# **GEOGRAPHY BULLETIN**



Geography Teachers' Association

#### Volume 47 No 4 2015

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### **GEOGRAPHY BULLETIN**

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Covers: Cable car, Lake Louise and Earthquake drill, British Columbia.

Image source: Lorraine Chaffer

The Geography Bulletin is a quarterly journal of The Geography Teachers' Association of New South Wales. The 'Bulletin' embraces those natural and human phenomena which fashion the character of the Earth's surface. In addition to this it sees Geography as incorporating 'issues' which confront the discipline and its students. The Geography Bulletin is designed to serve teachers and students of Geography. The journal has a particular emphasis on the area of the Pacific basin and its near neighbours and a specific role in providing material to help meet the requirements of the Geography syllabuses. As an evolving journal the Geography Bulletin attempts to satisfy the requirements of a broad readership and in so doing improve its service to teachers. Those individuals wishing to contribute to the publication are directed to the 'Advice to contributors' on the preceding page. Articles are submitted to two referees. Any decisions as to the applicability to secondary and/or tertiary education are made by the referees. Authors, it is suggested, should direct articles according to editorial policy.

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#### Welcome to the Fourth Edition of the Geography Bulletin for 2015.

#### This edition contains

- A report by GTA NSW President Susan Caldis on the GTA NSW on the Annual Conference on November 5<sup>th</sup> and other recent events.
- *Teaching in Asia: Broadening the fieldwork Horizon for Geography teachers* an article by Timothy Kelleher currently teaching Geography in Hong Kong.
- The first of a series of articles titled "*Canada: beautiful, liveable, but vulnerable*" in which Lorraine Chaffer illustrates how studies from Canada can be incorporated into teaching units for stages 4 and 5 Geography in NSW (new syllabus).



Moraine Lake, Canada - an iconic landscape of mountain landforms, lakes and forest biomes. Image: L Chaffer

#### Early notice of events for 2016

The following events are scheduled for 2016 when programs are finalised. Some flyers are included in this edition and will also be emailed to members and schools early in 2016. It is important to include these events when budgeting for professional development and planning student activities

For students

- The Australian Geography Competition Term 1 applications/Term 2 competition.
- Arthur Phillip Fieldwork Awards. Although entries close in November, it is important to collect eligible student work throughout the year, particularly where students study Geography in Semester1.
- *HSC student lectures* are held in late Term 2 in Wollongong, Newcastle and Sydney. Flyers will be sent during Term 1.

#### For teachers

- HSC Review is an after school event in Sydney and Newcastle.
- GTA NSW Conference a two-day event scheduled for early Term 2 (tentative date April 28 – 29) to assist teachers programming the NSW Syllabus K–10 for implementation in 2016.



Lorraine Chaffer, Editor

#### Brock Rowe award

The Councils of the Geography Teachers' Association of New South Wales Inc. (GTA NSW) and the Geographical Society of New South Wales Inc. (GSNSW) jointly grant the Brock Rowe Award biennially, to persons who have demonstrated consistently, over a period of time, excellence in the teaching of geography in schools. The 2015 recipients of this award were Sally Egan and Catherine Donnelly. Sally received her award at the GTA Annual Conference on November 5<sup>th</sup>. Catherine will be presented with her award at the Term 1 conference in 2016.

#### Sally Egan



Over 33 years Sally has demonstrated a passion for and commitment to excellence in teaching geography in secondary schools and through Distance Education.

Sally has displayed excellence in her role as a distance education provider to students unable to attend traditional schools. She has been acknowledged for her preparation of written materials for Distance Education and World Vision, the use of technologies such as video conferencing, Moodle and Skype to connect to students across NSW and for her participation in residential programs and student workshops.

Sally's passion for geography has been integral to the professional development of geography teachers through the establishment of a Distance Education Geography Network and Dubbo Regional Geography Teachers Network. These networks have facilitated the dissemination of information and sharing of resources among distance education teachers. Sally has worked with GTA NSW to hold professional learning events and student workshops in regional centres in NSW to enhance the teaching of geography and the achievements of geography students. This award reflects the esteem with which Sally is held by GTA NSW.

#### **Catherine Donnelly**

Over 23 years Catherine has demonstrated a passion for and commitment to excellence in teaching geography in secondary schools.

Catherine has displayed excellence as a classroom teacher, Advanced Skills teacher, Head Teacher Social Science and Head Teacher HSIE. She has been acknowledged for the achievements of her students in formal exams, including the HSC and

extra curricular activities; for increasing student numbers studying senior and elective geography and for her role in promoting and embedding environmental education programs into the school curriculum. The integration of fieldwork into geography programs has been a passion of Catherine's and contributed to the increased engagement of students with the subject in the schools in which she has taught.

Catherine has embraced technology and social media to develop strong professional networks with in Australia and at a global scale through Twitter, Facebook and Skype. She has been strongly involved in the professional development of geography teachers at a school, district, state and national level through her membership of professional associations such as GTA NSW and VGTA and in the Hunter/ Central Coast. Catherine's nomination as a GTA NSW councillor reflects the esteem with which she is held in geography education circles.

#### PTC NSW professional service awards

The Professional Teachers Council recognise the voluntary work done by hundreds of teachers through their Professional Associations. This year GTA NSW had two recipients of an *"Outstanding Professional Service Award"* at the PTC NSW Presentation Evening on Tuesday 24<sup>th</sup> November. This award is presented on behalf of professional associations to recognise outstanding contributions to education.



Paul Alger (left) with Paul Martin, Manager Professional Learning BOSTES, who presented the Outstanding Professional Service Awards

#### Award citation – Paul Alger

Paul Alger has been a member of GTA NSW for forty years. He has held the role of Minute Secretary from the late 1980s until 2015. Paul has indicated that 2015 will be his last year in a Minute Secretary capacity and he is looking forward to his continued involvement on GTA NSW Council as a Councillor in 2016 and beyond.

Paul has always given generously of his time and expertise to support the activities of the Association and works extensively behind the scenes to ensure GTA NSW programmes run smoothly.

Throughout his time on Council, Paul has participated in the assessment of fieldwork projects for the Arthur Phillip Award, tirelessly supported GTA conferences and events, contributed articles to the bulletin and regularly attended council meetings. Paul is a highly respected and integral member of GTA NSW Council. His attention to detail and good humour has made him a pleasure to work with and the length of time he has fulfilled the Minute Secretary role is also testament to his commitment to the association.

The GTA NSW Council believe Paul Alger is a worthy recipient of the Professional Teachers' Council Outstanding Professional Service Award.



Susan Caldis, GTA NSW President (left) with Paul Martin, Manager Professional Learning BOSTES, who presented the Outstanding Professional Service Awards

#### Award citation – Susan Caldis

Susan has made an outstanding contribution to the Geography Teachers' Association NSW and geographical education more generally. She has been President of GTA NSW and the Secretary of the Australian Geography Teachers' Association (AGTA) since 2013. In both capacities she has greatly enhanced the professionalism of the respective associations.

Susan's contribution to geographical education has also been significant. She has promoted the relevance of Geography as a subject in schools and modelled best-practice in geography teaching by: leading national and state-based professional learning workshops; maintaining a strong online presence on social media to communicate information about Geography resources; and regularly writing journal articles for publication in *the Geography Bulletin*. As a result of these contributions Susan had developed a reputation as a fine Geography educator.

During 2010 – 2013, Susan was responsible for leading the curriculum development of both the Australian Curriculum: Geography and the Australian Curriculum: Economics and Business at ACARA.

#### Intercultural Understanding

"The cross curriculum priority area of *Difference and Diversity* provides geographers with an opportunity to improve cultural understanding among students. The website *Difference Differently* (http://www.differencedifferently. edu.au/geography.php) has four geography modules aligned to the Australian Curriculum /NSW syllabus and is funded by the Department of Education, Employment and Workplace Relations to «help students, teachers and others explore the challenges and opportunities created by cultural diversity. (Insert screenclip image). Areas of the website connect to other HSIE subjects and to general activities related to cultural diversity including a Q and A style online activity. The Together for Humanity Foundation run workshops for students and teacher professional development. The foundation is offering 100 schools free diversity workshops for 2015 -2016. The two, one-hour interactive presentations support and enrich the teaching of the NSW syllabus/Australian Curriculum.

Although most modules are targeted at primary levels the workshops are equally applicable to Stage 4 for community identity and social connectedness in *Place and Liveability* and in stage 5 when investigating the influence of international migration on Australian places in *Changing Places* and when examining *Human Well Being*. These presentations are run by teams of Christian, Jewish and Muslim presenters from a variety of cultural backgrounds who demonstrate friendship and respect regard less of differences. Students hear stories relating to how migrants have contributed to Australian society and explore of similarities, differences and relationships between people, places, cultures, customs and beliefs, perceptions and the importance of intercultural understanding.

See brochure in this bulletin for more details or follow this link to book: http://www.togetherforhumanity.org.au/get\_involved/bookings.php"



#### **Developing Intercultural Understanding**

More broadly, Difference Differently aims to develop intercultural understanding by enabling students to:

- 1. Recognise diversity, in whatever form, as a normal part of life and a characteristic of human existence.
- 2. Understand the significance and complexity of prejudice, identity, citizenship, and belonging.
- Empathise with people and their stories, perspectives, beliefs, and worldviews, even when these differ to their own.
- Commit to engaging with and respecting a diverse range of people in their lives, even when faced with challenges arising from that diversity.
- 5. Communicate confidently in the context of diversity.
- 6. Be critical viewers of the media, particularly in its portrayal of diversity.
- 7. Understand how divergent beliefs, religious or otherwise, develop and how to respond to them.

## UPDATE –

## **Recent GTA NSW Events**

#### GTA NSW Annual Conference Report

The GTA NSW Annual Conference was held at Novotel Central on Thursday 5 November. The conference theme was focused on sustainability, not only as a key concept in the new K–10 Geography syllabus but also how ways in which we can integrate more contemporary case studies in to our teaching and learning programs and improve our teaching practice in order to sustain our subject in to the senior years. We were pleased to welcome over 150 educators from across NSW to our conference from primary and secondary stages of schooling as well as those involved in higher education. The twitter feed #gtansw provided plenty of 'a-ha moments' and snapshots of learning throughout the day to both conference delegates in the room and geography educators who were virtually following the conference sessions.

We were delighted to have *Associate Professor Deirdre Dragovich* from the faculty of GeoSciences at the University of Sydney deliver the opening keynote about sustaining environments through the lens of geomorphology. Throughout her presentation emphasis was given to the importance of soils and how changes in the surrounding biophysical environment, occurring as a result of human and natural processes, affect the quality of soils and their ability to sustain environments in to the future. There was much to consider in this keynote for the effective teaching and learning in *Landscapes and Landforms* for Stage 4. As geographers we were challenged to continually be mindful of the interconnection between people, place and environment.

One of the most anticipated sessions was delivered by Brooke Prideaux and Darren Tayler from **BOSTES** about interpretation and implementation of the new **K–10 Geography syllabus**. Key messages from this presentation included

- discussion about areas of flexibility and intended learning within the syllabus
- the role and use of inquiry questions to frame teaching and learning programs
- the intended emphasis on inquiry based learning and fieldwork which has been exemplified through the use of 'investigate' throughout the syllabus and finally

#### Susan Caldis, GTA NSW President



GTA NSW President Susan Caldis, Vice President Lorraine Chaffer and Councillor Louise Swanson seeing the hard work of conference organisation come to fruition at the Annual Conference.

• the contemporary nature of this syllabus which draws significantly from the knowledge, understanding and skills articulated in the Foundation to Year 10 Australian Curriculum: Geography.

Further information can be found on the BOSTES website.

It was a privilege to have *Dr Christine Evans*, of the Wiradjuri People, open our Conference with an Acknowledgement of Country and present an inspiring and thought provoking session about the knowledge and understanding related to *Aboriginal and Torres Strait Islander histories and cultures i*n the new *K–10 Geography syllabus*. We learnt about correct terminology and terms of reference, protocols, teaching and learning resources for both the classroom and our own professional learning, but most importantly were encouraged to stop and consider concepts such as place, environment, sustainability and change from an Aboriginal and Torres Strait Islander perspective to enrich our 'usual' point of view.

Dr. Grant Kleeman provided an interesting session about the importance of the underpinning *concepts* in effective interpretation and implementation of the new *K*–10 *Geography syllabus*: place, space, environment, interconnection, sustainability, scale, change. Through discussion of contemporary changes to places around Sydney, such as Barangaroo and Darling Harbour, we were taken through ways in which we could identify separate concepts but also see the connection between them.

### Update – Recent GTA NSW Events

A question that geography teachers are often asked by their students in the junior and senior years is 'what type of career can I have using Geography?' or queries to that effect. In addition to exploring the GeoCareers website it is often helpful to speak to a 'geographer' who has been able to utilise key understandings and skills associated with this subject in employment other than teaching. Liveability and the changing nature of places is an investigative focus in the new syllabus, and learning associated with this content would lead students nicely in to a career related to urban planning. We were fortunate to have Associate Professor Simon *Pinnegar* from the University of NSW join us to present an informative and entertaining session about the pathways, building blocks and stopping off points leading from school-based geography in to a degree focused on Urban Planning.

Developing an improved connection with primary educators and being able to provide professional learning opportunities specific to the needs of teaching geography in a primary education context is important to the GTA NSW Council, and to kick-start the profiling of geography across Stages 1–3, we were delighted to have Kaylene Kritharides and Julie Carr present a session about teaching sustainability through inquiry based learning. Kaylene teaches the Primary HSIE methodology at Western Sydney University and Julie teaches at Wahroonga Public School. Utilising key messages from the effective use of technology in the High Possibility Classrooms project by Dr Jane Hunter and connecting this with inquiry based learning in HSIE, Kaylene and Julie spoke passionately about the ways in which they had been able to engage their primary students in exploring sustainability through the lens of fieldwork and geographical concepts.

The afternoon sessions focused on exploring teaching and learning resources available to support the new K–10 Geography syllabus such as those produced by World Vision and Sydney Olympic Park Authority.

Our twitter feed for the conference (#gtansw) was well supported throughout the conference and I encourage you to connect with @gtansw if you are on Twitter.

Thank you very much to all the presenters for their willingness to share their expertise and deliver a session; to all GTA NSW Councillors for their support of and involvement with the conference; and to all educators who attended and contributed to the day. We look forward to your continued participation in our teacher professional learning events during 2016.

> Right: Professor Phillip O'Neill being presented with the Macdonald Holmes Award by Professor Phil McManus



Representative from GTA NSW attended the Geographical Society of NSW Award s evening

#### Geographical Society of NSW Awards Evening

The *Macdonald Holmes Medal* is named after James Macdonald Holmes who was McCaughey Professor of Geography at the University of Sydney during the period 1929 to 1961. To commemorate his achievements over these years, the Geographical Society together with the Geography Teachers' Association, awards biennially, a medal bearing his portrait and name, to a person deemed to have made a distinguished contribution in the field of geographical education in Australia.

The Macdonald Holmes Medal for 2015 was awarded to *Professor Phillip O'Neill* from the Urban Research Centre, Western Sydney University for his outstanding contribution to the discipline of Geography in both university and school- based sectors. The Geographical Society NSW generously supported the attendance of GTA NSW representatives at their awards night on Monday 30 November and invited Susan Caldis and Grant Kleeman to announce the Medal. GTA NSW was also represented at the event by GTA NSW councillors Nick Hutchinson, Steve Weingarth, Martin Pluss and Louise Swanson.



#### Award citation – Professor O'Neill

Professor Phillip O'Neill's outstanding contribution to the discipline of Geography spans both academia and school education.

Prior to embarking on an academic career Phillip taught Geography in NSW public schools and played a leading role in the development of Geography syllabuses as Chair of the NSW Geography Syllabus Committee. The syllabuses developed under Phillip's leadership in the early 1990's are still in use a quarter of a century later. Their longevity highlights the quality of the curriculum developed and the extent to which is reflected, and indeed anticipated, developments within the discipline.

Phillip continues to be an advocate for school Geography and has always been willing to contribute to conferences organised by the Geography Teachers Association of NSW.

Phillip's academic background is the foundation upon which highly successful career has been based. His qualifications include a BA(Hons), MA(Hons) and a PhDGeo. All completed a Sydney's Macquarie University.

Phillip is currently Director, Centre for Western Sydney (2014–present) and a Professorial Research Fellow, Urban Research Centre, University of Western Sydney (2012–present).

Prior to these appointments Phillip was the Foundation Director, Urban Research Centre, University of Western Sydney (2006–2012) and Director Centre for Urban and Regional Studies, The University of Newcastle, NSW (2000–2006).

International appointments include the position of Research Fellow at University of Bristol (1994), University of Massachusetts (1999), National University of Singapore (2003), University of Oxford (2010), and the University College London (2015). Phillip has also served as a member of Editorial Boards of *Transactions of Institute of British Geographers* (Wiley

Blackwell); Progress in Human Geography (Arnold).

Phillip was the Editor-in-Chief, *Geographical Research* (2009 to 2013).

Current appointments include Member of Member of the Editorial Boards of *Environment and Planning A* (Pion); *Journal of Economic Geography* (OUP); *Compass* (Wiley Blackwell); *Regional Studies, Regional Science* (Taylor and Francis); *Human Geography*. Phillip is also a Member International Expert Advisory Board, Build, U.K. (2013 to current) and a Member International Advisory Board, Fourth

Right: Malcolm McInerney presenting his session on the seven underpinning concepts of the Geography C urriculum Global Conference in Economic Geography, Oxford, August 19-22, 2015 (current). He is also a Columnist with *Newcastle Herald* (2003-present).

Phillip's research interests include urban infrastructure, regional labour markets, urban food supply chains and state theory and practice. He has authored or co-authored four books, eleven book chapters, and more than 25 research articles and reports.

Phillip's awards include Fellow of the Institute of Australian Geographers (awarded 2008).

Phillip is a very worth recipient of the Macdonald Holmes Medal.

#### **AGTA Roadshow**

The AGTA Roadshow was hosted by GTA NSW in Canberra, Sydney and Newcastle between 26-28 November 2015. We had just over 40 educators attend each event in Canberra and Newcastle, and over 125 educators attend in Sydney. This is a professional learning initiative designed by the AGTA Board to specifically support the Foundation to Year 10 Australian Curriculum: Geography and its amended versions where appropriate in each state and territory. Earlier in 2015 the AGTA Roadshow was successfully delivered in Brisbane and Perth, and dates are booked for 2016 in Darwin, Adelaide and Hobart.

The focus of the AGTA Roadshow is to present sessions that emphasise best-practice geographical teaching methodology for both a primary and secondary education context in relation to: the identification and use of underpinning concepts; how to recognise and develop 'geographical thinking'; why inquiry based learning and fieldwork is important in Geography; and how to effectively utilise spatial technologies. Dr Grant Kleeman, Susan Caldis, Malcolm McInerney, John Butler OAM and Mick Law presented the sessions. We were particularly delighted to welcome primary educators to this AGTA event and would like to encourage them to maintain their contact with GTA NSW.



## **Studies of Canada for Geography 7–10**



## Canada: Beautiful, liveable, but vulnerable

Lorraine Chaffer, Vice President GTA NSW Geography Education Consultant Author: Geography teaching resources

Source: http://visas-services.com/canada-tourist-visa.html

The NSW Geography Syllabus 7–10 requires the study of places at a variety of scales from local to national and global. Some units specify a study of different countries and others require a study that contrasts Australia with one other country. Australians in general have a fondness for Canada and for many it is a destination they have visited or would like to visit in the future. The reality is that Australians know very little about the geography of Canada beyond tourist images of mountains, forests, lakes and ski fields or media reports about its liveable cities.

Canada has a diversity of *landforms* and *landscapes*, *biomes* and *environments* and its cities rank highly on global *liveability* scales. Population and urban places are concentrated in a strip along the southern border and around large water bodies such as the Great Lakes, a distribution heavily influenced by environmental factors. Canada's *biomes* support high levels of biodiversity as well as the production of industrial materials, fibres and food. Trade, tourism and migration are *changing places* within Canada and illustrate Canada's *interconnections* with the rest of the world. The country faces challenges from *natural hazards* such as earthquakes, tsunamis, floods and drought and *human induced environmental change*.

Below: Moraine Lake Image: L Chaffer



## PART 1: LANDSCAPES, LANDFORMS and BIOMES

#### **Syllabus links**

**CONTENT** (http://syllabus.bos.nsw.edu.au/hsie/geography-k10/content/1185/)

#### Landscapes and landforms

- Landscapes and the geomorphic processes that create distinctive landforms
- Geomorphic hazards

#### **Biomes**

Distribution and physical characteristics of biomes

GLOSSARY (http://syllabus.bos.nsw.edu.au/hsie/geography-k10/glossary/)

Landform: The individual surface features of the Earth identified by their shape eg dunes, plateaus, canyons, beaches, plains, hills, rivers and valleys

**Landscape:** An area created by a combination of geological, geomorphological, biological and cultural layers that have evolved over time eg riverine, coastal, urban.

**Geomorphic processes:** Natural processes that transform the lithosphere to create distinctive landscapes and landforms eg erosion, weathering, tectonic activity.

**Environment:** The living and non-living elements of Earth's surface and atmosphere. Where unqualified, it includes human changes to the Earth's surface eg croplands, planted trees, buildings and forests

**Biome:** A major terrestrial vegetation community eg a tropical forest, a temperate grassland or desert.

**Geomorphic hazard:** Hazard event originating in the lithosphere eg volcanic eruptions, earthquakes, tsunamis and mass movement (landslides or avalanches).

Canada is the second largest country in the world covering an area of 9,984,670 sq. km. It has the world's longest coastline bordering the Atlantic, Pacific and Arctic Oceans and shares an 8,892 km land border with the USA (Source A). With a large latitudinal and longitudinal extent (from 42° to 83° N and 52° to 141° W) Canada has a diversity of physical environments that support a domestic population of 35.7 million (estimated April 2015) and provide resources for global markets. A location on tectonic plate boundaries makes Canada's Pacific Coast vulnerable to *geomorphic hazards* such as earthquakes, landslides and tsunamis.





Source A: Canada general elevation map

Source http://worldatlas.com/webimage/countrys/namerica/lgcolor/cacolor.gif

#### **CANADA'S MAJOR LANDFORM DIVISIONS**

Canada can be divided into a number of major landform regions (Source B) in which landscapes and individual landforms have been shaped by *geomorphic processes* including tectonic activity, weathering, erosion and deposition. It has often been stated that Canada is a "smorgasbord of landforms".

- The *Canadian Shield* covers almost half of the country. The landscape consists of hills and plateaus composed of igneous rocks, created by tectonic activity in the past and eroded over time by rivers and ice. The shield is covered with boreal (coniferous) forest in the south and tundra in the north. These *biomes* are determined largely by climate. The Canadian Shield has vast minerals resources including emeralds, diamonds and copper but is mainly unsuited to farming.
- *Mountains and highlands* to the west, east and north vary in age and characteristics. They include:
  - The Cordillera: young mountains of that extend from the Pacific Coast to the interior plains in the west and comprise the Coastal Mountains, Rocky Mountains and other smaller ranges. These mountains were formed by tectonic activity, where the collision of the North American and Pacific plates caused folding and faulting of sedimentary rocks and volcanic activity. Rugged

Different landscapes and the geomorphic processes that create distinctive landforms

sharp peaks and glaciers in the Cordillera landscape reflect its more recent formation. Between the mountains are plateaus and valleys running north to south created by rivers and glaciers. Along the coast of British Columbia past volcanic activity created many islands and deeply indented bays and inlets. Biomes in this landform region include coastal *rainforest*, *grasslands or shrubs* in the dry intermontane regions, *temperate evergreen forests* of Douglas fir, Western Red Cedar and Hemlock on the higher interior slopes of the Rocky Mountains and *tundra* above the treeline. The region is rich in water, forest and mineral resources.

 The Appalachian Mountains: older mountains in the east eroded significantly by glaciation leaving a flatter, lower landscape dissected by deep, narrow river valleys (gorges) and U-shaped glacial valleys. Steep cliffs occur where mountains meet the sea.

- *Lowlands and plains* eroded by glaciation and filled with glacial and river sediments to create mostly flat plains with rich soils suited to agriculture and settlement.
  - The *interior plains* are large, flat areas of sediment eroded from the Canadian Shield, crossed by shallow river valleys and covered with lakes gouged by past glaciation. Forested in the north (*boreal / coniferous forest*) and supporting *grassland* (prairie) in the south the plains are considered Canada's breadbasket because they support large areas of grain as well as cattle grazing.
  - The Great Lakes-St. Lawrence Lowlands surrounding the Great Lakes and the St. Lawrence River supports large cities, rich farmland and manufacturing with some protected remnants of the original forest biome and steep escarpments such as Niagara Falls.
  - The Arctic and Hudson Bay lowlands are cold, flat plains underlain by permafrost that can only support tundra. The Arctic climate and frozen ground make development difficult and agriculture impossible.

#### See Sources C and D

• The *Canadian Arctic Archipelago* refers to the 36,000 islands such as Baffin and Ellesmere to the north of the mainland on the edge of the Arctic Ocean where landforms include the Arctic and Hudson Bay tundra covered lowlands and permanently snow capped mountains.

#### Source B: Major landform divisions of Canada



Source: https://s-media-cache-ak0.pinimg.com/originals/24/41/58/2441582 88c85fc9d493773cdd8ccda07.jpg

#### Source C: The processes shaping Canada



Source: http://slideplayer.com/slide/2403761/

#### Source D: Cross section showing the relative altitude of Canada's major landforms



Source: http://slideplayer.com/slide/4196105/

#### TECTONIC ACTIVITY, MOUNTAINS, VOLCANOES AND GEOMORPHIC HAZARDS

Canada's west coast sits on a subduction zone where the Juan de Fuca tectonic plate is sliding beneath the North American Plate (Source E, M). This plate movement created the mountains of the Cordillera including the 18 now dormant volcanoes and many fields of volcanic material. Small earthquakes regularly shake the west coast, however it is large Cascadian quakes and subsequent Tsunamis that Canadians fear. The last Cascadian quake occurred in 1700 and the tsunami destroyed First Nations villages and travelled the Pacific Ocean.

Scientists are predicting a "giant quake" in the future. Coastal communities, aquaculture farms, tourist resorts resorts and the coastal timber industry would potentially be devastated by a large tsunami. The west coast contains many narrow inlets and channels that could amplify the impacts of a tsunami for example, a five-metre tsunamis could become a 15-metre wall of water when restricted by a narrow inlet such as the Skookumchuck Narrows (Source I). Damage from a Cascadia quake and tsunami have been predicted at \$75 billion –100% greater than B.C.'s yearly budget.

The region is also vulnerable to earthquakes resulting from landslides in the steep slopes of the coastal mountains and along minor fault lines in the Georgia Strait that separates Vancouver Island from mainland BC. The government is making "catastrophic earthquake preparedness" a priority and signs of this are increasingly evident along the vulnerable west coast of Vancouver Island in British Columbia (Source F). Examples include tsunami-warning signs at low lying coastal areas such as Tofino and earthquake survival events in Victoria, the capital of BC. (Source G and H) A network of GPS satellites track movement to the ground monitoring stations and building codes have been amended in BC to ensure to minimise the impact of earthquakes on new west coast homes and high rise buildings. The biggest obstacle to minimising damage from tsunamis is an effective warning system. A new tsunami warning system is in development. (Source J)

Thousands of landslides cost Canadians an estimated \$200 to \$400 million every year and vary from minor events involving a few cubic meters of material to over 10 km3. Some landslides have been measured as travelling up to 100 km/hour. Excessive rainfall, earthquakes and human activities are earthquake triggers and can subsequently contribute to tsunamis in coastal areas. (Sources K and L) One contemporary geomorphic hazard including causes, impacts and responses

#### Source E: Cascadia subduction zone



New ocean floor is being created at the boundary of the Yuan de Fuca and Pacific Plates. As material wells up on ocean ridge, the ocean floor is pushed toward and beneath the continent.

> Source: http://www.pac.dfo-mpo.gc.ca/science/oceans/tsunamis/ tsunamiBC-CB-eng.html

## **Source F:** Tsunami Hazard map showing the vulnerability of Vancouver Island



Source: http://www.sfu.ca/~qgrc/research2.html



Source: http://bc.ctvnews.ca/b-c-shakes-up-tsunami-alert-system-1.1035403

#### Source I: Skookumchuck Narrows



Twice daily tidal rapids create a spectacular turbulent display. Water builds up to a height of 2–3 metres on one side of the narrow inlet as up to 200 billion gallons of water try to flow through the narrow inlet. "Skookumchuck" is a Chinook name meaning turbulent water or rapid torrent.

Image: L Chaffer



Left: Source G: Tsunami warning sign at Tofino, BC

Image: L Chaffer

## **Source J:** Landslides are frequent hazards throughout Canada's mountainous and coastal regions

PrepareVictoria.ca







#### STUDENT ACTIVITIES

- 1. List factors that help explain why Canada has a diversity of landscapes and landforms.
- 2. Use Source C to explain where mountain building is still occurring
- 3. Redraw the cross section in Source D. Add a vertical scale to show altitude and a horizontal scale to show distance on the cross section after conducting your own research.
- 4. Identify different biomes found across Canada. Explain why there is a diversity of biomes.
- 5. Explain the connection between tectonic forces, earthquakes and volcanoes.
- 6. Explain why Vancouver Island and the Pacific Coast of British Columbia are vulnerable to earthquakes and tsunamis.
- 7. Discuss the ways British Columbia is responding to the threats caused by tectonic plate movements.
- 8. "Landslides are a more serious threat to British Columbia than earthquakes". To what extent is this statement both true and false?
- 9. Locate a map showing Australia's main landform divisions and a continental cross section. Compare the diversity of landforms in Australia and Canada.
- 10. Identify the geomorphic hazards that occur in Australia. Write a statement that compares the vulnerability of Australia and Canada to large geomorphic hazards.
- 11. Read the media report "Building the ultimate tsunami warning system". Summarise the ideas using a concept map.
- 12. Use a flow diagram to explain how the NEPTUNE system will work to warn people of an impending tsunami.

Ancient forest along the north west Pacific Coast of Vancouver Island Source: https://commons.wikimedia.org/wiki/File:Klaskish\_View\_-\_Flickr\_-\_Eye\_Steel\_Film.jpg



#### Source K: Tsunami warning system in development

#### **MEDIA REPORT**

#### "Building the ultimate tsunami warning system"

## We can't prevent tsunamis – but a British Columbia project aims to save many thousands of people from their devastation

In addition to being deadly and devastating, tsunamis tend to arrive without much warning. They're most commonly triggered by undersea earthquakes and landslides. Those are hard to detect, but getting easier thanks to NEPTUNE, an underwater technology network off Canada's West Coast.

People need tsunami information fast. On the afternoon of March 11, 2011, an 8.95- magnitude earthquake hit off the coast of Japan. Within an hour, 10-metre waves washed the coast, sweeping away cars, crushing buildings and buckling roads as if they were twist-ties. The 2004 tsunami that swept the Indian Ocean, triggering more tsunamis as it rolled along, was just as shocking; it killed more than 230,000 people in 14 countries, and caused the entire planet to vibrate by about a centimetre.

"The problem is, how do you tell people they're coming, and more importantly, how do you tell what height they're going to be?" says Benoit Pirenne, Associate Director, Digital Infrastructure at Ocean Networks Canada.

Enter NEPTUNE, or the Northeast Pacific Time-series Undersea Networked Experiments.

Headquartered at British Columbia's University of Victoria, Ocean Networks Canada is using that high-tech underwater, computer-connected system, and others, to map and monitor the seabed — and to improve detection, warning and analysis of the shapes of the giant waves.

NEPTUNE's backbone is an 800-kilometre loop of power and fibre-optic cables, connected to equipment that measures a host of geological and other processes, deep in the Juan de Fuca Strait off the B.C. coast. The cable network lies atop the smallest of the Earth's 12 tectonic plates.

The cables are connected to pressure sensors on the seabed, Pirenne explains. "They're really scales that measure the water column. They do that every second, so you can map, if you will, every wave," he says.

Up to now, tsunami detection has been spotty. But NEPTUNE promises to deliver a continuous stream of data that is much more detailed and nuanced than what has been traditionally gleaned from ship-based exploration — and that information, Pirenne hopes, will soon be used to revolutionize tsunami detection.

"We have proven that our sensors can detect their waves," he notes. "We are now working on the software detection systems and on the models that will help predict more precisely the impacts on specific points along the coast of Vancouver Island." That step would mean far better protection than the minimal warnings that people have received for tsunamis up to now.

The sensor data is transmitted to stations where scientists can analyze the seismic activity to help predict big waves. "Help" is still the operative word. "In a given time range, with three or more sensors, we can identify the source, origin and the speed of a wave coming toward the coast. But it still doesn't tell you how high the wave will be," Pirenne says.

Tsunamis can reach as high as 30 metres – three times the height of the initial waves that caused the first devastation in Japan. Determining wave height is the next puzzle to solve, says Pirenne.

"We're working on a detection system. Waves are influenced by the profile of the seabed as you come close to the coastline; the topography of the water [and the seabed underneath] has a big influence on the final speeds and height.

"It's important take into account the profile of the coastline to see what the wave is going to be doing – whether it's going to be a metre or 10 metres, an acre or a square kilometre," he says.

"We hope to have this part ready by the end of 2016."

The challenge for scientists now is to move tsunami detection forward from its current state of "near-real-time," with a few minutes lag, to actual real time, so that when waves are detected everyone can know precisely how much time there is to take emergency action. Another challenge is to provide detection for both "near-field", imminent tsunamis and "far-field" ones that may be on the way.

The scientists are busy and the work is ongoing, says Virginia Keast, Ocean Networks Canada's communications officer. Last spring, the organization hosted an international workshop to share the latest advancements in tsunami modeling. And in mid-September, Pirenne was in St. John's, Newfoundland presenting the network's progress to other experts.

"We're sharing what we know with Japan, with South America, with other countries," says Keast. The 2004 Indian Ocean tsunami was the catalyst for action, she says, and this was reinforced by the Japanese disaster in 2011, which sent detritus and debris across the ocean all the way to B.C.

"Canada has one of the most advanced systems in the world in terms of cable sensors supplying data offshore," says Pirenne.

Source: https://gereports.ca/building-the-ultimate-tsunami-warning-system/

#### Source L: NEPTUNE – a tsunami warning system in development



Source: https://gereports.ca/building-the-ultimate-tsunami-warning-system/

#### Source M: The tectonic forces impacting on the West Coast of Canada.

PACIFIC

#### BRACING FOR THE BIG ONE

Geologists say it is inevitable that B.C. will experience an immense earthquake comparable to ones that spawned deadly tsunamis in the Indian Ocean in 2004 and Japan in 2011. Canada's West Coast lies on the 1,000-kilometre Cascadia subduction zone where vast slabs of the Earth's crust — called tectonic plates — collide and are trying to slide past each other but are now stuck and building pressure.

Tectonic plate

#### **CONVERGING PLATES**

boundary RING OF FIRE The Juan de Fuca Plate forms an undersea fault running from Canada's West Coast Vancouver Island to northern lies in this seismic belt California, where it is trying to slide where earthquakes Cascadia subduction beneath the North American Plate. and volcanoes. zone The plates, which move about four frequently occur. centimetres per year, are locked Pacific Ocean and cannot slip past each other, BRITISH MBIA causing tremendous strain. COLU Courtenay C Vancouver Yors Vanaimo O Victoria 🛞 Case The energy that WASH builds on the Continental crust Cascadia plate boundary is Plate movement released roughly every 500 years in a catastrophic earthquake of Oceanic crust magnitude 9 or greater. SUBDUCTION ZONE Such a quake would be massive enough to topple The Juan de Fuca Plate is buildings, bury highways pushed under the North American Plate Mantle and kill or injure thousands. and partially melted in a process called subduction.

SOURCE: NATURAL RESOURCES CANADA, U.S. GEOLOGICAL SURVEY

DEAN TWEED / POSTMEDIA NEWS

Source: http://www.calgaryherald.com/technology/Catastrophic+earthquake+tsunami+brewing+coast/10682930/story.html



#### **BIOMES: DIVERSITY AND INFLUENCES**

Biomes are large terrestrial regions of Earth's classified and named according to the dominant vegetation type and climate e.g. temperate forests. Biomes are influenced by precipitation, temperature, humidity and latitude and generally correspond with climate zones, forming parallel bands with changes in latitude. Canada has no tropical forests because of its location 42° to 83° North of the equator. In mountainous regions such as Canada's Rocky Mountains, biomes also change with altitude (Sources N, O and P). Soils, which form under the influence of climatic eq the weathering of rocks and glaciation, also influence the patterns of biomes within countries. Earth's major biomes include tundra, taiga (coniferous forests), tropical rainforests, deciduous forests, grasslands, and deserts. Each biome supports a diversity of wildlife species.

#### Canada's main biomes

Canada's biomes (Source Q) include:

- *Tundra*: in the arctic and mountainous regions where the subsoil is permanently frozen and topsoil thaws for a few months each year allowing plants to grow. Precipitation and temperatures are extremely low and too cold for trees. The dominant plants are mosses, lichens, grasses and herbs.
- *Taiga*: (also called boreal forest, coniferous forest or mountain forest): south of the arctic tundra and

Canada has a diversity of biomes largely determined by latitude and altitude.

## Distribution and physical characteristics of biomes

below the mountain tundra. Winters are long and summers short with a growing season of 3 – 4 months. The soil is acidic from decomposing pine needles. Snow is the main precipitation and the dominant plants are evergreen coniferous trees (fir eg Douglas fir, spruce and pine) with some ferns and shrubs.

- Temperate Deciduous forest: in slightly warmer latitudes and lower slopes where rainfall is more plentiful and the growing season extends to 5 or 6 months. The main plants are broadleaf trees such as maples, birch, poplar and oak.
- Temperate rainforest: along the wetter Pacific Coast
- *Grasslands* are found on the inland plains where rainfall is generally low, unevenly distributed and insufficient to support trees. Summers are hot and dry, winters extremely cold but soils are fertile from the accumulation of decaying plants making these areas ideal for growing grain crops.





**Source N:** Alberta's grassland biome south of Calgary contrasts with the boreal forests above Fernie in British Columbia's Rocky Mountains and climate graphs (page 21)



#### Climate graph for Calgary (grassland)

Source: http://en.climate-data.org/location/390/#climate-graph

The ability of environments to support plant growth is known as its Net Primary Productivity (or NPP). Some biomes are more productive than others and this influences the ability to support agricultural activities that produce food, fibres and industrial materials. Canada's grassland biomes on the interior plains are its most productive agricultural region along with alluvial floodplains and lowlands regions where soils are rich and rainfall is higher or water is available for irrigation.

Canada's biomes contribute to the diversity of landscapes in Canada. The alteration to Canada's biomes for the production of food, fibres and industrial products as well as urban growth has led to a significant loss of biodiversity (plant and animal) and land degradation. The sustainable use, management and protection of Canada's biomes will be addressed in future articles.

#### Source O: The influence of temperature and precipitation on biomes



Source: http://www.globalchange.umich.edu/gctext/Inquiries/Inquiries\_by\_ Unit/Unit\_3.htm



#### Climate graph for Fernie (boreal forest)

Source: http://en.climate-data.org/location/745522/



#### **Source P:** Biomes vary by latitude and altitude

Source: http://www.globalchange.umich.edu/gctext/Inquiries/Inquiries\_by\_ Unit/Unit 3.htm



Grasslands around Kamloops (Mara trail), British Colombia, Canada. Source: https://commons.wikimedia.org/wiki/File:Grassland.jpg

## **Source Q:** The distribution and characteristics of Canada's major biomes



Source: http://www.dpcdsb.org/NR/rdonlyres/D1342DB1-ADEF-4171-820A-3127C680ECDB/156254/Ch28MajorTerrestrialEcosystems.pdf

#### Vulnerability to bushfires

Canada is not usually associated with heatwaves, droughts and bushfires yet these very conditions cause thousands of wildfires in the country's forests and grasslands every year impacting on an average 2.3 million hectares each bushfire season. When conditions are abnormally warm and dry, such as those in 2004, 2014 and 2015, many millions of hectares burn such as the 6 million plus acres burnt during the 2004 fire season. In 2014 lightning, dry forests, and high temperatures caused hundreds of forest wildfires across British Columbia and Alberta. Residents of Vancouver were alerted to high levels of pollutants caused by fires in 2014 and advised to stay indoors. The occurrence and frequency of biome fires in Canada has varied over time (Source S) and been determined largely by variations in climate conditions (wildfires) as well as human influences (Source R).

Fire plays an important ecological role in Canada's forest biomes just as it does in Australia. According to *Natural Resources Canada* fires:

- remove aged trees
- expose the land to sunlight
- allow new trees to germinate to create new forest
- release nutrients from the trees into the soil

Climate change is expected to result in more frequent fires in many of Canada's boreal forests as fire-prone conditions increase in frequency and intensity. The burnt area could double and be exacerbated by other environmental responses to climate change such as insect outbreaks that kill more trees, and increased the combustible material on forest floor. The challenge for managing fires is to protect human life, property and iconic landscapes while allowing the important ecological role of fires to continue so that forests survive and regenerate into the future.

#### Wildfire in Alberta in 2014



Source: http://globalnews.ca/news/1452255/infographic-how-do-thissummers-wildfires-compare-to-previous-years/

The recovery of forests from fires in Canada is very different to the Australian experience. Some species such as white spruce have no special adaptations to fire and will only reappear after fires if the seeds or plants come from unburned places. Other species will regenerate quickly from the stumps and roots of burnt trees or from seeds blown in for other places. A regenerated forest in Canada grows from the ground up and looks very different to an Australian eucalypt forest where new growth appears from many places on a tree truck and roots below the ground.



NASA satellite imagery shows the complex of forest fires on British Columbia and Alberta border in 2014



Source: http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=84042

Forest recovery from the ground up at Kootenay National Park in unlike the regeneration of Australian Eucalypt forests.



**Source R:** GIS map shows fires caused by natural and human causes across western Canada in 2015



Source: http://gisuser.com/2015/07/wildfires-in-british-columbia-story-maphow-many-are-caused-by-humans/

#### Source S: Canada's wildfire history



Source: http://globalnews.ca/news/1452255/infographic-how-do-thissummers-wildfires-compare-to-previous-years/



#### STUDENT ACTIVITIES

- 1. Refer to Source O and Source P. Briefly explain the following relationships using examples from Canada.
  - Biomes and climate (temperature and precipitation)
  - Biomes and changes in latitude
  - Biomes and changes in altitude
- 2. Refer to Source Q and a map (atlas or internet). Describe the spatial distribution the following biomes in Canada
  - Tundra
  - Boreal forest
- 3. Refer to Source N
  - Describe the landscape and biome south of Calgary and above Fernie
  - Explain how the climate of each place would influence its biome.
  - List other factors that might influence the biome at each location
  - Suggest how each biome and surrounding landscape might be used by humans
- 4. List the main causes of wildfires in Canada.
- 5. Explain how bushfires affect landscapes and biomes.
- "Bushfire management in Canada is not only for protecting people and property" – Discuss this statement
- 7. Compare the recover of Canadian and Australian forests following a bushfire. Support your comparison with a collage of photographs showing forest recovery in both countries.
- 8. Refer to Source R, Source Q and Source B. Identify the states, landform divisions and biomes that experienced fires in western Canada in 2015
- 9. Explain why summer is the main fire season in Canada.
- 10. Refer to Source S
  - Compare the impact of Canadian bushfires in 2009 and 2013 by hectares affected
  - Identify the state that experienced the most fires between 2009 and 2014.
  - Calculate the number of fires in Ontario between 2009 and 2011
- 11. Discuss how modern technology such as satellite imagery and GIS can be used in wildfire management in Canada.

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## **ATTENTION – ALL GEOGRAPHY TEACHERS**



## TIME TO PREPARE FOR THE 2016 GEOGRAPHY FIELDWORK COMPETITION

The Geography Teachers' Association of NSW (GTA NSW) organises an annual competition for students and schools to foster an enthusiasm for Geography through engagement and rewards. The emphasis of the competition is fieldwork and the gathering of primary data as part of authentic research in geography.

The competition is open to all secondary schools, both members and non-members of GTA NSW.

All categories of the competition are based on the research action plan outlined on page 17 of the Years 7–10 Geography syllabus. The steps of this research plan have also been applied to the senior Geography course for the purposes of this competition and fit neatly with the Senior Geography Project.

#### **COMPETITION ENTRIES CLOSE FRIDAY 25 NOVEMBER 2016**

#### **COMPETITION CATEGORIES:**

- 1. The GTA Fieldwork and Visual Presentation Competition for Years 7–9
- 2. The Global Education Research (Fieldwork) Competition for Years 7–12 Three categories: Stage 4, Stage 5, Stage 6
- 3. The Dr Don Biddle Issues in Australian Environments Fieldwork Competition for Year 10 only
- 4. The Brock Rowe Senior Geography Project Fieldwork Competition for Year 11 only.

2016 Arthur Phillip Geography Fieldwork Competition and Student Entry forms will be available for download in Term 1 2016 from:

## www.gtansw.org.au

# **TEACHING IN ASIA:**

## Broadening the fieldwork horizon for Geography teachers

Timothy J. Kelleher, Secondary Teacher Australian International School, Hong Kong

Hong Kong-Zhuhai-Macau Bridge Site . Source: https://commons.wikimedia.org/wiki/File:Hong\_Kong-Zhuhai-Macau\_Bridge\_Site\_HK\_view\_201506.jpg

In 2010 I embarked on what was to be a two-year period of work in Hong Kong. As a geography teacher the prospect of new and exciting work opportunities helped to ease the uncertainty of such a significant move. Five years on I have gained a deeper understanding of how living abroad can further our understanding of geography. I must declare that 13 years of teaching the same case studies from the recommended text book rendered boredom not just for the students but for the teacher. Since moving to a foreign country I have embraced the varied and contemporary issues and case studies just waiting to be explored on my doorstep.

Living in a dynamic world city (Hong Kong) has exposed me to a range of wonderful teaching opportunities in both the human and physical aspects of our subject. The 2014 civil protests (known locally as the umbrella movement) was a fascinating time to be living in Hong Kong. Aside from my personal interests in the student sit in I was able to use the protest as a case study with my Yr11 Preliminary Geography students studying the political unit. As a class we reviewed the portrayal of the protests in the western media (namely the Australian press) and compared this to the local reports which undergo significant scrutiny and editing.

#### Year 12 HSC large City study

Within six months of living in Hong Kong it became apparent that the city would be the obvious choice for my Year 12 Large City study. Having toiled with Sydney year in, year out Hong Kong presented a fresh and interesting change of focus. Given the physical attributes of this city; namely a population of 7.3 million people, an area of 1107km<sup>2</sup> and an average population density of 6600km<sup>2</sup>, the urban dynamics of change are both easy to find and teach. Urban consolidation and urban renewal are well-worn terms on the nightly news and urban villages exist in abundance.

The smallness of the city ensures a single day field trip (within the usual school hours) can cover more than a third of the districts and take students through a myriad of the old and new that defines Hong Kong. Within a short bus ride students are witness to a building housing 6 foot by 4 foot caged dwellings juxtaposed to real estate that boasts the world's most expensive floor space. Further, the city undertakes mandated renewal within 50 years of a buildings operation leaving a litany of examples for study. Kennedy Town, a district located on the western edge of Hong Kong Island is currently undergoing extensive urban renewal. Older industrial buildings have been cleared to make way for high rise apartment dwellings. On the one hand this renewal provides much need housing yet it also gives rise to spatial inequality.

#### Investigating Asia: Beyond the classroom

As geographers we are constantly drawn to change and the impacts that accompany change. Living within 30 minutes of the Shenzhen China border I have the luxury of travelling into China after work, on weekends or extensively during holiday periods. Fieldwork opportunities include the following:

- 1. Reviewing parallel trading that occurs between Hong Kong and China (a popular topic for the Research Action Plan and SGP tasks)
- 2. Investigating pollution in the Pearl River Delta
- 3. Visiting ghost towns/cities that have been built yet scantily occupied such as Nansha located in Panyu; a mere one hour ferry ride from Hong Kong.
- 4. Interviewing Chinese tourists crossing the border as part of the Hong Kong governments' Special Visa Scheme.
- 5. Students devise surveys which are administered to local residents to better understand the impact of Chinese investors on the Hong Kong housing market.

By drawing upon local examples I am able to supplement the published Australian examples and draw parallels for students whilst providing a context for the environment in which they live. With the New K-10 Geography Syllabus (due for implementation in 2017) including Asia as a Cross Curriculum Priority, it will be incumbent upon teachers to integrate studies from Asia within each stage of our teaching. Topic areas such as Changing Places and Environmental Change and Management would lend themselves to a study of Hong Kong, China and/or Macau.

The application of these examples is not limited to the senior years. Each of these issues could be applied to units covered in Years 7–10. For example, the building of a bridge from Hong Kong to Macau (see images 2 and 3) and neighboring Zhuhai (due for completion in 2017) could be reviewed as part of the unit titled Place and Livability. When considering the factors that influence the decisions people make about where to live and their perceptions of the liveability of places (ACHGK043) together with the influence of accessibility to services and facilities on the liveability of places (ACHGK044). A ferry ride between Hong Kong and Macau (one hour in duration) would provide a firsthand look at the bridges construction. Classroom discussion could be centered on the reasons for the bridges construction and the possible influence this will have on Macanese residents accessing Hong Kong as a place of work. The possibilities are endless.

A second example would be to investigate the students within your school who live in China and commute daily to Hong Kong. Cross border students from china offer a unique insight into their duality. Questions could be posed such as: Do they attend school in Hong Kong for the English medium curriculum? What restrictions, if any, are placed on their schooling? How would school in China differ from schooling in Hong Kong? Cross border education is a growing trend amongst wealthy Chinese families and could easily be contrasted to boarding schools in Australia.

#### Taking the plunge

As geographers we are inherently drawn to the field for information and example. We applaud students who step outside of the classroom and seek the real essence of geography. Whilst working overseas is neither practical nor of interest to everyone I would strongly recommend undertaking a posting overseas. With an Asian centric curriculum there is no better time to investigate a move.

#### Source 1



Source: https://www.google.com.hk/search?q=parallel+trading+h ong+kong&espv=2&biw=1242&bih=606&source=Inms&tbm=isch &sa=X&ved=0CAcQ\_AUoAmoVChMI8JbQkefNyAIVBTCmCh0wTw w#imgrc=WT2CPOHit96MPM%3A

Source 1 illustrates Parallel Trading...the movement of goods and services across the border between Hong Kong and China. These are goods not readily available in China or are available but are of an inferior quality.

#### Source 2



Source: http://hk-magazine.com/sites/default/files/imagecache/item\_image/ HK-Zhuhai-Macau%20Bridge%202\_web2.jpg

Source 2 shows an artist's impression of the finished HK-Zhuhai-Macau Bridge that will link Hong Kong with Macau and Zhuhai in China.

#### Source 3: Map illustrating the proximity of Hong Kong to Macau and mainland China



Source: https://www.google.com.hk/search?q=hong+kong+macau+br idge+location&espv=2&biw=1242&bih=606&source=lnms&tbm=isch& sa=X&ved=0CAYQ\_AUoAWoVChMIrOzdm-jNyAlVBi2mCh2KCQU8#img dii=bmcYT4bBuJJJeM%3A%3BbmcYT4bBuJJJeM%3A%3BeUrselkqdm-7dM%3A&imgrc=bmcYT4bBuJJJeM%3A

## Source 4: Map illustrating the location of the bridge between Hong Kong, Macau and Zhuhai.

Hong Kong - Macau - Zhuhai bridge



Source: http://news.bbc.co.uk/2/hi/asia-pacific/8416141.stm

## THE 2015 HSC EXAMINATION REVIEW

Afternoon workshops will focus on investigating, reflecting on and preparing for the 2016 HSC Geography examination. Experienced presenters have all marked the 2015 HSC paper and will share their comments about the HSC Geography Examination.

Information regarding dates and event locations will be sent to all schools in early 2016. Further information will be available on the GTA NSW website – www.gtansw.org.au

## The Australian Geography Competition

#### Information for schools participating in 2016

The Australian Geography Competition is an initiative of the Royal Geographical Society of Queensland and the Australian Geography Teachers' Association. We look forward to your school taking part in 2016.

#### Why enter?

For you: to promote interest in Geography in your school and to reward student excellence.

**For your students:** to compete for great prizes - overseas trips to represent Australia in international competition, trips to North Stradbroke Island, Queensland, books, medals - and to get certificates for their portfolios.

#### **Competition format?**

The Competition is made up of multiple-choice questions testing geographical knowledge and skills. We supply the questions and answer sheets. You run the 35-minute Competition and return the answer sheets. We mark them and send back results and certificates.

#### International team

Australian team members to the 2017 International Geography Olympiad in yet to be advised will be chosen from Year 11 students who excel in the 2016 Competition and via Geography's Big Week Out.

#### Who can enter?

Students taking Geography, or an integrated social science which includes Geography, may enter. Students are graded at three levels - Junior for students in Years 7 and under or Year 8; Intermediate for students in Years 9 or 10; Senior for students in Years 11 or 12.

#### When do the important components happen?

Friday 15 April 2016	Entry deadline and payment
Monday 16 May - Friday 27 May 2016	Competition in schools
Wednesday 8 June 2016	Answers to be received by Competition Office
Mid July	Prizewinners notified
Late July	Results returned
To be advised	Geography's Big Week Out

#### How does a school enter?

- 1. Publicise and promote the Competition: (2016 information not yet available) download the flyers (not yet available for 2016) or find the hard copies posted to your school.
- 2. Collect entry fee of \$4 from each participating student (if students are paying individually).
- 3. Enter online (not yet open for 2016) or post us the entry form by Friday 15 April 2016.

#### Any questions?

The FAQs contain more specific information on the Competition. Teachers, particularly those new to the Competition, need to read through them. If the answer is not there, contact us on, email competition@rgsq.org.au or phone 07 3368 2066.

## The International Geography Olympiad 2015

#### **Milton Brown**

I never imagined in my wildest dreams that I would ever stand in Red Square in Moscow. It wasn't a place on my travel bucket list and given the 50's and 60's propaganda I grew up with, it certainly had a distasteful aura. I remember those military displays on May Day that were designed to show the scary might of a hostile Soviet Union, the stern looking Generals in their silly hats and the troops precision marching, supposedly to come and get us!

Yet here I was and all because of Geography and my love of the subject. When past GTANSW President Nick Hutchinson announced that New South Wales was to host the Geography Big Week Out in 2013 I had no idea what he was talking about. Calling for volunteers is usually the moment when people look for a pen or at their phones but in this case I became interested when he said it involved fieldwork - the beating heart of geography.

Fast forward past two years of the Geography Big Week Out activities on Sydney's Northern Beaches and here we were in Russia for the 12<sup>th</sup> International Geography Olympiad (iGeo), held from 11 to 17 August It was hosted by the Russian Geographical Society at the Computeria youth recreation and educational centre in Tver Oblast, 200 km NW from Moscow. The iGeo is an annual competition for the world's best 16 to 19 year old geography students selected through a national geography competition Based on their performances at the 2014 Geography's Big Week Out (GBWO), the four students chosen to represent Australia in 2015 were:

- Samantha Dixon, South Ballajura Community College, Perth W A
- Canada Gavin, Kinross Wolaroi School, Orange NSW
- Esrom Leaman, Pembroke School, Adelaide SA
- Giselle Pickering, Wavell State High School, Brisbane Qld.



Below: The Russian town of Torzhok



Team Australian in Red Square, Moscow

I was a Team Leader along with Marg McIvor (Australian Geography Competition Committee member). Kath Berg also accompanied the team but she was mainly involved with her duties as Co-Chair of the Olympiad Task Force.

The iGeo programme included three tests: a written response test, a multimedia test and a substantial fieldwork exercise requiring observation, cartographic representation and geographical analysis. Students must be able to answer all test questions in the official language of the Olympiad which is English. This year, a record 41 countries participated and we are proud to announce that Esrom and Sam won silver medals and Giselle a bronze.

Two official half day excursions were to Torzhok and Tver. Torzhok (population 47,000) is an ancient Russian town which is a very popular tourist destination today because of its historical monuments and its small urban centre atmosphere. Tver (population 409,000) is an important administrative and industrial centre on the Volga River. It was the capital of a medieval principality

### The International Geography Olympiad 2015

and competed with Moscow for a time. In 1466, the local merchant Afanasiy Nikitin left fom Tver and started his famous "Travel Beyond Three Seas" – one of the oldest geography books in Russia.

The full day excursion was to the famous Nilovo-Stolpensky monastery – regarded by many as one of the most impressive examples of neoclassical architecture in Eastern Europe. Founded in 1594, the monastery is built on Stolbnyi Island in the south eastern part of Lake Seliger. This lake, one of the largest natural lakes in Central Russia, is surrounded by the picturesque forest landscapes of the northern taiga.

We travelled in a convoy of six buses with full police escort the entire way. Watching the police drivers force oncoming cars off the road as we approached was definitely another memorable moment. I couldn't imagine any fieldwork group here getting that kind of treatment.

The closing ceremony and the awarding of Olympiad winners took place on the afternoon of 17 August 2015 at the Lomonosov Moscow State University, after the opening of the IGU Moscow Regional Conference. Another highlight was the live cross to the International Space Station where the astronauts congratulated



Nilovo-Stolpensky monastery, Stolbnyi Island. Source: Wikimedia Commons

all the participants – way more impressive than any military parade.

Huge thanks to all the teachers and organisations who helped me during the GBWO activities in Sydney, special thanks to Kath Berg and Marg McIvor and of course kudos to the students who represented Australia with intelligence, dignity and humour.

Below: View from the Dome of the Cathedral of the Epiphany, Nilovo-Stolpensky monastery, source: Wikimedia Commons



## **Studies of Canada for Geography 7–10**

## Canada: Beautiful, liveable, but vulnerable





Spirit Island in Maligne Lake, Jasper National Park, Alberta, Canada (Part of the Canada Parks World Heritage Area). Image: L. Chaffer

## PART 2: SELECTED LANDSCAPES and LANDFORMS, VALUES and PROTECTION

#### **SYLLABUS LINKS**

#### CONTENT (http://syllabus.bos.nsw.edu.au/hsie/geography-k10/content/1185/)

#### Landscapes and landforms

- Landscapes and the geomorphic processes that create distinctive landforms
- The values of landscape and landforms
- Ways people manage and protect landscapes

#### GLOSSARY (http://syllabus.bos.nsw.edu.au/hsie/geography-k10/glossary/)

**Glaciated landscape**: shaped by the action of icesheets and glaciers **Fluvial landscape**: shaped by the action of a stream or river **Volcanic landscape**: shaped by tectonic forces in Earth's crust that cause volcanic eruptions

The geomorphic processes of weathering, erosion and deposition by water and ice are responsible for the development iconic landscapes and their distinctive landforms in Canada, including the Columbia Icefields, the Great Lakes and Niagara Falls, Lake Louise and the Maligne and Fraser Canyons. These landscapes and landforms, along with the volcanic mountains, created by tectonic plate movements, hold important aesthetic, spiritual, cultural and economic value.

#### GLACIATED LANDSCAPES AND LANDFORMS

During the Pleistocene era the Laurentide Ice Sheet (Source A) covered most of Canada and northern USA. In parts of Central Canada the ice sheet was up to 3 km thick. Over time, the actions of the ice sheet and mountain glaciers left behind rugged mountain ranges, spectacular glaciated valleys and waterfalls, extensive plains and lake systems that making Canada the most glaciated country in the world. The last remains of the Laurentide Ice Sheet are the Barns Ice Cap and glaciers on Baffin Island in Canada's far north. Along the continental divide, where the Rock Mountains separate Canada's western coast from the interior plains and eastern thousands of glaciers and icefields characterise the mountain landscape and feed major river systems that cross the country and empty into oceans to the north, east and west. These rivers erode through mountains, plateaus and glacial sediments to create their own distinctive landform features. Canada's rivers and water resources will be examined in Part C

## **Source A:** The extent of the ice sheet covering North America in the Pleistocene Era



Source: http://serc.carleton.edu/eslabs/climatedetectives/3.html

Different landscapes and the geomorphic processes that create distinctive landforms

Canada's spectacular glaciated landscapes and landforms attract millions of visitors each year for their aesthetic and spiritual value and are an economic asset because of the income they generate in states such and Alberta and British Columbia. Glaciers also have environmental value as indicators of environmental change and as water sources for many river systems. National Geographic ranks the Icefields Parkway and its landscapes among the top scenic drives in the world.

**The Columbian Icefield** in Jasper National Park is one of Canada's most famous landscapes, covering an area of 325 square kilometres with ice to a depth of 100 to 365 metres. Up to 7 meters of snow falls here each year enhancing its aesthetic value. Millions of tourists visit the icefield and the spectacular landforms it contains including

- Glaciers fed by the icefield such as the highly accessible Athabasca Glacier
- Ice carved mountains, U shaped valleys, waterfalls, lakes and rivers fed by snow and glacial melt.
- Braided rivers formed where rivers break into many channels as they erode through tonnes of glacial debris

The boreal forests that cover the lower mountain slopes are an important feature of this mountain landscape.

**Lake Louise** in Banff National Park was created when a natural dam of glacial debris caused snow and glacial meltwater water to back up and form a lake. The lake feeds into the Bow River an important east flowing

 river and source of water on Canada's interior plains.
 Other glacial lakes are formed high in mountains where glaciers carved hollows, which later fill with water. These

The aesthetic, cultural, spiritual and economic value of landscapes and landforms



The Athabasca Glacier can be seen from the Icefields Parkway and Icefields Visitors Centre. Image: L Chaffer

are known as cirque lakes. Landslides also dammed rivers creating lakes such as Maligne Lake in Jasper National Park and Moraine Lake in Banff National Park. The turquoise coloured water in Canada's mountain lakes and rivers is caused the presence of moraine flour deposited by snow and glacial melt. Over time glacial lakes will fill with debris currently being weathered and eroded by glaciers and water high in the mountains above. Tourists flock to Lake Louise for the landscape and the adventure activities the landscape offers such as hiking, skiing, kayaking and photography.



Visitors transported onto the Athabasca Glacier in specialised vehicles. Image: L Chaffer



A glaciated landscape: The valley of the Athabasca River (that originates in the Columbia Icefield) seen from the Icefields Parkway showing a U shaped valley, mountain peaks of the Columbian Icefield, glacial moraine, a braided river channel, glacial deposits and taiga biome. Image: L Chaffer



Lake Louise is an iconic Canadian landform of glacial origin . Image: L Chaffer

#### The Great Lakes and Niagara Falls

The Great Lakes, a series of five interconnected lakes (Superior, Michigan, Huron, Erie and Ontario) on the border of Canada and the USA were formed by retreating ice sheets that carved large basins into the land that filled with glacial meltwater. Water from the lakes then eroded a passage through the Niagara escarpment where a resistant layer of rock created the three waterfalls (Horseshoe, American and Bridal Veil Falls) that combined form Niagara Falls. The lakes are the largest freshwater basin in the world with a fifth of its freshwater, and two thirds of this water flows over Niagara Falls each year. From the falls, water travels to the Atlantic Ocean via Lake Ontario and the St Lawrence River. Water erosion continues to sculpt the falls causing them to change shape and move upstream. In 12,000 years the falls migrated approximately 11km upstream leaving a deep gorge below. Snow and ice remain an important influence on Great Lakes landscapes and landforms. (Source B)

*Niagara Falls* provides inspiration for travelers, creatives (artists, authors and filmmakers) and residents and it was the aesthetic and social values of the falls that led to preservation efforts to reduce threats from industrial and commercial exploitation like withdrawal of water for hydroelectric generation. Legislation has been used in the past to restrict the amount of water diverted from the falls and erosion control strategies such as strengthening the rocks at the top of the falls have been implemented **to** reduce the rate of erosion and ensure the safety of visitors.

The value of landscapes and landforms

Ways people manage and protect landscapes



Source: http://nyfalls.com/niagara-falls/faq/

## NASA satellite image of the great lakes in summer and winter



Source: http://visibleearth.nasa.gov/view.php?id=54379



#### **Horseshoe Falls**



Source: http://www.lonelyplanet.com/north-america/activities/small-grouptours/niagara-falls-canadian-side-tour-maid-mist-boat-ride





#### **VOLCANIC MOUNTAINS**

Mountain landscapes in Canada been shaped by volcanism. Western Canada is on the Ring of Fire zone of earthquake and volcanic activity circling the Pacific Ocean. Over 100 volcanoes are located in western and northern Canada, mostly in remote locations, and are less active than those in other Pacific countries. Some volcanic mountains formed beneath glaciers and were exposed when ice retreated. Mount Garibaldi (2,678 m), just 66km north of Vancouver, is the youngest volcano in Canada and most likely to become active in the future. (Sources C and D)

## **Source C:** The location and type of volcanic mountains in British Columbia



Source: http://plate-tectonic.narod.ru/volcanoam10bphotoalbum.html

**Hoodoo Mountain** (1,850 m) in British Columbia (left) is a subglacial volcano that formed beneath a glacier but since exposed by retreating ice. It causes some seismic activity.

Source: http://www.bcmag.ca/British\_Columbias\_18\_Sleeping\_Volcanoes

#### AVALANCHE VULNERABILITY

An avalanche occurs when thousands of tonnes of snow suddenly move down a mountain slope at very high speed (up to 320 km/hr.). The steep snow covered slopes of Canada's glaciated and volcanic mountains are high-risk sites for avalanches. To prevent unpredictable avalanches the Canadian Avalanche Centre sets off controlled slides in areas where snow has accumulated (Source C).

## **Source D:** Sites at high risk of avalanches in western Canada



Source: http://www.canadiangeographic.ca/magazine/so01/avalanche.asp

## FLUVIAL AND KARST LANDSCAPES AND LANDFORMS

Water is the main agent of erosion and deposition responsible for the formation of landforms across much of modern day Canada including valleys, canyons, caves, waterfalls, lakes, floodplains and deltas. In places the erosion is influenced by past glaciation and tectonic activity as well as the type of rock present. Most of Canada's canyons are recent additions to the landscape

> Different landscapes and the geomorphic processes that create distinctive landforms

formed since the departure of glaciers. As ice melted, large amounts of water with high erosive power was released creating deep narrow canyons. Karst landscapes and landforms resulted where carbonate rock such as limestone is easily dissolved in water to leave caves, underground rivers and deep canyons (Source E).

The Fraser Canyon is an 84 km canyon formed by the Fraser River as it cut through the interior plateau and Coast Mountains on its journey from the Rocky Mountains to the sea. The past volcanic history of the landscape can be seen in lava flows present in cliffs along the Fraser Canyon. After descending through rapids the Fraser River emerges from the canyon only slightly above sea level but over 100 km inland after which it winds its way to the Pacific coast near Vancouver its sediment load is deposited on a large floodplain and delta.

#### Maligne River, Maligne Canyon and Medicine Lake

*Maligne Canyon* formed from a hanging glacial valley, when a smaller glacier melted to leave a valley high above the main floor of the retreating Athabasca Glacier. The Maligne River carved quickly downwards to reach the lower level of the main valley leaving a deep narrow canyon.

## **Fraser Canyon** in British Columbia cuts through a dry intermontane plateau.





#### Source E Karst landscapes and landform

*The Maligne River*, which formed from meltwater from the surrounding mountains, flows into and out of Maligne Lake (a large glacial lake created by a natural moraine dam), enters *Medicine Lake* and then disappears to flow underground for 14 km before reappearing in a 55 metre deep canyon the river has eroded. The underlying limestone rock is easily dissolved in the rapidly flowing and swirling water creating caves,

## **Maligne Canyon** is an example of a Karst landscape.





Maligne Canyon

underground channels and large potholes. Marine fossils in the limestone provide evidence that these rocks formed when covered by ocean water before being lifted by tectonic activity. Medicine lake fills with snow melt every year and gradually drains like a bathtub into the karst below before refilling with water in the following spring. To determine the extent of the karst system researchers used dye, which later appeared in many lakes and rivers in the area and led to the conclusion that it was one of the most extensive underground river systems in the world. Karst and cave experiences, such as caving, attract an increasing number of visitors to Canada each year. Vancouver Island attracts more than 55 000 visitors annually to its Horne Lakes Caves Provincial Park.

**The Badlands,** on the interior plains to the east of Calgary in Alberta, is one of the most interesting depositional and erosional landscapes in Canada. Unusual rock formations, known as Hoodoos, were created by river erosion and wind over 70,000 years ago. The layers of sedimentary rock formed millions of years before the hoodoos were created contain dinosaur fossils that still being uncovered by archeologists today. Specimens of every group of cretaceous dinosaurs have been found here including those of 35 species dating more than 75 Million years ago. The site is now a part of Dinosaur Provincial Park World Heritage Area.

Examples of hoodoos found in Canada's Badlands landscape



Source: http://interiorplains.weebly.com/location-and-landscape.html

Below: The Cheltenham Badlands, a geological feature just north of Mississauga in Caledon, Ontario.

Source: https://commons.wikimedia.org/wiki/File:Cheltenham\_Badlands\_(10661024274).jpg





#### LANDSCAPE VALUES AND PROTECTION

The aesthetic, spiritual, cultural and economic values of Canada's landscapes, landforms and biomes are evident in the images and example contained in this article. These values are managed and protected in a system of protected forty-four national parks and park reserves. Parks Canada's first priority is the protection the natural and cultural heritage. The parks system includes representative areas for key landscapes and biomes.

• National Parks are a system of 44 representative natural areas of significance in every province and territory, managed for public enjoyment without compromising the area for future generations, including the management of wildlife and their habitats eg. Banff National Park. Park management recognises and incorporates indigenous knowledge and the unique relationship of First Nations people with the land in park management.

> The aesthetic, cultural, spiritual and economic value of landscapes and landforms

Ways people manage and protect landscapes

- World Heritage Listing recognises sites of natural and cultural significance. For example the national parks of Banff, Jasper, Kootenay and Yoho and three provincial parks are listed as the *Canadian Rocky Mountain Parks World Heritage Site* for the following reasons.
  - Natural Beauty and biological diversity including landscape features such as mountain peaks, glaciers, lakes, waterfalls, canyons and limestone caves

 Representation of significant and on-going glacial processes along the continental divide on highly faulted, folded and uplifted sedimentary rocks.

The *Dinosaur Provincial Park* is listed for its natural qualities including the unique badlands landscape and landforms and fossil site. The park also protects the prairie grasslands on the site.

The *Head Smashed In Buffalo Jump* cultural listing recognises the cultural significance of a site where, for hundreds of years, Blackfoot hunters drove stampeding bison off the edge of a cliff and into the rocks below. This cultural listing is one of the world's oldest, largest, and best-preserved buffalo jumps where the foothills of Canada's Rocky Mountains meet interior plains. The site contains the cliff, the remains of butchering camps, buffalo trails and an accumulation of bones that recognises the understanding of topography and bison behaviour that enabled native people to hunt bison (buffalo).

The unique *Waterton-Glacier International Peace Park* includes the *Waterton Lakes National Park* in Canada and the Glacier National Park in the United States. Both parks are declared Biosphere Reserves by UNESCO and their union as a World Heritage Site to preserve the unique mountains, prairie, lakes and freshwater wetlands where the "prairies meet the mountains". Landscapes and biomes (and their habitats) protected in the two biosphere reserves include prairie grasslands, alpine tundra, subalpine forests, and deciduous and coniferous forests.

- Wildlife protected areas fall into two categories:
  - National Wildlife areas (46 Marine and terrestrial sites) to protect wildlife and wildlife habitat
  - *Migratory Bird Sanctuaries* (92 sites) to protect and conserve migratory birds and their nests.

There are 146 sites protecting many of Canada's important wildlife habitats. Since 1990, the overall protected area in Canada has nearly doubled to nearly 10% of land.



Source: http://www.cbc.ca/news2/interactives/map-canada-parks/

The *Head Smashed in Buffalo Jump* World Heritage Listing recognises and protects the cultural values of this cliff landform, prairie landscape and cultural heritage





Source: http://www.pc.gc.ca/eng/progs/spm-whs/sec02.aspx

The Canadian Rocky Mountain Parks World Heritage Site and National Park Status recognise the aesthetic, spiritual and environmental values of this mountain landscape above Lake Louise.

The aesthetic, spiritual and economic value of Canada's landscapes, landforms and biomes is reflected in the thousands tourists travelling Canada in RV's every year.





Waterton Lakes National Park, Peace Park and Biosphere reserve is an region of stunning beauty and diversity.

Source: https://en.wikipedia.org/wiki/Waterton\_Lakes\_National\_Park#/media/File:Pano14.jpg

#### STUDENT ACTIVITIES

- 1. Select ONE landform featured in this article for geographical inquiry.
  - Examine the geomorphic processes that created the landform
  - Identify the value of the landform to people and / or the environment
  - Explain how the landform is managed and / or protected.
  - Present as a written report incorporating diagrams, maps and photographs.
- 2. Describe the spatial distribution of Canada's National Parks and World Heritage sites.
- 3. Investigate one of Canada's protected areas (National Park, World Heritage Site or Wildlife Protected Area).
  - Identify the landscape, landform or biome being protected
  - Outline the reasons for protection.
  - Identify issues associated with human interactions with the protected area.
  - Present as a photo story or webpage.

#### Weblinks

Head Smashed In Buffalo Jump video clips – http://www.history.alberta.ca/headsmashedin/ photovideo/photovideo.aspx

360 degree interactive panorama – http://www.seevirtual360.com/themes/50/noTabs. aspx?listingID=5027

Canada's 44 National Parks – http://www.cbc.ca/news2/interactives/map-canadaparks/

Canadian Geographic: Avalanches – http://www.canadiangeographic.ca/magazine/so01/ avalanche.asp

Canada's sleeping volcanoes – http://www.bcmag.ca/British\_Columbias\_18\_Sleeping\_ Volcanoes

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\* See second page for detailed curriculum links



#### **Curriculum Links**

#### Stage 2:

NSW Syllabus for Australian Curriculum History: Community and Remembrance **HT2.1** Identifies celebrations and commemorations of significance in Australia and the world.

HSIE link: People and Their Beliefs: Human Society and Its Environment. **CUS2.3** Explains how shared customs, practices, symbols, languages and traditions in communities contribute to Australian and community identities. **CUS2.4** Describes different viewpoints, ways of living, languages and belief systems in a variety of communities.

#### Stage 3:

NSW Syllabi for the Australian Curriculum History & Geography. **HT3-3** identifies change and continuity and describes the causes and effects of change on Australian society. **GE3-2** explains interactions and connections between people, places and environments. **GE3-4** acquires, processes and communicates geographical information using geographical tools for inquiry.

HSIE: **CUS3.3** Identities. Describes different cultural influences and their contribution to Australian identities.

#### Learning Across the Curriculum Content:

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#### Free Deakin University Intercultural Understanding Survey

Teachers are invited to use our free online survey to gauge students' strengths and possible challenges relating to Intercultural Understanding. This tool is based on new research by Deakin University into intercultural understanding in schools. We can also provide guidance to teachers about how to use this tool optimally.

#### **Free Online Resource Difference Differently**

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The Geography Teachers' Association of New South Wales (GTA) is a not-for-profit, incorporated body that represents the professional interests of Geography teachers in NSW and Geographical Education more generally. The objectives of the Association are to promote the study and teaching of geography in schools by:

- providing professional learning opportunities for teachers of Geography;
- advocating the interests of Geography teachers on matters in the State and National interest;
- providing forums where teachers of Geography and the wider community can exchange views;
- supporting Geographical Education through the development and dissemination of geographical resources; and
- promoting geographical research and fieldwork.

The GTA seeks to address its objectives via a yearly program of activities and events, which include:

- online publication of the quarterly Geography Bulletin a quality, peer-reviewed journal designed to serve the contemporary interests of Geography teachers and students.
- delivering Teacher Professional Learning Workshops and in metropolitan and regional locations, focussing on current issues, including in Global Education, the use of technology in the classroom, research and fieldwork skills.
- conducting an Annual Conference with keynote addresses from leading geographers on contemporary and emerging geographical issues as well as more practical sessions by geographical practitioners.
- hosting School Certificate and Higher School Certificate Reviews for teachers of Geography. These reviews are held in a number of regional areas across the state.
- For further information about GTA NSW activities and events go to: www.gtansw.org.au

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## **ADVICE TO CONTRIBUTORS**

#### Editorial policy attempts to:

- promote material which will assist the study and teaching of geography
- encourage teachers to share their ideas on teaching geography
- provide a means by which teachers can publish articles
- inform readers of developments in geographical education

Articles are sought reflecting research and innovations in teaching practices in schools. From time to time issues of the Bulletin address specific themes.

#### Refereeing

All suitable manuscripts submitted to the Geography Bulletin are subject to the process of review. The authors and contributors alone are responsible for the opinions expressed in their articles and while reasonable checks are made to ensure the accuracy of all statements, neither the editor nor the Geography Teachers' Association of New South Wales Inc accepts responsibility for statements or opinions expressed herein.

#### Books for review should be sent to:

The GTA NSW Council PO Box 577 Leichhardt NSW 2040

#### **Editions**

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- Content: Articles, not normally exceeding 5000 words (no minimum specification), should be submitted to the GTA Office gta.admin@ptc.nsw.edu.au or by mail to: .
  PO Box 577, Leichhardt, NSW, 2040 who will forward to the editor/s:

Submissions can also be sent directly to the editors: Lorraine Chaffer (lchaffer@tpg.com.au) or Dr Grant Kleeman (gkleeman27@gmail.com)

Articles are welcomed from tertiary and secondary teachers, students, business and government representatives. Articles may also be solicited from time to time. Articles submitted will be evaluated according to their ability to meet the objectives outlined above.

- 3. *Format:* Digital submission in Word format. Tables should be on separate pages, one per page, and figures should be clearly drawn, one per page, in black on opaque paper suitable for reproduction. Photographs should be in high resolution digital format. An indication should be given in the text of approximate location of tables, figures and photographs. Every illustration needs a caption. Photographs, tables and illustrations sourced from the internet must acknowledge the source and have a URL link to the original context.
- 4. *Title:* The title should be short, yet clear and descriptive. The author's name should appear in full, together with a full title of position held and location of employment.
- 5. *Covering Letter:* As email with submitted articles. If the manuscript has been submitted to another journal, this should be stated clearly.
- 6. *Photo of Contributor:* Contributors may enclose a passporttype photograph and a brief biographical statement as part of their article.
- 7. *References:* References should follow the conventional author-date format:

Abbott, B. K. (1980) *The Historical and Geographical Development of Muswellbrook* Newcastle: Hunter Valley Press.

Harrison, T. L. (1973a) *Railway to Jugiong* Adelaide: The Rosebud Press. *(2nd Ed.)* 

Harrison, T. L. (1973b) The Spatial Distribution of Macadamia Plantations on the Far North Coast of New South Wales, *Journal of Rural and Agricultural Problems,* 13, 4, Oct. pp. 347–359.

O'Donovan, M. J., *et. al.* (1980) "Animal life in the North Star District of New South Wales". In W.W. Murphy, (Ed.) *Readings in Regional Geography (Vol.* 2), Sydney: Williams and Sons.

8. *Spelling* should follow the Macquarie Dictionary, and Australian place names should follow the Geographical Place Names Board for the appropriate state.



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