts	Topics (providing an overview)	Topics (providing in-depth study)
Stage 1	Awareness of self and observing, comparing, classifying and describing phenomena in the local area	Everyday life experiences in the local area ²²	Order Connections	Fieldwork, ICT skills and key geographic concepts applied at all stages of schooling	What it is like in my local area	My local creek or river
Stage 2	Recognising patterns of phenomena at different scales ²³ and making generalisations	Wider area of experience of importance to primary school students	Organisations Interactions Interconnectedness		Patterns of settlement	Links between places in your state/territory
Stage 3	Explaining patterns of phenomena and the processes involved by applying concepts ²⁴ , skills and using the methods of	Simple everyday geographical phenomena and the major concepts that shape the personal and public worlds of adolescents	Energy Consumption Conservation Evidence and explanations Cycles		Water as a renewable resource	Use and management of water in the Brisbane River catchment

²¹ We also need to understand how the big ideas in geography work. The power of geography is that it enables children and young people to organise ideas and information (Geographical Association, 2008a).

²² Young people’s lives: using their own images, experiences, meanings and questions; ‘reaching out’ to pupils as active agents in their learning (Geographical Association, 2008a).

²³ Scale: the ‘zoom lens’ through which the subject matter is ‘seen’, and the significance of local, regional, national, international and global perspectives (Geographical Association, 2008a).

²⁴ A useful guide to the use of nine spatial concepts is presented in (Jones, 2008, pp. 48-58).

	inquiry					
Stage 4	Evaluating geographic issues, using the criteria of (1) environmental quality and sustainability, (2) economic outcomes, and (3) social equity Analysing geographical issues, proposing responses and evaluating them.	Broad range of more complex geographical issues	Environmental quality Sustainability Social equity Interdependence ²⁵ Resource depletion Globalisation Futures		Human impact on the biophysical environment	Population pressure on coastal areas of Australia at present and in the future

Each of the stages shown above can incorporate aspects mentioned in earlier stages and should not be considered as exclusive to a particular stage. The Erebus Report (Erebus International, 2008, p. 53) made the following observations which whilst not specifically related to particular stages of schooling, do address some of the key ideas shown above.

- The curriculum must display a progression of knowledge and skills which begins early in students' school years and is built upon, year by year, taking into consideration the cognitive development of the child and their intellectual capacity at various stages of their life. An outline of the basic knowledge and skills to be taught at different year levels must therefore be clearly articulated in curriculum documents;
- there must be some flexibility within the curriculum to allow teachers to develop courses relevant to their students and to their own geographic setting²⁶;
- the teaching of skills should be integrated into course content;
- fieldwork is essential to the study of geography;
- teachers must be supported in adopting ICT applications, including GIS, in their geography classrooms;
- students should have opportunities to investigate their own local environment, as well as develop regional, national and global perspective to phenomena.

²⁵ Interdependence: crucially, linking the 'physical' and 'human' and developing the emerging concept of 'sustainable development' (Geographical Association, 2008a).

²⁶ The national geography curriculum must recognise that students will be studying in Australia and some will also be at overseas locations.

APPROACH 4

One submission presented an alternative approach for organising the geography curriculum based on the study of places. This submission argues that an understanding of its structure is dependent upon such things as a consideration of the definition of geography, perspective used and assumptions about the student. The approach shown in the table below is one way, in which a geography curriculum from K to 12 could be developed, starting with assumptions about the interests and capabilities of the student, and using these to determine the focus of the curriculum at each stage. The submission argues that the characteristics of a place can be understood through a variety of geographical types of investigation, or perspectives such as locational perspective—the influence of the location of a place on its characteristics; integrative perspective—how various phenomena and processes interact within a place to create its unique including the study of the interrelationships between people and their environment; and spatial perspective—how the characteristics of a place are influenced by phenomena in other places, or by the spatial distribution of phenomena across places.

This approach is based on defining geography as the study of places. The reasons for selecting this definition include:

- it is a simple statement, equivalent in style to those for other subjects in the school curriculum (e.g. history is ‘the study of the past’, physics is the study of ‘energy, matter and their interrelationships’)
- it is a definition that should be understood at an elementary level by students, parents, principals and the community generally
- it provides scope to teach a wide range of topics, from landforms to sport
- it incorporates the definitions of geography as the study of the earth’s surface, because the earth’s surface constitutes some of the characteristics of places, and of geography as the study of the world, as the world consists of places
- it incorporates the definition of geography as the study of human-environment interrelationships, and geography’s spatial perspective
- alternative definitions of geography, such as the study of human-environment interrelationships, exclude much of contemporary geographical inquiry.

In the table the rows on ‘assumptions about the student’ and ‘curriculum focus’ are indicative only. ‘Types of investigation’ refers to the different approaches or perspectives that geographers use to understand and explain the phenomenon or problem being studied. They represent a cumulative progression in geographical understanding, with the ones in Stages 3 and 4 introducing some more contemporary geographical approaches to the school syllabus. Concepts are related to these types of investigation, because they help to frame questions and interpret answers. Types of investigation and concepts develop a geographical way of thinking.

Some sections of the table below are incomplete as it is intended to illustrate the framework rather than being a complete document.

An example of an approach for organising the geography curriculum using the study of places

Stage	Stage 1 Years K-3	Stage 2 Years 4-6	Stage 3 Years 7-10	Stage 4 Years 11-12
Assumptions about the child/student	Growing knowledge of and curiosity about a small number of places	Growing awareness of associations and relationships in the local place and other places known to the child Growing knowledge of places in the world	Concerned with topics that relate to the world of young adolescents Growing interest in understanding causation and connections Interested in solving problems	More sophisticated ability to understand causation and ways of gaining knowledge Growing involvement in local, national and global issues and their management Interest in deeper study of preferred topics
Curriculum focus	Responding to and developing the child's curiosity and wonder about places Study of the place in which the child lives and other places of which the child has direct or indirect experience Developing the child's creativity and imagination Contributing to literacy and numeracy	Study of a larger number and variety of places Recognising relationships between phenomena in the local place Recognising spatial patterns of phenomena at different scales and making generalisations Comparing places Contributing to literacy and numeracy Developing creative and critical thinking skills	Exploring topics that relate to the personal and public worlds of young adolescents Explaining geographical phenomena Exploring the significance of geographical knowledge ¹ Advanced study of the local place and its issues Developing creative and critical thinking skills	Advanced explanation of geographical phenomena Analysing geographical issues, proposing responses, and evaluating them using the criteria of environmental sustainability, economic cost and benefits, and social equity Provision of optional topics Developing creative and critical thinking skills
Types of investigation (incomplete)	Exploration of the local place and the child's perception of it Exploration of other places through various types of media and the children's links with these places Basic questions might be: <ul style="list-style-type: none"> • where is this place? • what is it like? • how is it changing? • how is it different to other places? 	All those in Stage 1, at a more sophisticated level, plus: Explanation of the characteristics of a place through a study of the relationships between phenomena in the <i>same</i> place (vertical integration) Explanation of the characteristics of a place by its location Explanation of the characteristics of a place through a comparison of places More exploration of local places and the child's perception and feelings about them Study of the different ways places are represented in the media	All those in Stages 1 and 2, at a more sophisticated level, plus: Explanation of the characteristics of a place through a study of the relationships between phenomena in <i>different</i> places (horizontal integration) Explanation of the characteristics of a place through a study of the spatial distribution or location of individual phenomena Explanation of the characteristics of a place through a study of human geographical behaviour, such as decisions to locate an enterprise, or move to a new place Assessment of the role of the	All those in Stage 1-3, at a more sophisticated level, plus: Explanation of the characteristics of a place through a study of how national and supranational factors, such as political and economic policies and ideologies, or global processes, such as climate change and economic globalisation, interact with local environmental, economic and social conditions to produce specific local outcomes Explanation of the characteristics of a place through a study of how these characteristics have developed over time

		Study of the connections between places	environment in human life and economic development Investigation of the environmental, economic, social and political consequences of spatial distributions	Study of the different ways geographical phenomena and processes are perceived or represented Application of geographical knowledge and understanding to the management of geographical issues
Concepts (examples)	Order Place Relative location Geographical imagination Change and continuity	All those in Stage 1, at a more sophisticated level, plus: Generalisation Association ² Cause and effect Spatial distribution Proximity and distance Interaction ³ Similarity and difference Culture	All those in Stages 1 and 2, at a more sophisticated level, plus: Centrality and remoteness Processes Systems Clustering and dispersion Scale ⁴ Behaviour Sustainability Power ⁵	All those in Stages 1-3, at a more sophisticated level, plus: Space Continuity Perception Representation ⁶
Skills (examples)	Observation Description Comparison Classification Map reading	All in Stage 1, at a more sophisticated level, plus: Map interpretation Fieldwork	All in Stages 1 and 2, at a more sophisticated level, plus: ...	All in Stages 1-3, at a more sophisticated level, plus: Evaluation and ...
Topics (examples)	Local and distant places	Weather and climate Coasts Settlements Human-environment relationships

¹ This responds to the question; ‘so what’?

² Includes spatial association.

³ Interaction includes movement, flows, connections, links, interrelationships and interdependence.

⁴ Includes local-global interrelationships.

⁵ The effects of unequal relationships of power between people and institutions in different places.

⁶ How and why different groups portray an issue, such as climate change, differently

FEEDBACK FROM CONSULTATION

Consultation forums held in every Australian state and territory provided an opportunity for participants to discuss the four alternative approaches to the organisation of the geography curriculum. In addition, workshop groups were able to develop a preferred alternative either incorporating elements of one or more approaches or introducing completely new elements. The workshop groups were provided with exemplar approaches, were asked to discuss and evaluate these identifying the features that they found to be useful. The exemplar approaches were:

- Approach 1: an organising structure based on the Erebus Report
- Approach 2: an organising structure based on the NCB's science framing paper
- Approach 3: an organising structure based on the UK's key stage 3
- Approach 4: an organising structure based on the IAG's submission
- Approach 5: an organising structure based on the group's own ideas

The feedback and summary of the discussion from each consultation meeting follows.

Brisbane, Queensland – Monday 23 March 2009

Three of the five groups developed a new approach drawing on elements focusing particularly on key ideas, concepts and inquiry skills. The other two groups endorsed an option based on the UK's key stage 3 model.

Sydney, New South Wales – Tuesday 24 March 2009

All five groups opted for the development of a new approach making reference to elements such as curriculum focus, knowledge, concepts, skills, attitudes and values. One group felt that attitudes and values should be part of an overall curriculum statement rather than being specific to geography.

Melbourne, Victoria – Thursday 26 March 2009

Two of the workshop groups developed their own approach; one being based on the UK's key stage 3 model, the other on a combination of the Erebus and NCB's models. One group favoured the Erebus approach whilst the fourth group preferred the UK's key stage 3 model.

Perth, Western Australia – Monday 30 March 2009

Two groups preferred the approach of the UK's key stage 3, one selected the Erebus approach and one group developed its own approach. One of the groups developing their own approach commented on the need for simplicity and their schema included just three headings, namely geographical understanding of places, geographical understanding of patterns and processes, and geographical inquiry and skills.

Adelaide, South Australia – Tuesday 31 March 2009

Three groups discussed the alternative models presented. One group supported approach 2 based on the NCB's science framing paper with its inclusion of a curriculum focus and 'big ideas'. The other two groups preferred to develop a new approach combining elements drawn principally from the UK's key stage 3 approach. In the plenary session participants made a strong request for the definition of geography to be framed in a manner that would incorporate place and spatial relationships as well as providing a global perspective.

Canberra, ACT – Wednesday 6 May 2009

One group preferred the Erebus model; however, they added big ideas as one of the key elements. The second group developed its own model including elements such as curriculum focus, geographical skills, knowledge and understanding of places and knowledge and understanding of patterns and processes. Participants made a suggestion that attitudes and values should be addressed across all levels rather than being specifically applied to one topic or theme.

Launceston, Tasmania – Saturday 9 May 2009

One group preferred the UK's key stage 3 approach whilst the other developed their own model. The group that developed their own approach included elements such as curriculum focus, key concepts, context and knowledge, types of investigation, understandings and skills developed. Participants commented that when using an inquiry approach and when examining environmental change and sustainability students need to be given the opportunity to express a personal view with supporting evidence.

Darwin, Northern Territory – Monday 1 June 2009

One group favoured the Erebus model; a second preferred the UK's key stage 3 model and the third group selected a combination of elements from these two models.

General feedback and comments

Feedback from these meetings included the following points.

- Participants overwhelmingly opted either for a curriculum organising structure based on the UK's key stage 3 or the development of their own approach.
- Not one group selected the model proposed in the IAG submission.
- Many participants felt that geographical inquiry could be combined with geographical skills.
- The need to indicate progression in skill development was considered by some to require inclusion.
- There are differing views about the inclusion of specific attitudes and values within the organising structure with some considering that these should be part of an overarching curriculum statement.

- There was general support for the inclusion of ‘overview’ and ‘in-depth’ topics with the latter being recognised as providing an opportunity to include rigour, flexibility, case studies and the inclusion of local geographical issues.
- Many participants made reference to the need for curriculum organising structures to make some reference to assessment.

HOW AND WHAT SHOULD BE DELIVERED IN THE NATIONAL GEOGRAPHY CURRICULUM?

This section examines the ways in which geography is incorporated within different stages²⁷ of schooling in Australia and in selected other countries. This discussion is followed by a summary of survey responses and submissions made to this project. Finally, matters related to the establishment of progression points, amount of time devoted to the teaching of geography and requirements for the professional development of geography teachers are discussed.

EXAMPLES FROM AUSTRALIA

The Erebus Report (Erebus International, 2008) outlined the difference stages used in structuring geography curriculums in the states and territories.²⁸ A selection from the report is presented below.

AUSTRALIAN CAPITAL TERRITORY

Secondary schools in ACT Government schools generally teach geography in the context of Studies of Society and the Environment (SOSE). Primary schools teach geography either through an Integrated Inquiry approach or SOSE. Geography is available and taught reasonably prominently in non-government secondary colleges (Freeman, 2006).

It is noted that in the Australian Capital Territory a time allocation for the teaching of geography is not mandated.

NEW SOUTH WALES

The NSW Board of Studies provides the curriculum for both primary and secondary years. Students are grouped in stages with Stages 2 and 3 (Years 3 and 4 and 5 and 6) in the primary years and Stages 4 and 5 (Years 7 and 8 and 9 and 10) in the secondary.

Primary School Years 3-6

The most obvious geographical outcomes are located in the *environments* dimension that is divided in two strands: *patterns of place and location*; and *relationship with places*. Each of these is described for all the primary stages and the accompanying documents include foundation statements; sample scope and sequence statements; and units of work. These are available to guide and facilitate teachers' work.

Secondary School Years 7-10

Geography is taught as a mandatory subject for 100 hours in each of Stages 4 and 5 (Years 7-10). The syllabus has two key dimensions: *spatial*; and *ecological* and the students essentially learn *global*

²⁷ Reference is made to 'years of schooling' when referring to some examples.

²⁸ Some state curriculum documents relating to geography have changed since the publication of the Erebus Report. For example, in Queensland SOSE is taught in years 1-9 and geography is taught at year 10.

geography in Stage 4 and *Australian* geography in Stage 5. With the satisfactory completion of the course, students receive a grading on their School Certificate, the 100 hours geography in Stages 4 and 5 being “a requirement for eligibility for the award of the School Certificate”. (NSW Board of Studies, 2009, p. 15)

An elective geography course can be studied at any time in Years 7-10 for either 100 or 200 hours. The course “provides students with a broader understanding of the discipline of Geography and the processes of geographical enquiry, and enables depth studies [sic] through flexible learning in a choice of focus areas” (Bliss, 2006) quoted in (Erebus International, 2008, p. 18).

NORTHERN TERRITORY

The Northern Territory curriculum framework advocates an outcomes-based approach that stems from four essential learnings, eight learning areas and three cross-curricular perspectives that are taught across the five learning bands from Years 2-10.

QUEENSLAND

In Queensland, geography is included in the Years 1 to 10 Studies of Society and Environment (SOSE) Key Learning Area syllabus. SOSE is allocated 80 hours per year in Years 1-3 and 60 hours per year in Years 4-10. There are four strands in the SOSE KLA. These include: Time, Continuity and Change; Place and Space; Culture and Identity; and Systems, Resources and Power. In each strand, there are six levels. A “level statement” describes the strands’ focus and is matched to a set of core learning outcomes.

SOUTH AUSTRALIA

The mandatory parts of the South Australian Curriculum Standards and Accountability (SACSA) framework are the Key Ideas [Levels of schooling based] and the Objectives (at Standards 1 to 5). The Key Ideas and Outcomes are located within the 8 Learning Areas, although linked to Essential Learnings.

The *Curriculum Standards* mark the end of Years 2, 4, 6, 8 and 10. The curriculum standards provide the basis for monitoring, judgement and reporting of progress at regular intervals. To achieve a *standard*, a student must have met all the outcomes in all strands for a particular learning area.

The learning stages are: the early years (from birth to age five and to Year 2); primary years (Years 3-5); middle years (Years 6-9); and senior years (Years 10-12). The Senior Secondary curriculum is developed by the Senior Secondary Assessment Board of South Australia in the South Australian Certificate of Education.

TASMANIA

Tasmania moved to an Essential Learnings Framework (ELs) for Years K-10 in an endeavour to improve student engagement. The framework emphasises *learning skills* as distinct from content and it is set out in five Essential Learnings: thinking (inquiring and reflective thinkers); communication (clear and effective communication); personal futures (self-directed, ethical); social responsibility (responsible, active citizens); and world futures (local and global environments). The

framework contains student outcomes and five set standards to be achieved as students move through their schooling. The standards are set for the end of Kindergarten and Years 2, 5, 8, and 10. In 2006, the approach was enhanced with the addition of *areas* and written *standards* to assist teachers to assess student progress against the set standards. Geography is taught as an integrated study or multidisciplinary area. While geographical principles have a clear presence in the Tasmanian ELs framework, the skills are stipulated rather than content.

VICTORIA

In primary school, students are introduced to basic concepts related to history, geography and economics. Specific learning focus statements and standards for economics, geography and history are introduced at Level 4 (from Year 5). The major change brought about by the introduction of VELs is that geography is a clearly defined discipline at both primary and secondary school levels, with its own clearly outlined attributes and its own content (Kriewaldt, 2006).

Primary school (levels 3 and 4)

The Humanities outline (December 2005) states that students will, for example, investigate the human and physical characteristics of their local area and other parts of Victoria and consider features of their local community that have changed over time.

Secondary school (levels 5 and 6)

From Level 5, for example, students collect geographical information from electronic and print media, including satellite images and atlas maps, and analyse, evaluate and present it using a range of forms. They also:

- construct overlay theme maps using map conventions of scale, legend, title, and north point
- identify and gather geographical information from fieldwork and organise, process and communicate it using a range of written, oral, visual and graphic forms.

While at Level 6, for example, students will learn to interpret information on different types of maps and photographs at a range of scales, and use map evidence to support explanations, draw inferences and predict associated outcomes. They will collect and collate information gathered from fieldwork observations and present their findings observing geographical presentation conventions.

WESTERN AUSTRALIA

The WA Curriculum Council curriculum framework sets out the 'knowledge, understandings, skills, values and attitudes that students are expected to acquire' during the compulsory years of schooling. Schools are required to establish programs that ensure students achieve the agreed outcomes.

Learning stages such as middle childhood (Years 3-7) and early adolescence (Years 7-10) are also described.

The basic structure of the framework is the thirteen overarching outcomes that accommodate the more specific discipline based outcomes. The *scope of the curriculum* describes the knowledge and the teaching and learning experiences. These are divided generally into *phases of development* (stages or levels) and in-principle statements are provided regarding knowledge.

ALTERNATIVE SENIOR SECONDARY CURRICULUM

It is noted that some senior secondary students in Australia undertake studies in the International Baccalaureate rather than the certificate course administered through their State and Territory's curriculum and assessment authority.

EXAMPLES FROM OTHER COUNTRIES

UNITED KINGDOM

The national curriculum for geography in the United Kingdom sets out programs of study indicating what students should be taught. It provides two sorts of requirements:

Knowledge, skills and understanding – what has to be taught in the subject during the key stage

Breadth of study – the contexts, activities, areas of study and range of experiences through which the 'Knowledge, skills and understanding' should be taught. (Department for Education and Employment and Qualifications and Curriculum Authority, 1999, p. 12)

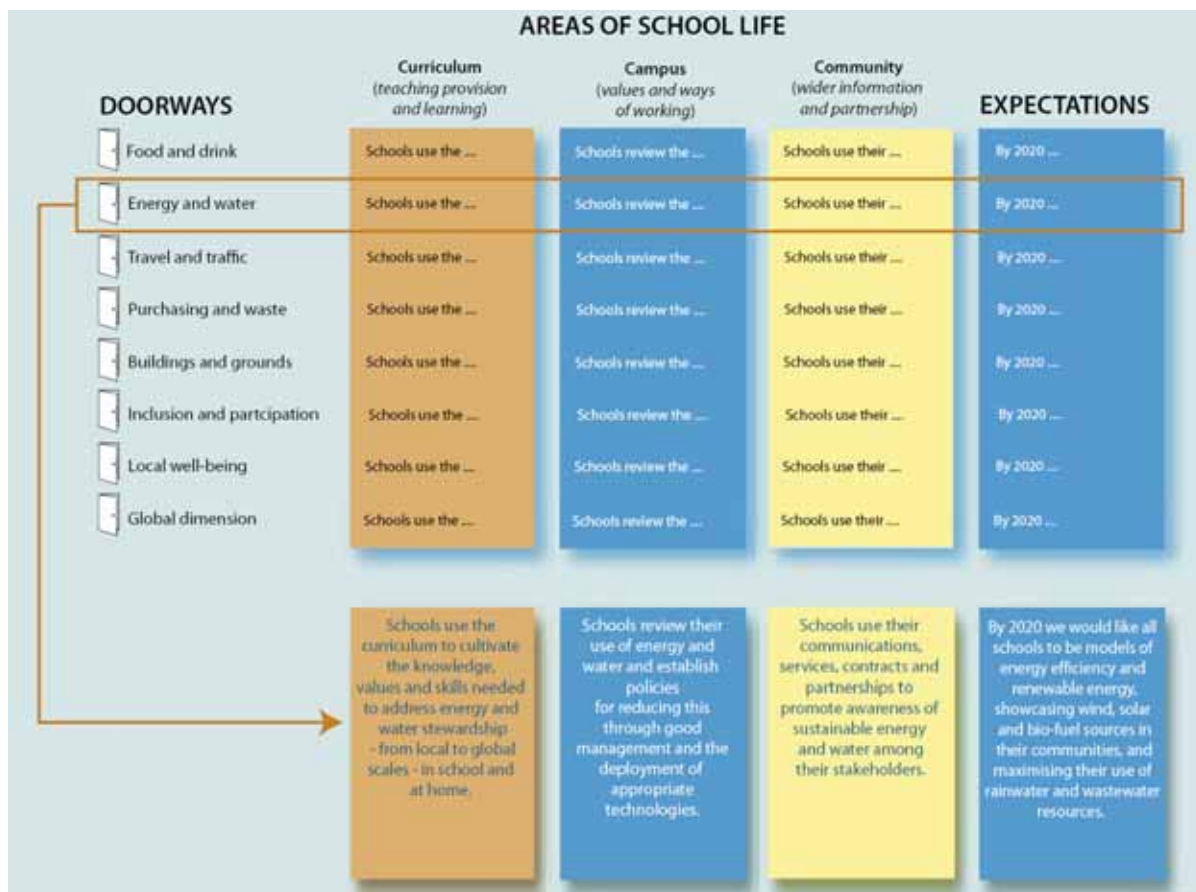
A simplified presentation of how the geography curriculum is organised over the three key stages is shown later in this section.

It is noted that the 'contexts, activities, areas of study and range of experiences' provide a worthwhile approach, the title of this section 'Breadth of study' might be inadequate and misleading.

The annual report of the chief inspector of schools in the UK made the following observation about the delivery of geography in secondary schools stating that "If the decline of geography at Key Stage 4 is to be reversed, departments need to think again about their subject, its place in the wider curriculum, and the teaching and learning styles that are most likely to enthuse and engage pupils, such as group work, fieldwork, individual enquiry and addressing relevant and topical issues. This implies a less formal teaching approach in the classroom with flexibility rather than rigid adherence to a content-driven programme." (Ofsted, 2005)

GEOGRAPHY'S CONTRIBUTION TO SUSTAINABLE DEVELOPMENT

The UK government recognised the importance for sustainable development in 2006 and implemented its Sustainable Schools Strategy. Schools are being encouraged to commit to sustainable development through eight keys areas (doorways) as shown in the figure below.



Geographers have recognised that the the Sustainable Schools Strategy provides an excellent opportunity for the subject to make a significant contribution to the fulfilment of this strategy. The Geographical Association points out that geography is concerned with more than sustainable development however it is the subject that is best placed to take a lead on sustainable development in schools. The work being carried out in the UK provides an excellent model that could be followed by the national geography curriculum in Australia. (Westaway, 2009)

UNITED STATES

The National Geography Standards organise the subject matter to be taught into five elements or themes²⁹ that function as the organising structure for geography across grade levels. Standards provide the voluntary benchmarks that every school and school district may use as guidelines for developing their own curriculums. The standards for grades K-4, 5-8, and 9-12 specify the essential subject matter, skills, and perspectives expected for all students at each of these levels. Eighteen standards are specified for each level. An example of one standard as applied to each of the three levels is shown below.

²⁹ Location, place, human-environmental interaction, movement and region.

How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective			
	K-4	5-8	9-12
By the end of this level student knows and understands:	1. The characteristics and purposes of geographic representations 2. ... 3. ...	1. The characteristics, functions and applications of maps, globes, aerial and other photographs, satellite-produced images and models 2. ... 3. ...	1. How to use maps and other graphic representations to depict geographic problems 2. ... 3. ...
By the end of this level student is able to:	a. Identify and describe the characteristics and purposes of geographic representations, tools, and technologies b. ... c. ...	a. Describe the essential characteristics and functions of maps and geographic representations, tools, and technologies b. ... c. ...	a. Produce and interpret maps and other graphic representations to solve geographic problems b. ... c. ...

It is noted that the National Geography Standards provide a detailed listing for each of the three stages, however, in many instances the terminology used and the expectations of what students will be able to do may be open to debate especially for primary level students.

At the first level, geography is divided into six essential elements. By essential we mean necessary; we must look at the world in this way. By element, we mean a building block for the whole. At the second level, each essential element contains a number of geography *standards*, each of which contains a set of related ideas and approaches to the subject matter of geography. (Downs, 2009)

CANADA

ONTARIO

Geography for grades 9 to 12 in Ontario, Canada are delivered within the Canada and world studies course. (Ontario Ministry of Education, 2000) A summary of the geography courses is presented below.

Grade	Course title	Focus of content taught:	Focus of investigation or topics:
9	Geography of Canada: Academic	A variety of frameworks, such as the ecozone framework, and principles of physical, human, and economic geography, to explore Canada's distinct and evolving character.	Interconnections among the landforms, climate, soils, plants, animals, and human activities in Canadian ecozones and an understanding of Canada's diversity and its role in the world.

9	Geography of Canada: Applied	Canada's ecozone framework and the country's place in the global community.	Interconnections among the country's landforms, climates, soils, plants, animals, and human activities in order to understand Canada's character and diversity.
11	The Americas: Geographic Patterns and Issues	The growing interdependence of the Americas, from northern Canada to southern South America, through the study of geographic systems, patterns, and issues.	Natural systems, resource development, population patterns and trends, evolving trading blocs, and geopolitical partnerships.
11	Physical Geography: Patterns, Processes, and Interactions	The main elements of the physical environment (climate, soils, landforms, oceans, vegetation), the processes that shape them, and the relationship between the environment and human beings.	The distribution and ongoing evolution of the elements of the physical environment on a variety of scales, from local to global.
11	Geographics: The Geographer's Toolkit	Geotechnologies, such as cartography, remote sensing, surveying, and geographic information systems (GIS) with an emphasis on applications relevant to business, government, and the local community.	The collection, manipulation, interpretation, and display of geographic information to develop skills in desktop mapping, graphic presentation, image interpretation, database management, and GIS analysis.
11	Regional Geography: Travel and Tourism	Travel and tourism - examining the unique characteristics of selected world regions from a geographic perspective.	The ways in which the natural environments, economies, cultures, and other aspects of world regions interact.
12	Canadian and World Issues: A Geographic Analysis	Significant issues facing Canadians as citizens of an interdependent world.	The challenges of creating a sustainable and equitable future through topics, including economic interdependence, geopolitical conflict, regional disparities in the ability to meet basic human needs, and protection of the planet's life-support systems.
12	World Geography: Human Patterns and Interactions	How cultures in different parts of the world interact with their	Settlement patterns, human migration, cultural change,

		environments and with each other.	globalization, environmental issues, and other relevant topics.
12	The Environment and Resource Management	The complexity and fragility of ecosystems and the effects of human activities on them.	The principles of sustainability and resource management and the evaluation of various approaches to achieving a more sustainable relationship between the environment, society, and the economy.
12	Geomatics: Geotechnologies in Action	The approaches and techniques that geographers and other professionals use to acquire, manage, map, analyse, and communicate information about the earth's surface.	A systematic introduction to the four pillars of geomatics – surveying, remote sensing, cartography, and geographic information systems (GIS) – and the application to a variety of real-world situations relating to physical and human geography.
12	World Geography: Urban Patterns and Interactions	Cities around the world and the social, economic, and physical factors that shape them.	Urban structures and systems, spatial interactions, environmental impacts, rural to urban migration, cultural interactions, and urban problems.
12	The Environment and Resource Management	The impact of human activities on the natural environment and responsible resource management, mainly in the context of the local environment.	Ecosystem structures and processes, the ecological impact of human activities, and sustainable resource management, and practical solutions to environmental and resource management issues.

SURVEY RESPONSES AND SUBMISSIONS

A review of online surveys indicated that there needs to be:

- clarification of the teaching time allocated to geography
- time allocated to geography throughout the year
- parity of time allocated to history
- sequential learning and building on prior learning
- coherent progression of skills and concepts reflecting development stages

- recognition of geography as a compulsory subject to Year 10
- integration of concepts, knowledge and skills
- a range of practical skills with compulsory fieldwork in each year
- inclusion of local and real world current case studies.

Some responses suggested studies commencing at the local neighbourhood scale progressing to national and global scale at each level. Others were strongly opposed to this approach indicating that progression should be by level of complexity and a hierarchy of skills and concepts. One view on the early years of schooling endorsed students' study of the local area, but continued by saying that these young students are also interested in stories from around the world. The respondent said, "The early years instill an interest in other peoples and other places. Play with globes."

A written submission presented a view that a Gaian perspective should be considered in addition to spatial and ecological perspectives in the following manner.

... for students to be excited and fully aware of themselves as participants on a Living Earth, the only known place in the whole universe with advanced life-forms, then they need more. They need to know ... that conditions have been supportive of life and have allowed evolution to chart its course for more than three billion years. So, spatial, yes, and ecological, yes of course, but ecological is not quite enough. It misses the Big-Picture sense of Gaia.

Another written submission presented the view that the geography curriculum should incorporate a sustainable education perspective. It was described as requiring a change in how we see geography education. The sustainable education paradigm is one that "values, sustains and realises the human potential in relation to the need to attain and sustain social, economic and ecological well being, recognising that they are deeply interdependent." (Sterling, 2001)

The submission refers to Sterling's work that incorporates cultural and conceptual approaches in describing three levels of response to education for sustainability. (Sterling, 2003)

Level 1 Education about sustainability (accommodation)

Takes place within accepted boundaries; it is content and knowledge based; it is adaptive learning that leaves basic values unexamined and unchanged. It is transmissive learning and has an emphasis on 'doing things better'.

Level 2 Education for sustainability (reformation)

Involves critically reflective and adaptive learning; examining the assumptions and beliefs that influence the first approach. It is meaning-making with an emphasis on 'doing better things'. It involves learning for change and there is some assumption that the necessary values, knowledge and skills are known and can be taught. It rarely if ever sees beyond the dominant education paradigm.

Level 3 Education as sustainability (sustainable education)

It is transformative learning that is creative and embraces alternative and ecological worldviews. It questions the underlying values and ways of doing things. Cultural and educational systems engage in change to become a transformative education paradigm. There is an emphasis on 'seeing things differently'.

COMMENTS WITH PARTICULAR RELEVANCE TO THE PRIMARY YEARS

Points made by respondents that were considered to have specific relevance for primary levels included a need for:

- clarification of the time allocation to geography
- parity of time allocated to history
- sequential development of skills based on prior learning
- coherent progression reflecting the developmental stages, needs and interests of students
- content and skills to be appropriate to the level
- integration of concepts, knowledge and skills
- inclusion of thinking and practical skills
- clear articulation of the content in terms of local context and real world **current** case studies (placing current information online would meet this requirement)
- local area studies and identifying the relationships between these and the wider world
- development of core knowledge using a practical approach that provides a basic 'big picture' view of the world.

Respondents supporting the view that geography should be a standalone subject at the primary years suggested a minimum number of hours be assigned to geography. They also pointed out that geography should not be viewed as simply an add-on to other subjects. A comment from one respondent regarding the teaching of geography in primary years said that "Integration is a lot like the old pea soup – you know there are vegies in there but you just can't see them! Geography – like all other subjects – needs to stand on its own."

An example of how a topic such as 'Harsh environments' might be studied at the primary level using different scales and contexts is given below.

Context – A harsh environment is one where ...				
Skills to be developed are ...				
Content by state / territory				
	Local	Regional	Asia / Pacific	Global
WA	Give local topics using rural and urban examples. From my school I would use an area we could visit, and compare that with an area in the country	Western Desert Rottneest Is Esperance Nullarbor Plain Kalgoorlie Hamersley Ranges Bluff Knoll	Mongolia Bhutan Tibet PNG Solomon Is	Sahara Desert Somalia Antarctica Peru
SA		Lake Eyre Wilpena	Topics here could be the same for each state / territory – however there may be a greater emphasis on Asia for WA, SA and the NT and less for other states where a greater emphasis might be on the Pacific region	Topics here could be the same for each state / territory
TAS		Cradle Mountain		
VIC		Mt Macedon		
NSW		Lake Mungo Snowy Mountains		
QLD				
NT				
ACT				

In this example teachers could choose one of the following harsh environments — the Western Desert; Antarctica; the Sahara (or other global hot or cold desert); or a local area where weather and land conditions are extreme such as Bluff Knoll in Western Australia. The curriculum should also provide guidance regarding the knowledge, skills and values that need to be developed.

COMMENTS WITH PARTICULAR RELEVANCE TO THE SECONDARY YEARS

It was suggested that a scope and sequence chart developed for primary to year 12 would be a useful tool to show the skills, knowledge and values required at each year level. It should indicate a progression and the building of skills across all year levels. In this way teachers know what is expected of them and their students not only in the current year but also for the following years.

One respondent observed that there needs to be provision for students undertaking courses other than the senior school certificate. Hence, the national geography curriculum should also address the needs of students planning to attend TAFE or following alternative senior school programs.

The progression from the concrete to the abstract is mentioned by a number of respondents. One respondent wrote:

“I believe students at the junior secondary level experience difficulty coping with abstract concepts eg spatial inequality. However, I like the idea of building on topics with increasing levels of challenge from concrete knowledge at years K - 10 and abstract concepts in years 11 - 12.”

One respondent indicated that at the senior secondary level students in year 11 should undertake a common core and at year 12 have the opportunity to specialise in one or more areas of geography eg physical geography or human geography.

Submissions and survey respondents made numerous references to the need to ensure that repetition is minimised in the geography curriculum. The CIAG made an important observation regarding the need to design a geography curriculum that avoids repetition of content which they suggested “students find boring and frustrating”. Repetition may occur when the geography curriculum repeats the study of:

- the same or similar content at different levels
- similar content dealt with in other subjects.

CONCERNS ABOUT REPETITION

This project’s online and forum responses identified repetition as a problem in the geography curriculums taught in Australia. Repetition is also known to be a concern in the teaching of history in Australia (Clark, 2008) and of geography in the UK (Lambert D. , 2007). Ideally, each part of the syllabus should build on earlier study and take students to a deeper level of geographical knowledge and understanding. Sequencing reduces the risk of repetition and enables students to link prior knowledge to a deeper understanding of related topics (eg an understanding of the economy may be linked to a study of the use and management of environmental resources, and an understanding of changing population characteristics provides a background for studies of regional economies).

PROGRESSION POINTS IN GEOGRAPHY

The object of any act of learning, over and above the pleasure it may give, is that it should serve us in the future. Learning should not only take us somewhere: it should allow us later to go further more easily. (Bruner, 1965)

In addressing the issue of repetition during consultation forums the need to identify progression points in the geography curriculum was recognised. Overarching questions to be considered when identifying progression points include:

- How can you be sure that the curriculum you plan will take students somewhere?
- How can you be sure that the curriculum will help them to go further or make progress with their geography?

The role and application of progression points in the national geography curriculum has been a focus of considerable discussion in the United Kingdom. The following section draws on material published by the Geographical Association in the UK.

It is important to distinguish between three different ways of talking about progression in a subject. These will be dealt with in turn.

PROGRESSION IN RELATION TO THE INHERENT STRUCTURE OF THE SUBJECT

Progression in this sense would be related to setting out a hierarchy of concepts/ideas and skills which form the essential elements of the subject to guide curriculum construction, i.e. the structure of the subject. Progress may be assumed if pupils are able to move up the hierarchy of ideas and skills. For example, the teacher might plan for pupils to work first with location and pattern in specific cases before they move on to generalise about spatial principles and the concept of space by applying them in new situations.

PROGRESSION IN RELATION TO THE CURRICULUM EXPERIENCES PLANNED BY THE TEACHER

Progress will be apparent if pupils are ready for more demanding teaching and learning experiences. For example, having studied one locality where people of a different culture live, pupils may move on to study a range of places and cultures at different scales and in different parts of the world. Or, having mapped the distribution of migrants in a country, pupils might go on to carry out a statistical analysis of the data or to read biographical details of migrants.

Progression may be recognised in relation to:

- Increasing breadth of study
- Wider range of scales studied
- Greater complexity of phenomena studied
- Increasing use made of generalized knowledge and abstract ideas
- Greater precision required in undertaking intellectual and practical tasks
- More mature awareness and understanding of issues and of the context of differing attitudes and values within which they arise.

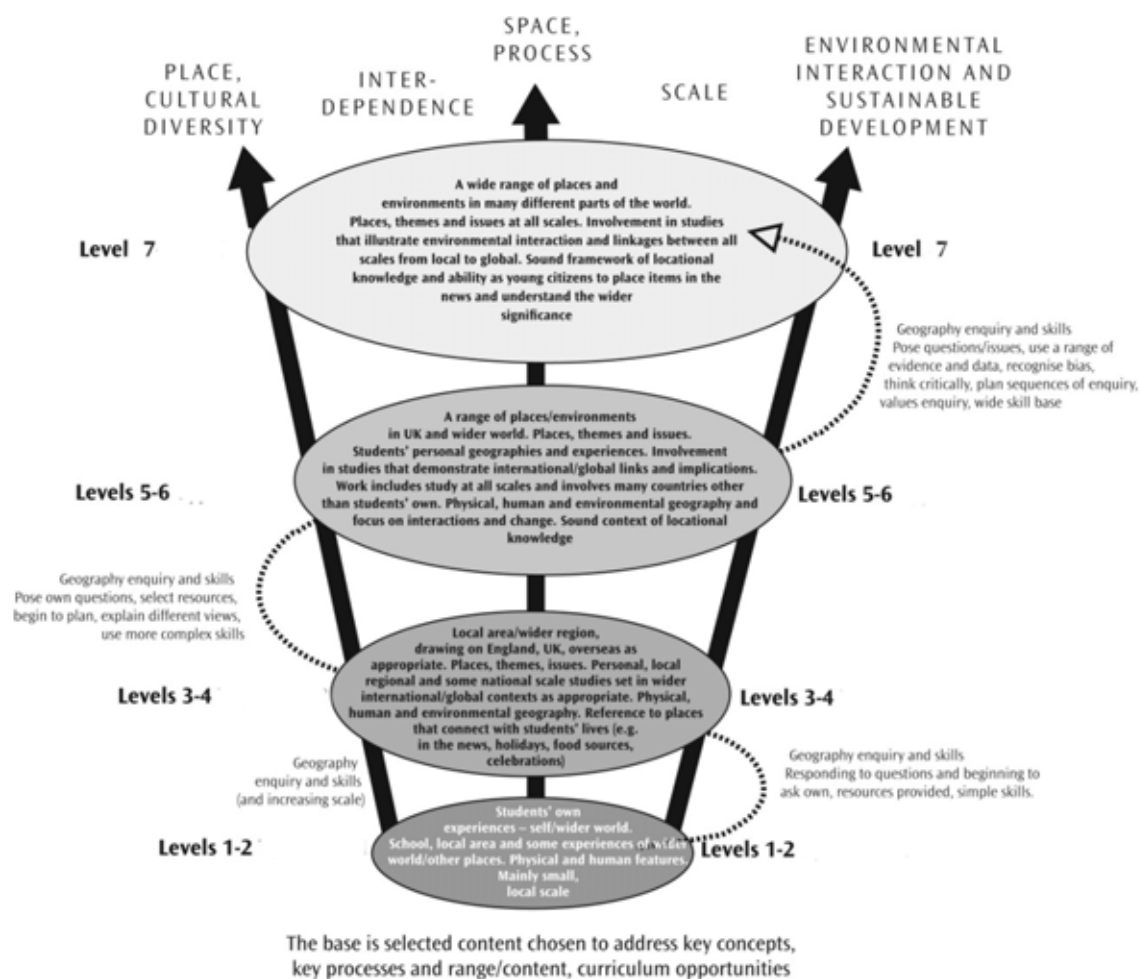
PROGRESSION IN RELATION TO PUPILS' PERFORMANCE

Relates to setting out of the key features of the kind of performance we expect to see in a pupil's work as she/he makes progress in geography i.e. the outcomes of teaching and learning. Progress will be seen as pupils demonstrate these features at increasing levels of achievement. The level descriptions are this kind of statement. They explain, for example, how pupils can be seen to make progress from level 4 to level 5 if they move from 'understanding that people can both damage and improve the environment' (level 4) to 'understanding some ways that human activities cause environments to change' (level 5).

MAKING PROGRESS IN GEOGRAPHY

Finally, the figure below shows a more diagrammatic and dynamic way of envisaging progression which brings together elements of all three approaches to progression considered above. It is intended to show how, through study of chosen content using a geographical enquiry approach and skills (the teaching and learning experiences provided), pupils move towards understanding of the key concepts (representing the inherent structure of the subject). The shape of the diagram draws attention to the gradually widening base of students' experience of places, themes, issues and scales of enquiry. The reference to levels highlights the outcomes expected of pupils as set out in the level descriptions.

(Geographical Association, 2008c)



(Rawling, 2008)

THE APPLICATION OF PROGRESSION POINTS IN GEOGRAPHY

One way of applying curriculum progression in geography is outlined below. It is an adaptation of a resource from the UK's Geographical Association and could be amended to fit with stages of learning determined by Australian curriculum authorities. (Geographical Association, 2008c)

The descriptions for each level does not specify the content to teach but rather provides a broad focus for differentiating between the levels of schooling and a guide to choosing appropriate content.

Years 1-3: establishes the foundations for enthusing student’s learning about the world around them, predominantly using their personal, family and local experiences as the starting points for geography

Years 4-6: moves on to wider local, regional, national and overseas contexts to introduce some aspects of physical, human and environmental geography and an understanding of what a geographer does

Years 7-8: builds on the content, methods and skills of geography and ensures that students are inspired and enthused by the subject and its relevance to their current and future lives

Years 9-10: engages students in inquiry into significant geographical issues that emphasises the contribution and value of geography to students and enables them to understand and participate as young Australian citizens in the world around them

Years 11-12: provides opportunities to undertake substantive critical analysis and scholarship through sufficient depth and breadth of geographical study for students to have access to important ideas and approaches in the subject.

SEQUENCING OF SKILLS

The CIAG note that another aspect of organising the geography curriculum is to address the sequence of different types of skills students undertake at each stage of their school education. They suggest a possible sequence of skills as follows:

- learning to observe, compare, classify and describe phenomena
- learning how to see relationships between phenomena, and to suggest explanations
- learning how to make generalisations about phenomena, and to suggest explanations
- learning how to explain phenomena by using the methods of inquiry and concepts listed earlier
- learning how to evaluate phenomena, using the criteria of (1) environmental quality and sustainability, (2) economic outcomes, and (3) social equity
- learning how to analyse a problem, propose an answer, and evaluate it.³⁰

³⁰ See the suggested structure of the science curriculum in (National Curriculum Board, 2008b).

DURATION OF STAGES OF LEARNING

One respondent to this project expressed concern about the division of stages of learning into two year intervals as used in the Victorian Essential Learning Standards (VELS) which were considered to be ‘too fine’. Another respondent endorsed the use of key stages as occurs in the United Kingdom.

Other alternatives suggested included

- division of secondary schooling into years 7-9 and 10-12 as IB MYP and the future South Australian Certificate of Education
- division into early years, primary, junior secondary and senior secondary.

Two alternative views from a respondent about the delivery of the geography curriculum are presented below.

ALTERNATIVE 1

Early years and primary: combined with history as a social studies course offered 2 times /week

Junior secondary: geography as a discrete subject (not as part of SOSE). Offered 2-3 times/week.

Mandatory to study either geography or history from Years 7-9

Senior secondary: geography as a discrete subject. Offered 3 times/week. Optional in Years 10-12.

ALTERNATIVE 2

Geography as a discrete discipline in the primary school stage should be encouraged. Too much melding with other social sciences (i.e. SOSE and HSIE courses) has resulted in geography no longer being a core subject area.

- Early stage geography should also include basic mapping skills, use of atlases, fieldwork and research modules, particularly using geographical tools and instruments.
- Junior secondary and senior geography should not be tailored to suit government testing agendas and the courses need to be presented in age and content appropriate stages. Basic geographic skills need to be taught in the junior secondary years.
- Greater emphasis on global issues should be kept for later stages of high school.

It is interesting to note one respondent’s view that students at all levels are responsive to studies that creatively open up an understanding of the world around them. Another respondent was in favour of a discrete syllabus and time allocation for geography in primary schools. However, she recognised that in primary schools there would be times when it would suit the learning situation to deliver parts of the geography syllabus combined with parts of another syllabus(es). For example, students when studying topics such as

- mapping could combine aspects of geography, history, languages other than English and maths

- weather could combine aspects of geography, English and science
- types and sources of food could combine aspects of geography, health and languages other than English
- a local river could combine aspects of geography, science and art.

It is recognised that the National Curriculum Board’s Framing Papers for science and history use the following four stages of schooling:

Stage 1, which typically involves students from 5 to 8 years of age

Stage 2, which typically involves students from 8 to 12 years of age

Stage 3, which typically involves students from 12 to 15 years of age

Stage 4, which typically involves students from 15 to 18 years of age.

FINAL YEARS OF SCHOOLING

The CIAG submission (Council of the Institute of Australian Geographers, 2009) made a case for the geography curriculum in Years 11 and 12 to focus on the further development of procedural knowledge, through topics drawn from both physical and human geography. Some topics could have an ‘applied’ focus, examining areas such as sustainable environmental management, coastal management, regional development, tourism or urban planning. There is a strong case for a compulsory component of fieldwork in Year 11 or 12.

As discussed previously the geography curriculum could incorporate Overview, Bridging and Study in depth components as proposed in the NCB’s History Framing Paper.

- Overview components would use a detailed understanding of places to help students understand spatial patterns associated with phenomena in natural and human environments
- Bridging components using case studies would provide the context for deeper understanding.
- Depth studies would provide students with the opportunity to apply and extend their geographical skills and understanding to issues of particular significance.

DURATION OF COMPULSORY TIME ALLOCATION FOR GEOGRAPHY

It is well understood by experienced geography teachers that the key to ensuring that students have a continuing interest in geography is to enthuse students at the earliest possible age. As students develop an understanding of their own identity they also begin to form an appreciation of the value of geography in understanding the world in which they are growing up. A submission to this project strongly suggested that students need to form a clear understanding of what a geographer does and the earlier they form this view the better it is for developing a positive liking of geography in their later years of schooling.

Participants attending consultation meetings consistently sought assurances that a recommendation would be made regarding the minimum amount of time allocated to the teaching of geography. They expressed the view that the amount of time should be consistent with that provided for the teaching of subjects such as science and history.

It is very difficult to establish the amount of time devoted to teaching geography in Australian schools, particularly at the primary level. It has been noted that in primary schools an average of 3% of curriculum time is devoted to science. (Milburn, 2009) Discussion with participants attending consultation forums indicated that geography taught as part of a broad social science program does not exceed this amount of time. Based on the recent discussion by the science and history professional associations it is suggested that a compulsory time allocation for geography be stipulated.

- *One approach to expressing the amount of time might be:*
 - the equivalent of 90 minutes a week for students in years 1-4
 - the equivalent of 120 minutes a week for students in years 5-6
 - the equivalent of 150 minutes a week for students in years 7-10.

- *Another approach might be:*
 - at least 6% of the teaching time available each week for students in years 1-4
 - at least 8% of the teaching time available each week for students in years 5-6
 - at least 10% of the teaching time available each week for students in years 7-10.

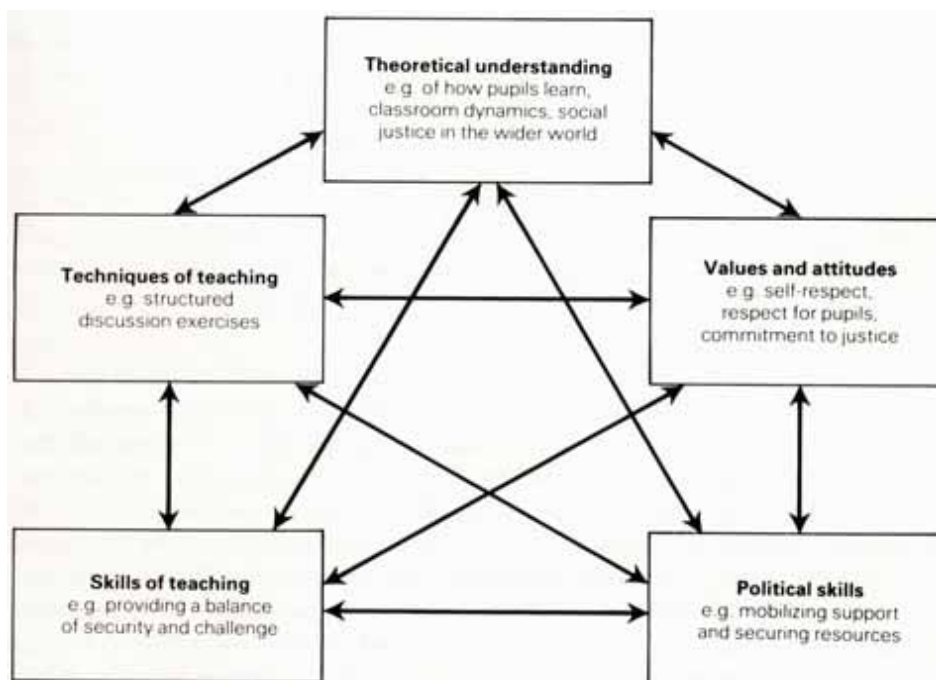
Whilst there are likely to be concerns about the overcrowding of the curriculum it needs to be recognised that even the 120 minutes a week suggested for senior primary students represents only about 8% of the total curriculum time.

WHAT PROFESSIONAL LEARNING IS REQUIRED FOR GEOGRAPHY TEACHERS?

A number of studies have noted with concern that many students have limited geographic knowledge. Two reasons suggested (Douglass, Undated) as contributing to poor results by geography students are:

- some teachers assigned to teaching geography may not be geographically literate. One teaches what one knows, and today's teachers are as much a product of their schooling and tertiary education.
- geographic instruction is not as effective as it might because not enough is known about how students acquire geographic concepts. Rather than being interested in a student's ability to give a correct response to direct questions it is important that students develop broader understandings of the application of spatial concepts.

These reasons emphasise the importance of ensuring that geography teachers have appropriate geographic training and that they utilise the most effective methods in their teaching. Richardson argues that in addition effective geography teachers need to be aware of the elements shown in the diagram below and that it is important to have the skills and values to accompany the understanding (Richardson R. , 1983, p. 123)



The arrows emphasise that each element in the model influences, and is influenced by, each of the others.

Richardson continues by stressing the importance of structured discussion in geography classrooms and in courses for teachers. He suggests that this leads to greater sensitivity, more respect for others, and a stronger commitment to social justice. As geography teachers apply these techniques, acquire new skills and clarify their attitudes and values they become more self-confident and more competent in the political skills required within the school and community. This will lead to

geography teachers becoming more capable of translating into action the required theoretical understandings (refer to diagram above).

The need for a significant ongoing professional learning program for geography teachers was mentioned at all Australian state forums and many of the submissions to this project in 2008. Current geography teachers commented that many schools require teachers with a limited geography background to teach the subject. The need to address this inadequacy was seen as being an essential requirement for the successful implementation of a national geography curriculum. One of the submissions noted that:

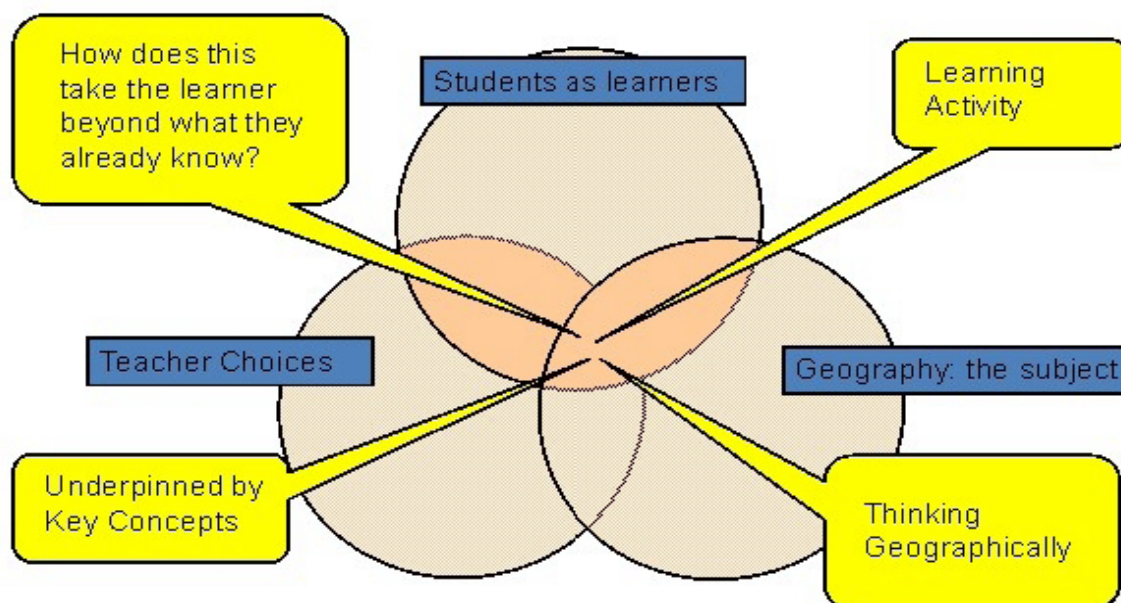
- the emergence of SOSE as an integrated area of study in many states and territories has resulted in the traditional disciplines of history, geography and commerce being submerged in a generalist curriculum framework. Specialist teachers often find it difficult to master the methodology of disciplines in which they have little or no professional training. For example, some teachers with a different subject background may have difficulty with the geographical skills used to interpret topographic maps
- the shortages of suitably qualified geography teachers was partly a response to the submergence of geography in the SOSE curriculum and has seriously compromised the quality of geography teaching in Australian schools. Potential geography teachers have sought other (often better paid) career options through which to pursue their interest in the discipline.

THE CHARACTERISTICS OF PROFESSIONAL LEARNING FOR GEOGRAPHY TEACHERS

The Geographical Association in the United Kingdom observed that ‘... teachers can be inspired to devise surprising, dynamic and engaging living geography with their students when driven by a clear sense of the subject’s educational benefits. This lies at the heart of the idea of ‘curriculum making’. It enables teachers to balance the three sources of energy in the classroom:

- their own practical skills and expertise as teachers
- the interest and needs of the students as learners, and
- what the dynamic, changing subject discipline has to offer.’

Curriculum Making



(Geographical Association, 2008a, p. 16)

The importance of teachers acting as professional classroom practitioners is born out by the view expressed above by the Geographical Association. Their view emphasises the role of geography teachers as curriculum makers and not simply as curriculum takers. It follows that it is imperative that major curriculum change be accompanied by appropriate and significant professional learning.

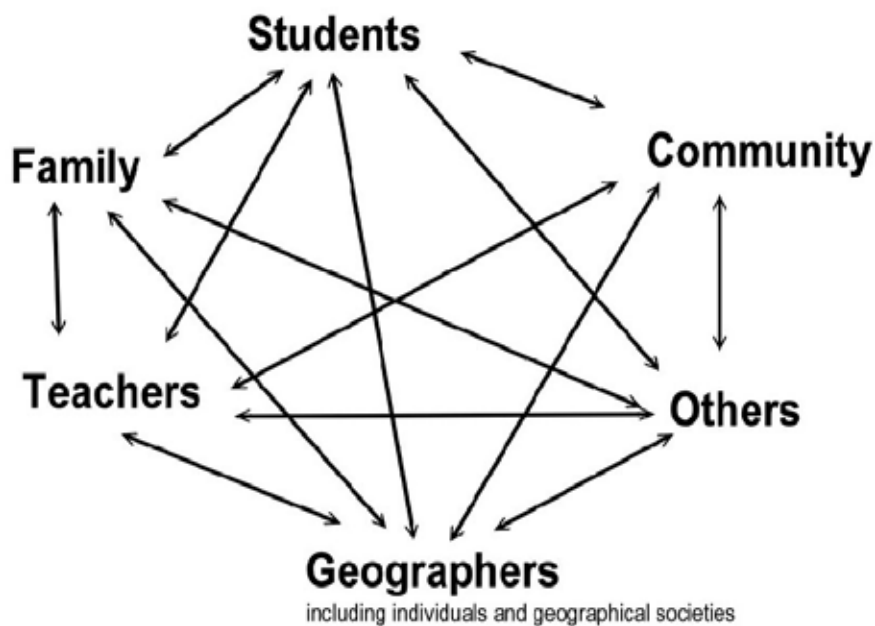
The Geographical Association continued by stating that

As curriculum makers, teachers of geography have special challenges. In geography we need to face the fact that the subject:

- *matter is constantly changing. This is not just a matter of making sure our facts and figures are up to date: the way we see the world changes. Both the 'vocabulary' of geography and the 'grammar' we use to make sense of the world changes!*
- *discipline – the power of thinking geographically - is not always well understood. It is difficult for non-specialists to appreciate a 'synoptic' understanding of the subject at large.*
- *content – its 'vocabulary' - is potentially infinite, so we need a clear rationale for making selections from it. But the special challenges facing geography teachers are also great opportunities, for the subject is dynamic, moving and capable of occupying a central role in the curriculum. It uses a vast range of materials and communication technologies and can be the source of innovative teaching approaches, both inside and outside the classroom.*

(Geographical Association, 2008a, p. 17)

It has been suggested that professional learning is enhanced when teachers converse with the wide range of people as shown in the diagram below.



A Geographical conversation at the local, regional, national and global scales

(Geographical Association, 2008a)

Subject associations and geographical societies are well placed to facilitate such conversations. As an example the Geography Teachers' Association of Victoria (GTAV) has encouraged primary teachers to attend its annual conference and provides a regular section devoted to teaching geography to primary level students in its quarterly journal *Interaction*. Examples include:

- Exploring the commonwealth Games for schools – Melbourne 2006 Commonwealth Games Education Program (Lind & Matthews, 2005)
- Does it snow in Egypt? Introducing the resource Teaching About Other countries – A teaching model for primary and middle school teachers (Calder & Wildy, 2008)

Other resources supporting the teaching of geography at primary levels are also provided through organisations such as Asia Education Teachers' Association.

- Beijing Bound (O'Keeffe, 2008)

TYPES OF TRAINING AND PROFESSIONAL LEARNING

The range of settings in which the professional learning for teaching geography should take place is outlined below.

PRE-SERVICE TRAINING

Adequate training is required that is specifically directed to supporting the teaching of geography as a distinct subject. University teacher education departments need to be fully aware of the

implications of geography being part of the national curriculum and to develop programs that address these. It is likely that special attention will need to be given to the training of primary school teachers who may have had very little exposure to the key areas of geography's knowledge, concepts and skills. Feedback from participants stressed the need for geography teachers to have tertiary studies in geography. It was mentioned by numerous participants that it is incorrect to assume that teachers without tertiary study in geography can teach the subject.

POST-SERVICE TRAINING

Geography teachers can engage in further professional learning in a range of ways and situations. Some of these are discussed below.

PERSONAL

A number of respondents noted that professional learning is a life long journey and that geography teachers should be encouraged to maintain a strong interest in the subject and to share this with others. This view is supported by the Geographical Association's observation that "Geography underpins a lifelong 'conversation' about the Earth as the home of humankind." (Geographical Association, 2008a)

LOCAL

Geography departments or faculties within individual schools and school clusters or regional groupings should play an important role in supporting learning teams. Principals should ensure that teachers are encouraged and supported in their role as curriculum makers.

As with pre-service training it is most important that primary school teachers be supported in their understanding of geography's knowledge, concepts and skills. It is suggested that primary-secondary school groupings could provide a useful support structure. Appropriate funding to support such groupings is essential.

NATIONAL, STATE AND REGIONAL

The national geography organisations (eg AGTA, IAG and RGSQ) are well placed to provide opportunities for teachers to

- broaden their knowledge, enthusiasm and expertise beyond a local context through such avenues as national conferences
- participate in exchanges between different systems and jurisdictions
- exchange programs would allow teachers to gain experience in other States and Territories as well overseas to broaden their expertise.

State and Territory education departments and curriculum and assessment authorities must provide appropriate structures to ensure that teachers are well prepared to teach geography within their system.

Geography subject associations will play an important role in supporting local, regional and statewide groups, however, they will need to be provided with appropriate financial resourcing and personnel to support such initiatives. Geography teachers need to be provided with time release from teaching to enable them to attend professional learning activities. State and Territory education departments must provide adequate funding to enable geography subject associations to deliver these programs.

Examples of the professional learning offered to geography teachers through the Royal Geographical Society (RGS) and Institute of British Geographers (IBG) in the UK include:

- regular one day professional develop days
- online web micro-sites with resources
- action Plan for Geography providing online training for teachers
- access to lectures, events and activities by becoming Fellows of the RGS.

In addition, teachers can gain professional accreditation as a Chartered Geographer (Teacher) which is awarded by the society on the basis of professional training and achievement.

One respondent to the project's online survey observed that educational authorities and geography subject associations should "embark on a comprehensive program of course and materials development. Such activity must involve interested teachers. A replication of, but improvement on, SGEP³¹ in Victoria. Some thirty years on, we now have greatly enhanced technology which allows teachers communicate across the nation. Technology also allows teachers to develop, share and store curriculum materials for others to share. The same technological developments allow students to share their class projects and their opinions on the different aspects of geography. This last mentioned is perhaps the most important."

It is essential that adequate funding be provided to support national, state and regional groupings of teachers. The importance of providing funding for projects that support the UK's national geography curriculum was noted in a recent article by the former president of the Geographical Association as follows, "The bonus of three further years of funding for the Action Plan for Geography (APG), which will allow, among other things, the provision of inspirational resources and the creation and nurturing of local support networks, gives us a real opportunity to shape geography teaching and learning in a way that can give it a sustainable future." (Westaway, 2009, p. 11)

TERTIARY

Summer school programs within tertiary institutions would provide a means whereby teachers can extend their understanding in geography with the possibility of gaining formal recognition or

³¹ The Secondary Geography Education Project (SGEP) was an initiative of the former Curriculum and Research Branch of the Education Department (Victoria) with significant support provided by the Geography Teachers' Association of Victoria.

accreditation. These might be provided by geography departments and/or teaching practice departments. As mentioned above these programs should be developed to attract both primary and secondary teachers of geography.

OTHER SETTINGS

A number of other avenues are available to support professional learning, namely

- online learning that may include informal (eg discussion forums) and formal programs (eg accredited training programs) should be provided. Online programs would be particularly appropriate to support teachers in isolated schools or remote localities. An example of a well developed set of online training activities for primary and secondary teachers forms part of the Action Plan for Geography supported by the Geographical Association and the RGS-IBG in the United Kingdom. (Geography Teaching Today, 2006)
- mentoring by leading geography teachers
- training programs provided by specialist organisations (eg government and non-government) or companies (eg GIS software providers)
- programs modeled on the UK's lighthouse schools approach
- scholarships and/or fellowships.

CONCLUSIONS

An analysis of submissions to this report and feedback from consultation meetings strongly endorse the conclusions presented in the Erebus Report that:

The study of geography in one form or other has long been part of the Australian school curriculum.

Geography teacher professional associations have lobbied strongly to re-introduce geography as a core subject, as a strategy to reverse the significant decline in the number of students in Australia studying this subject in any depth. They rightly point to the challenges facing the discipline now and into the future if the number of teachers with sufficient knowledge and skills in the area is not significantly increased.

The consultation phases of this project indicated that there is strong support for a national geography curriculum that is shaped by the fundamentals of the discipline of geography education, namely:

- a study of specific content based on organising (second order) concepts that are distinctive to geography
- content that provides:
 - for a study of both physical and human geography
 - flexibility to study core and optional topics in geography
 - an engaging and intellectually challenging study
 - opportunities for depth of study
- progression of each student's geographical learning appropriate to their level of schooling
- an inquiry-based approach that investigates key questions about geographical topics at a range of scales
- the application of geographical skills including those using ICT
- the opportunity to link study with the personal world of students
- the development of students' prior knowledge and skills in a way that avoids repetition
- the selection of content that demonstrates relevance and clear links to students' future lives including their employment opportunities
- the development of positive attitudes and values to the environment, sustainability and cultural diversity
- students' understandings gained through fieldwork.

In addition, a national geography curriculum will:

- be a concisely written document avoiding jargon and with judicious use of geographical terms
- specify the amount of time in the curriculum that will be used for the teaching of geography at each level of schooling
- require competent, enthusiastic and qualified geography teachers at all levels who have the opportunity to continually improve their knowledge and skills
- require appropriate government funding to support implementation of the new curriculum and professional learning
- prepare students to become geographically literate citizens
- demonstrate the value of a geographical understanding to the wider public
- address key government initiatives and policies, including recognition of indigenous perspectives, civics and citizenship, and studies of Asia.

REFERENCES

- Ashworth, W. (2002). Inquiring and thinking—Using the inquiry process and De Bono’s Thinking Hats to investigate. *Interaction* , 30 (4), 41-3.
- Association of American Geographers. (2009). *What is Geography?* Retrieved March 4, 2009, from https://communicate.aag.org/eseries/scriptcontent/custom/giwis/cguide/explore_whatisgeog.cfm
- Australian Academy of Science National Committee for Geography et al. (2007). *Australians need Geography*. Brisbane: RGSQ.
- Australian Council for Educational Research. (2006). *Australian Certificate of Education: exploring a way forward*. Canberra: Department of Education, Science and Training.
- BBC News. (2005, September 9). *Award for tsunami warning pupil*. Retrieved June 8, 2009, from One-Minute World News: http://news.bbc.co.uk/2/hi/uk_news/4229392.stm
- Blacksea, M. (2006). *Political Geography*. London: Routledge.
- Blaut, J. M., Stea, D., Spencer, C., & Blades, M. (2003). Mapping as a cultural and cognitive universal. *Annals of the Association of American Geographers* , 93 (1), 165-185.
- Bliss, S. (2006). Geography and Geographical Education in New South Wales, Australia. *International Research in Geographical and Environmental Education* , 15 (2), 149-158.
- Board of Studies NSW. (2007, June 21). *Statement of Equity Principles - Board of Studies NSW*. Retrieved March 20, 2009, from http://www.boardofstudies.nsw.edu.au/jobs/state_equity_princ.html
- Bonnett, A. (2003). Geography as the world discipline: connecting popular and academic geographical imaginations. *Area* , 35, 55-63.
- Bonnett, A. (2008). *What is geography?* London: Sage.
- Bruner, J. (1965). *The Process of Education*. Cambridge MA: Harvard University Press.
- Butt, G., Weeden, P., & Wood, P. (2004). Boys’ underachievement in geography: an issue of ability, attitude or assessment? *International Research in Geographical Education and Environmental Education* , 13, 329-47.
- Calder, M., & Wildy, M. (2008). Does it snow in Egypt? *Interaction* , 19-23.
- Catling, S. (1999). Issues for Research in UK Primary Geography. *International Research in Geographical and Environmental Education* , 8 (1), 60-5.
- Catling, S., & Taylor, L. (2006). Exploring geographical significance. In K. Purnell, J. Lidstone, & S. Hodgson (Eds.), *Changes in geographical education: past, present and future: Proceedings of the*

International Geographical Union Commission on Geographical Education Symposium. Brisbane: IGU CGE.

Chlebnikowski, A., & Puszka, S. (2009, April). The importance of teaching geography. *Shine* (3).

Clark, A. (2008). *History's children: history wars in the classroom*. Sydney: University of New South Wales Press.

Colman, A. (2001). *Oxford Dictionary of Psychology*. Oxford: Oxford University Press.

Commission on Geographical Education of the International Geographical Union. (1992). *International Charter on Geographical Education*. Freiburg: International Geographic Union.

Commission on Geographical Education of the International Geographical Union. (1992). *International Charter on Geographical Education*. Retrieved January 5, 2009, from http://igu-cge.tamu.edu/charters_1.htm

Council of the Institute of Australian Geographers. (2009). Response to questions on 'Towards a national geography curriculum for Australia'. Adelaide: Unpublished submission to the steering committee of 'Towards a national geography curriculum for Australia'.

Cox, B. (1992). Geography for education. In R. Gerber, *Geography in society*. Brisbane: Royal Geographical Society of Queensland.

Crang, M. (1998). *Cultural Geography*. London: Routledge.

Cresswell, T. (2008). Place: encountering geography as philosophy. *Geography*, 93 (3), 132-9.

Cresswell, T. (2004). *Place: A short introduction*. Oxford: Blackwell.

Curriculum Corporation. (2006). *Statements of Learning for Science*. Melbourne: Curriculum Corporation.

Dean, B. (2008). Pakistani children want a better future. *Citizenship Teaching and Learning*, 4 (2), 43-57.

Department for children, schools and families. (2005). *Learning Outside the Classroom (LOtC)*. Retrieved February 26, 2009, from <http://www.lotc.org.uk/getdoc/72586aa5-78e3-4487-95df-4d496a4b80c4/LOtC-Leaflet>

Department for children, schools and families. (2009). *The standards site*. Retrieved March 4, 2009, from Geography at key stage 3: http://www.standards.dfes.gov.uk/schemes2/secondary_geography/teaching

Department for Education and Employment and Qualifications and Curriculum Authority. (1999). *Geography: The National Curriculum for England*. London: HSMO.

Department of Education for Northern Ireland (DENI). (1991). *Geography*. Retrieved January 20, 2009, from <http://www.multilingual-matters.net/irgee/008/0060/irgee0080060.pdf>

Douglas, I., Huggett, R., & Perkins, C. (Eds.). (2007). *Companion encyclopedia of geography: from the local to the global*. London: Routledge.

Douglass, M. P. (Undated). *Teaching of Geography - Effectiveness of Instruction, Maps and Spatial Concepts, Evaluating Geographic Learning*. Retrieved February 2, 2009, from <http://education.stateuniversity.com/pages/2007/Geography-Teaching.html>

Douglass, M. P. (1999). *The History, Psychology, and Pedagogy of Geographic Literacy*. Westport: Praeger.

Downs, R. M. (2009). *Geography for Life, National Geographic: subject guide – education*. Retrieved January 20, 2009, from <http://www.nationalgeographic.com/education/standards.html>

Downs, R. M., & Liben, L. S. (1991). The development of expertise in geography: a cognitive-developmental approach to geographic education. *Annals of the Association of American Geographers*, 81, 304-27.

Downs, R. M., Liben, L. S., & Daggs, D. G. (1988). On education and geographers: the role of cognitive developmental theory in geographic education. *Annals of the Association of American Geographers*, 78 (4), 680-700.

Education Department Welsh Office . (1995). *Geography in the National Curriculum (Wales)*. Retrieved January 20, 2009, from <http://www.multilingual-matters.net/irgee/008/0060/irgee0080060.pdf>

Endler, L. C., & Bond, T. G. (2008). Changing science outcomes: cognitive acceleration in a US setting. *Research in Science Education*, 38, 149-166.

Endler, L., & Bond, T. (2001). Cognitive development in a secondary science setting. *Research in Science Education*, 30, 403-416.

Erebus International. (2008). *Study into the Teaching of Geography in Years 3-10 Final Report*. Sydney: Erebus International.

Fensham, P. (2006). *Student Interest in Science: The problem, possible solutions, and constraints*. Retrieved January 16, 2009, from http://www.acer.edu.au/research_conferences/2006.html

Finnish National Board of Education (FNBE). (2004). *National Core Curriculum for Basic Education*. Retrieved January 5, 2009, from http://www.oph.fi/ops/english/POPS_net_new_3.pdf

Fogarty, T. (2006, Summer). "Thinking to learn": mind tools for critical thought. *Geography Bulletin*, 33-39.

Freeman, J. (2006). Geography in the Australian Capital Territory: A Mixed Picture. *International Research in Geographical and Environmental Research*, 15 (2), 185-8.

Gardner, H. (1999). *The Disciplined Mind: Beyond Facts and Standardized Tests, The K-12 Education That Every Child Deserve*. New York: Penguin.

- Geographical Association. (2009). *Geography: a position statement from the Geographical Association*. Retrieved April 28, 2009, from <http://www.geography.org.uk/download/AUposition02.pdf>
- Geographical Association. (2008b). *GTIP Think Piece - Concepts in Geography*. Retrieved January 9, 2009, from <http://www.geography.org.uk/projects/gtip/thinkpieces/concepts>
- Geographical Association. (2008c). *GTIP Think Piece - Planning and Developing the Curriculum Part 2*. Retrieved April 21, 2009, from <http://www.geography.org.uk/projects/gtip/thinkpieces/developingthecurriculum2>
- Geographical Association. (2008a). *Teaching Geography is Fundamental (TGIF)*. Retrieved January 9, 2009, from www.geography.org.uk/tgif
- Geography Education National Implementation Project (GENIP). (2007). Defining a Highly Qualified K-12 Geography Teacher. *The Geography Teacher*, 4 (2), 16-17.
- Geography Education Standards Project. (1994). *Geography for Life: National Geography Standards 1994*. Washington D.C.: National Geographic Research and Exploration.
- Geography Education Standards Project. (1994). *Geography for Life: National Geography Standards 1994*. Washington, D.C.: National Geographic Society Committee on Research and Exploration.
- Geography Teachers' Association of Victoria. (2008). *Geography It's Essential: It's place in the Victorian curriculum (2007-)*. Melbourne: Geography Teachers' Association of Victoria.
- Geography Teaching Today. (2006). *Online CPD - Geography Teaching Today*. Retrieved March 20, 2009, from <http://www.geographyteachingtoday.org.uk/online-cpd/>
- Gersmehl, P. (2005). *Teaching geography*. New York and London: Guilford Press.
- Greig, S., Pike, G., & Selby, D. (1987). *Earthrights*. London: World Wildlife Fund.
- Harwood, D., & McShane, J. (1996). Young children's understanding of nested hierarchies of place relationships. *International Research on Geographical and Environmental Education*, 5 (1), 3-29.
- Hicks, D. (2007). Lessons for the Future: a geographical contribution. *Geography*, 92 (3), 179-188.
- Holden, C., Joldoshalieva, R., & Shamatov, D. (2008). Young citizens from England, Kyrgyzstan and South Africa speak out. *Citizenship Teaching and Learning*, 4 (2), 6-17.
- Holloway, S. L., Rice, S. P., & Valentine, G. (Eds.). (2003). *Key concepts in geography*. London: Sage.
- Hong Kong Examination and Assessment Authority. (2009). *Hong Kong Diploma of Secondary Education: Geography*. Retrieved January 5, 2009, from <http://www.hkeaa.edu.hk/DocLibrary/HKDSE/334/10E.pdf>
- Huckle, J. (2002). Towards a critical school geography. In M. Smith (Ed.), *Teaching geography in secondary schools: a reader*. London: RoutledgeFalmer.

Huh, H.-G. (2008). I hope Korea will be reunified again': Listening to Korean Children. *Citizenship Teaching and Learning*, 4 (2), 18-30.

IGU Commission on Geographical Education. (2000). International Declaration on Geographical Education for Cultural Diversity. Seoul: IGU CGE.

IGU Commission on Geographical Education. (2007). Lucerne Declaration on Geographical Education for Sustainable Development. Lucerne: IGU CGE.

Jackson, P. (2006). Thinking geographically. *Geography*, 91 (3), 199-204.

Johnston, R. J. (1996). A place in geography. In E. M. Rawling, & R. A. Daugherty (Eds.). Chichester: Wiley.

Johnston, R. J. (1991). *A question of place: exploring the practice of human geography*. Oxford: Blackwell.

Jones, S. (2008). Get set for VCE Geography: spatial concepts and skills. *Interaction*, 36 (3), 48-58.

Kerkman, D., Friedman, A., Brown, N., Stea, D., & Carmichael, A. (2003). The development of geographic categories and biases. *Journal of Experimental Child Psychology*, 84, 265-285.

Kimmel, J. (1996). Using the national geography standards and your local river to teach about local environmental issues. *Journal of Geography*, 95 (2), 66-72.

Kleeman, G., & Hutchinson, N. (2005). Maps in classrooms. *The Globe*, 57, 1-12.

Kriewaldt, J. (2006). Geography and Geographical Education in Victoria. *International Research in Geographical and Environmental Education*, 15 (2), 159-65.

Kriewaldt, J. (2006). The key role of metacognition in an inquiry-based geography curriculum. *Geographical Education*, 19, 24-30.

Kriewaldt, J. (2003). Values: dimensions in geography. *Geographical Education*, 16, 41-47.

Lambert, D. (2007). *Can we—should we—'brand' school geography?* Retrieved January 30, 2009, from <http://www.geographyteachingtoday.org.uk/images/text/FrameworkArticle3.doc>

Lambert, D. (2004). Jessica's story, Secondary geography: The power of geography. In J. White (Ed.), *Rethinking the School Curriculum, Values, Aims and Purposes*. London: RoutledgeFalmer.

Lambert, D., & Balderstone, D. (2000). *Learning to teach geography in the secondary school: a companion to school experience*. London and New York: RoutledgeFalmer.

Laws, K. (1989). The Geography Teachers' Guide to the classroom. In J. Fien, R. Gerber, & P. Wilson (Eds.), *The Geography Teachers' Guide to the Classroom*. Melbourne: Macmillan.

Leat, D. (2002a). Raising attainment in geography: prospects and problems. In M. Smith (Ed.), *Teaching geography in secondary schools: a reader* (pp. 134-147). RoutledgeFalmer.

- Leat, D. (2002b). Thinking through geography. In M. Smith (Ed.), *Aspects of teaching secondary geography: perspectives on practice* (pp. 109-117). RoutledgeFalmer.
- Leat, D., & Chandler, S. (1996). Using concept mapping in geography teaching. *Teaching Geogrraphy* , 21 (3), 108-112.
- Liben, L. S., & Downs, R. M. (1994). Fostering geographic literacy from early childhood: the contributions of interdisciplinary research. *Journal of Applied Developmental Psychology* , 15, 549-569.
- Lind, N., & Matthews, N. (2005). Exploring the Commonwealth Games for schools – Melbourne 2006 Commonwealth Games Education Program. *Interaction* , 33 (4), 37-41.
- MacKay, R. (2006, Fall). Geography: The what, the where and the why. *Interaction* , 4-6.
- Matthews, J. A., & Herbert, D. T. (Eds.). (2004). *Unifying Geography: Common Heritage, Shared Future*. London and New York: Routledge.
- McElroy, B. (1986). Geography's Contribution to Political Literacy. In J. Fien, & R. Gerber (Eds.), *Teaching Geography for a Better World* (pp. 90-106). Brisbane: Australian Geography Teachers Association with Jacaranda Press.
- Milburn, C. (2009, March 30). Science plan falls flat. *The Age* , p. 14.
- Ministerial Council on Education, Employment, Training and Youth Affairs. (2008). Retrieved March 20, 2009, from http://www.mceetya.edu.au/verve/_resources/National_Declaration_on_the_Educational_Goals_for_Young_Australians.pdf
- Ministry of Education Ontario. (2000). *Ontario curriculum grades 9-12*. Retrieved January 5, 2009, from <http://www.edu.gov.on.ca/eng/document/curricul/secondary/descript/descri9e.pdf>
- Murdoch, J. (2006). *Post-Structuralist Geography*. London: Sage.
- National Curriculum Board. (2008b). *National History Curriculum: Framing paper*. Retrieved January 16, 2009, from http://www.ncb.org.au/verve/_resources/National_History_Curriculum_-_Framing_Paper.pdf
- National Curriculum Board. (2008c). *National Science Curriculum: Framing paper*. Retrieved January 16, 2009, from http://www.ncb.org.au/verve/_resources/National_Science_Curriculum_-_Framing_Paper.pdf
- National Curriculum Board. (2008a). *The shape of the National Curriculum: a proposal for discussion*. Retrieved January 16, 2009, from http://www.ncb.org.au/verve/_resources/The_Shape_of_the_National_Curriculum_paper.pdf
- National Geographic. (2005, January 18). *Tsunami Family Saved by Schoolgirl's Geography Lesson*. Retrieved June 8, 2009, from National Geographic News:

http://news.nationalgeographic.com/news/2005/01/0118_050118_tsunami_geography_lesson_2.html

National Research Council. (2002). Learning and understanding: Improving advanced study of mathematics and science in U.S. high schools. In J. P. Gollup, M. Bertenthal, J. Labov, & P. Curtis (Eds.). Washington, DC: National Academies Press.

National Research Council. (1997). *Rediscovering Geography: New Relevance for Science and Society*. Washington D.C.: National Academy Press.

National Research Council. (2007). Taking science to school: learning and teaching in Grades K-8. In R. Duschl, H. Schweingruber, & A. Shouse (Eds.). Washington DC: National Academies Press.

Naval, C., & Reparaz, C. (2008). Spanish children's concerns for the future. *Citizenship Teaching and Learning*, 4 (2), 31-42.

NSW Board of Studies. (n.d.). *Syllabuses, Support Documents and Specimen HSC exams*. Retrieved June 8, 2009, from Educational Resources:
http://www.boardofstudies.nsw.edu.au/syllabus_hsc/syllabus2000_listg.html

NSW Board of Studies. (2009). *Years 7–10 Syllabus Course Descriptions*. Retrieved March 2, 2009, from http://www.boardofstudies.nsw.edu.au/syllabus_sc/

Ofsted. (2005). *Annual Report of Her Majesty's Chief Inspector of Schools 2004-5: Geography in primary schools*. Retrieved May 28, 2009, from <http://live.ofsted.gov.uk/publications/annualreport0405/4.2.6.html> 28/5/2009

Ofsted. (2008). *Geography in schools: changing practice, Ref. no. 070044*. Retrieved February 25, 2009, from <http://www.ofsted.gov.uk>

O'Keeffe, J. (2008). Beijing Bound. *Asia*, 36 (1), 10-34.

Ontario Ministry of Education. (2000). *The Ontario Curriculum Grades 9 to 12, Course Descriptions and Prerequisites*. Retrieved March 2, 2009, from <http://www.edu.gov.on.ca/eng/document/curricul/secondary/descript/descri9e.pdf>

Pattison, W. D. (1964). The Four Traditions of Geography. *Journal of Geography*, 63, 211-16.

Peet, R. (1998). *Modern Geographical Thought*. Oxford: Blackwell.

Qualifications and Curriculum Authority (QCA). (2009). *Geography key stage 3*. Retrieved February 26, 2009, from <http://curriculum.qca.org.uk/key-stages-3-and-4/subjects/geography/index.aspx>

Qualifications and Curriculum Authority (QCA). (2007). *Geography: information, resources and support for teachers*. Retrieved March 4, 2009, from http://www.qca.org.uk/qca_14120.aspx

Rawling, E. (1996). Geography into the Twenty-first Century. In E. Rawling, & R. M. Daugherty (Eds.), *Geography 5-19: some issues for debate*. Chichester: Wiley.

- Rawling, E. (2008). *Planning Your Key Stage 3 Geography Curriculum*. Sheffield: Geographical Association.
- Rediscovering Geography Committee. (1997). *Rediscovering geography: new relevance for science and society*. Washington D.C.: National Academy Press.
- Reynolds, R. (2004). Children's Attitudes to the World. *The social Educator* , 52-61.
- Richardson, E. (2009). Celebrating Geography. *Primary Geography* , 68, 18-20.
- Richardson, P. (2005). *Long Live Fieldwork!* Retrieved February 26, 2009, from Geographical Association: <http://www.geography.org.uk/resources/fieldwork/>
- Richardson, R. (1983). Daring to be a teacher. In J. Huckle (Ed.), *Geographical Education: Reflection and Action* (pp. 122-31). Oxford: Oxford University Press.
- Robertson, M., & Gerber, R. (Eds.). (2000). *The Child's World: Triggers for Learning*. Melbourne: ACER Press.
- Royal Geographical Society with Institute of British Geographers. (2008). *What is geography?* Retrieved January 8, 2009, from <http://www.rgs.org/GeographyToday/What+is+geography.htm>
- Scoffham, S. (Ed.). (2004). *Primary geography handbook*. Sheffield: Geographical Association.
- Singapore Education and Assessment Board. (2009). *Geography GCE Normal Level (Syllabus 2245)*. Retrieved March 4, 2009, from http://www.seab.gov.sg/SEAB/nLevel/syllabus/2009_GCE_N_Syllabuses/2245_2009.pdf
- Spencer, C., & Blades, M. (2006). *Children and their Environments: Learning, Using and Designing Spaces*. Cambridge: Cambridge University Press.
- Standish, A. (2009). *Global perspectives in the geography curriculum*. London and New York: Routledge.
- Standish, A. (2004). Valuing (adult) geographical knowledge. *Geography* , 89 (1), 89-91.
- Sterling, S. (2003). *Doctoral thesis: Whole Systems Thinking as a Basis for Paradigm Change in Education: Explorations in the Context of Sustainability*. Retrieved from <http://www.bath.ac.uk/cree/sterling.htm>
- Sterling, S. (2001). Sustainable Education Revisioning Learning and Change. *Schumacher Briefing 6* . Devon, UK: Green Books.
- Taylor, L. (2007). *Geography's Big Ideas – what do they involve?* Retrieved February 20, 2009, from http://www.geography.org.uk/download/GA_PRGTIPTaylorResource1.doc
- Taylor, L. (2008). Key concepts and medium term planning. *Teaching Geography* , 33, 50-54.
- Tonizzo, F., & staff. (2003). Integrating the thinking curriculum into the geography classroom. *Social Interaction* , 31 (4), 24-26.

Twigg, S. (2004). *Keynote Address to the Geographical Association's annual conference, 2004*.

Retrieved April 24, 2009, from OpenLearn:

http://openlearn.open.ac.uk/file.php/2471/geog_sk6_02t_4.pdf

Unwin, T. (1992). *The place of geography*. Burnt mill: Longman Scientific & Technical.

van der Schee, J., Leat, D., & Vankan, L. (2006). Effects of the use of thinking through geography strategies. *International Research in Geographical and Environmental Education*, 15, 124-133.

Van Sledright, B., & Limón, M. (2006). Learning and teaching social studies: a review of cognitive research in history and geography. In P. Alexander, & P. Winne (Eds.), *Handbook of Educational Psychology* (2 ed., pp. 545-570). Mahwah N.J.: Lawrence Erlbaum.

Westaway, J. (2009). A sustainable future for geography? *Geography*, 94 (Part 1), 4-12.

Wiegand, P. (1992). *Places in the primary school: knowledge and understanding of places at Key Stages 1 and 2*. London: Falmer Press.

Wildy, M., & Smith, F. (2007). *Teaching About Other Countries: A teaching model for primary and middle school teachers*. Adelaide: Global Education Centre (SA) Inc.

Wood, P. (2005). In defence of the 'New Agenda'. *Geography*, 90, 84-9.

Zhau, Y. (2009, April). Preparing our young people for global citizenship. *Shine* (3).