

GEOGRAPHY BULLETIN



The
Geography Teachers' Association
of New South Wales Inc.

Summer 2009
Volume 41 No 1

In this issue:

Doing Fieldwork with Year 7	3
Fieldwork: The Heart of Geography	7
Introduction to Fieldwork	12
Discovering My Backyard	14

EXECUTIVE 2009

PRESIDENT

Dr Grant Kleeman, Macquarie University

VICE-PRESIDENTS

Dr Susan Bliss, Global Education

Ms Sue Field, Programs

Ms Sharon McLean, St Ignatius' College, Membership

Mr Martin Pluss, Technology

SECRETARY

Ms Sarah Menassa

MINUTES SECRETARY

Mr Paul Alger

TREASURER

Dr Mary Fogarty, Turramurra High School

EDITORIAL COMMITTEE

Dr Grant Kleeman (Chair), Macquarie University

Dr Susan Bliss, Manager Global Education Project

Dr Mary Fogarty, Turramurra High School

Mr Nick Hutchinson, Macquarie University

COUNCILLORS

Ms Lorraine Chaffer, Gorokan High School

Ms Summer Charlesworth, Ravensworth School for Girls

Mr Rex Cooke, Waverly College

Ms Sidsel Farrimond, Loretto Kirribilli

Ms Pam Gregg, Keira technology High

Ms Barbara Heath

Mr Keith Hopkins, St Mary Star of the Sea College

Mr Nick Hutchinson, Macquarie University

Mr Rod Lane, Macquarie University

Mr John Lewis, Narara Valley High School

Mr Darren Tayler, National Curriculum Board

CO-OPTED

Ms Lisa Spaccavento, SCEGGS Darlinghurst

Ms Kimberley Correia, De La Salle College, Ashfield

Ms Sidsel Fairmont, Loretto Kirribilli

GEOGRAPHY BULLETIN

Editor: Grant Kleeman

Articles and letters should be sent to the Editor:

Dr Grant Kleeman,

School of Education, Macquarie University

Sydney NSW 2109

Email: grant.kleeman@mq.edu.au

Design and layout: Jill Sillar

Professional Teachers' Council NSW

Email: jill.sillar@ptc.nsw.edu.au

ISSN 0156-9236



The
Geography Teachers' Association
of New South Wales Inc.

OFFICE OF THE GEOGRAPHY TEACHERS' ASSOCIATION OF NEW SOUTH WALES

ABN 59246850128

Office Manager: Terry Fogarty

Address: Block B, Leichhardt Public School Grounds,
101-105 Norton Street, (Cnr. Norton & Marion Streets)
Leichhardt NSW 2040

Postal Address: PO Box 577, Leichhardt, NSW, 2040, Australia

Telephone: (02) 9564 3322, Fax: (02) 9564 2342

Website: <http://hsc.csu.edu.au/pta/gtansw/>

Email: office@gtansw.org.au

ANNUAL MEMBERSHIP

Personal membership \$80.00

Personal membership when school or employment institution
is also a corporate member \$60.00

Corporate membership (School, Department or Business) \$150.00

Full-time Student (Verification required) \$30.00

Retiree \$35.00 (Membership subscriptions include GST)

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 page 42. 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.

© Copyright 2009 Geography Teachers' Association of New South Wales Inc. Unless otherwise indicated in an article, non-profit organisations such as schools and universities may make up to 30 photocopies of any article in this journal without obtaining further permission.

GEOGRAPHY BULLETIN



Vol 41, No1

SUMMER 2009 – Fieldwork

EDITOR: Grant Kleeman

EDITORIAL POLICY

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.

S
T
E
T
N
C
O
C

Editorial.....	2
Doing Fieldwork with Year 7	3
Designing an Assessment Task for Fieldwork.....	5
Fieldwork: The Heart of Geography	7
Introduction to Fieldwork.....	12
Discovering My Backyard.....	14
Fieldwork's Links to Global Education	18
Fieldwork at EECs	20
Issue: Urban growth and decline in Wagga Wagga	22
Survivor: North Era	22
New resources for teachers: OceanWatch Kit	24
<i>About Fieldwork</i> – A CLI resource	26
<i>Waterworks</i>	28
Fieldwork locations	29
Your Parklands, <i>The Geography Challenge</i>	30
Minnamurra Rainforest Centre.....	32
North Head Sanctuary	33
Sydney Attractions Group.....	34
<i>Land's Edge</i> for Fieldwork.....	35
Sydney Learning Adventures.....	38
Warragamba Dam	39
Lake Cowal Conservation Centre	40
Fieldwork Competition 2008 Report.....	41
GTA Professional Development Calendar	42
Advice to contributors	44

"Fieldwork helps arouse students' curiosity and makes the study of geography more enjoyable and relevant. It fosters active learning by enabling students to observe, ask questions, identify problems, and hone their perceptions of physical features and human activities. Fieldwork connects students' school activities with the world in which they live."

(US) Geography Education Standards Project, 1994, p. 43)

In this special issue of the *Geography Bulletin* we focus on fieldwork.

Fieldwork is an important aspect of Geography. It enables geographers to engage with the environment – to observe and study in the 'real world' the geographical phenomena, issues and processes studied in the classroom. It also allows us to explore different perspectives or points of view on important geographical issues.

Sue Field is responsible for bringing together the writing team for this edition. A special thank you goes to Sue and all those who agreed to contribute.



Geography Skills Workshop, Friday 20 February at the PTC NSW Conference Centre, Leichhardt

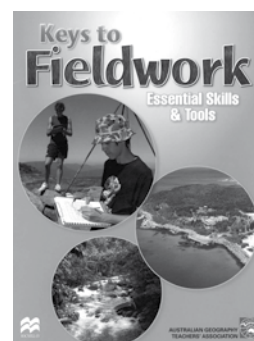
Another big year for the GTA

The GTA has an ambitious professional development program for 2009. Early indications are that these activities will be in high demand. Look out for notices sent by fax-stream or included as inserts in the Journal. The program can also be accessed on the Association's website.

Georesources

New publication from AGTA and Mcmillan: *Keys to Fieldwork*

Keys to fieldwork has been written by some of Australia's leading Geography teachers and teacher educators. It provides comprehensive step-by-step explanation of selected fieldwork activities and the geographical skills and tools needed to undertake them.



A wealth of contemporary Australian fieldwork activities is provided in the text. These can be applied in various spatial contexts. The text also includes a wide range of stimulus material – maps, diagrams, graphs and photographs.

The activities, arranged by theme, are suitable for Stages 4–6.

The new text is a companion to the very successful *Keys to Geography Skills*.



Grant Kleeman, Editor



Doing fieldwork with Year 7 classes

Fieldwork in Year 7 is an opportunity for students to experience Geography and develop a passion for Geography, which carries them through to Year 12.

"Fieldwork is an essential part of the study of Geography. It is a geographical tool that facilitates the understanding of geographical processes and geographical inquiry.

Fieldwork enables students to:

- acquire knowledge about environments by observing, mapping, measuring and recording phenomena in the real world in a variety of places, including the school;
- explore the geographical processes that form and transform environments;
- use different kinds of geographical tools including information and communication technology to assist in the interpretation of, and decision-making about, geographical phenomena;
- locate, select, organise and communicate geographical information; and
- explore different perspectives on geographical issues.

Fieldwork activities should be carefully planned to achieve syllabus outcomes.

In the mandatory Stage 4 course, fieldwork uses Australian examples in teaching/learning programs to facilitate understanding of global issues and environments."

(Geography Years 7–10 syllabus, Board of Studies NSW, 2003)

Steps to planning effective fieldwork

1. Include the fieldwork in the teaching/learning programs and the assessment schedules for Years 7–10.
2. The fieldwork in Year 7 is connected to the fieldwork in Years 8, 9 and 10. It is also connected to any fieldwork that has been included in primary programs for HSIE and Science and Technology.

3. Students can have a return experience at the same location provided the teaching program is different.
4. The skills demonstrated in Year 7 are contributing to the bank of skills a student needs to conduct fieldwork and research in Year 10 with the Junior Geography Project, and indeed for the Senior Geography Project if they go on.
5. The teaching program should distinguish between activities that are done in the classroom (or school grounds) as prior learning for students, activities that will be undertaken in the field, and activities that will occur back in the classroom to interpret the primary data collected in the field.
6. Fieldwork is one tool to help students to understand the world around them and should be used in conjunction with other methods of teaching. Fieldwork is NOT an end in itself.
7. The teaching program determines which Geographical Tools need to be covered by this particular fieldwork activity. Some of the tools allocated to a particular Focus Area can be covered in other classroom activities.

Tools for 4G1 – could be included in a fieldwork activity:

- Maps
- Direction
- Sketch map
- Line drawing
- Photographic images
- Geographical instruments (eg thermometer)
- Data collecting and recording

Tools for 4G2 – could be included in a fieldwork activity:

- Maps
- Distance and scale
- Direction
- Sketch map
- Line drawing
- Photographic images
- Satellite images

Doing fieldwork with Year 7 classes

8. The assessment schedule determines which outcomes are the focus of this activity. So the assessment task assesses what students know and can do, in relation to these particular outcomes, as a result of the fieldwork activity. For example the outcomes in 4G1 that might be allocated to this activity are:

- 1.1 identifies and gathers geographical information
- 3.3 uses a range of written, oral and graphic forms to communicate geographical information
- 4.5 demonstrates a sense of place about global environments.

Organising a fieldwork activity

Take a whole Year group and include more than one subject. For example: Geography with History and/or Science. This works well in the junior years where all these subjects are mandatory.

- This reduces disruption at the school, particularly for learning areas not involved.
- Provides more teachers for supervision and to cover the extras created, within faculties involved.
- Helps the students to make the connections between subjects and between subjects and the real world – seeing the same place from different perspectives.

Selecting the best location for fieldwork

The best location is one that enhances your teaching and fits your teaching program.

Choose a quality fieldwork experience such as:

- an Environmental Education Centre (DET)
- other government and non-government operations where they have organised a quality program that meet your needs and the requirements of the syllabus.

Having an education officer does not necessarily mean good programs. Many education officers do not have a teaching background.

Effective use of fieldwork time

Time should not be wasted when the students are in the field. They are in the field to collect primary data.

Students are in the field to ask geographical questions:

- What is there?
- Where is it?
- Why is it there?
- What are the effects of it being there?
- How is it changing over time?
- Should it be like this?

The answers to these questions can be recorded in a variety of ways: words, sketches, diagrams, photographs.

Some of these recording methods require skills. Any skills that students will be required to use at the fieldwork site should be practised at school, either in the classroom or the school grounds. For example, students should be familiar with drawing a sketch map.

Fieldwork is an opportunity for students to practise their skills in a new environment.

Worksheets should be a guide not a burden for students. Worksheets are “working papers” and as such should not be part of any assessment task. This stops students wasting time rewriting them to make them presentable. The focus should be on the learning. However, as a requirement of attending the fieldwork activity, students may be required to hand in these papers (on the day of the fieldwork) to demonstrate they fully engaged in the fieldwork activity. These papers need to be returned promptly to allow students to use them for their follow-up assessment task.

Activities on the worksheets should not cover information that can be obtained through secondary sources (before or after the fieldwork day). Fieldwork is about gathering data from primary sources. For example: don't ask the students about the climate of the Blue Mountains (long term information) rather ask them to record the weather features they can observe and record today.

Fieldwork as a part of research

Students in Year 7 are undertaking a very simple, guided research activity when they participate in fieldwork.

Teachers can use the steps of the Research Action Plan with each of the fieldwork activities.

Research Action Plan

- Step 1 identify the aim/purpose of the investigation
- Step 2 generate a number of focus questions to be addressed by the investigation
- Step 3 decide which primary and secondary data are needed to answer the focus questions
- Step 4 identify the techniques that will be used to collect the data
- Step 5 **collect primary and secondary data**
- Step 6 process and analyse the data collected
- Step 7 select presentation methods to communicate the research findings effectively
- Step 8 propose individual or group action in response to the findings and, where appropriate, take such action.

There is no reason why students cannot achieve all eight steps of a research project in Year 7. For instance, Steps 1– 4 may be provided to the students by the teacher, if necessary.

Sue Field, Education Consultant

FIELDWORK WORKSHOPS 2008

Designing an Assessment Task

Developing a stage plan for the subject

It is important for teachers across a Stage to work together on a Stage plan for teaching and assessing a cohort of students. The Stage plan for 'assessment of learning' needs to be mapped to ensure that all the outcomes (knowledge and skills) for the Stage have been included and students have had the best opportunity to demonstrate what they know and can do.

Assessment of learning

When teachers are designing an assessment task they need to refer to the Stage plan as their first step. This provides both the type of task to be created and the outcomes that are the focus of this task.

Designing the task

It is important to develop all parts of the task together: outcomes – task – rubric – marking criteria. The task and the marking criteria need to be explicit and reflect the outcomes being tested. The outcomes being tested should be selected from both knowledge and skills outcomes.

Marking criteria

The marking criteria are about making decisions about what students have to do to get each of the marks available for the task. The less complex the task, and the fewer

the outcomes and the less complex the rubric, the easier the marking criteria is to develop. Teachers are advised to avoid multifaceted tasks that address more than a few outcomes and elements in a rubric.

Constructing marking guidelines

Marking guidelines are particularly important because they:

- Support consistent marking
- Distinguish different levels of achievement
- Link marking to the outcomes and content of the syllabus.

Principles of marking guidelines

1. Limit the number of mark ranges to a maximum of five. The greater the number, the more difficult it is to find words to differentiate performance from one level to the next.
2. Limit the range of marks in a level to a maximum of two (eg 9–10). Where a larger mark range is used (eg 17–20) teachers need to differentiate four further levels of performance without any distinguishing criteria. Teachers make judgements but the criteria are 'hidden' from the students.
3. Where possible use the language of the outcomes, task and rubric. This allows students to see the connections between the activity and their mark and comments.

CREATING AN ASSESSMENT TASK FOR FIELDWORK

<p>Geographical research</p> <ul style="list-style-type: none"> • key geographical questions • Fieldwork: the use of geographical tools in investigating the physical and human environment * <i>apply key geographical questions to a local environment</i> * <i>use geographical tools to measure and record elements of the local environment</i> * <i>present geographical information about the local environment using a range of written, oral and graphic forms</i> 	<p>Task 5 Fieldwork in the Greater Blue Mountains</p> <div data-bbox="518 1321 1444 1411"> <p>The purpose of this fieldwork is to investigate the landscape and make the connections between Tasks 3 and 4 and the real world.</p> </div> <ul style="list-style-type: none"> • Visit places such as Echo Point, Scenic World or Govett's Leap to get an impression of the landscape and discuss the geomorphic processes operating at each location. • Ask geographical questions such as: What is there? Where is it? Why is it there? • Record your information using appropriate diagrams, sketch maps, line drawings and photographs. • Conduct your survey of visitors (in pairs and remember to be polite). • Speak to a representative of National Parks and Wildlife Service about the criteria and process for being listed as a World Heritage Area, organisations responsible for the World Heritage Area, legal obligations of governments and the different roles of individuals, groups and governments in protecting the area and protecting the water supply for Sydney. <p>When back in class:</p> <ul style="list-style-type: none"> • collate the answers from the survey and write a half page summary of your findings; and • compare your answers with the actual World Heritage criteria and write a report (one page) on visitors' appreciation of the Greater Blue Mountains as a World Heritage Area and catchment for Sydney's water supply. <p>Teacher note See sample Assessment of learning task for this activity and its marking criteria.</p>
---	---

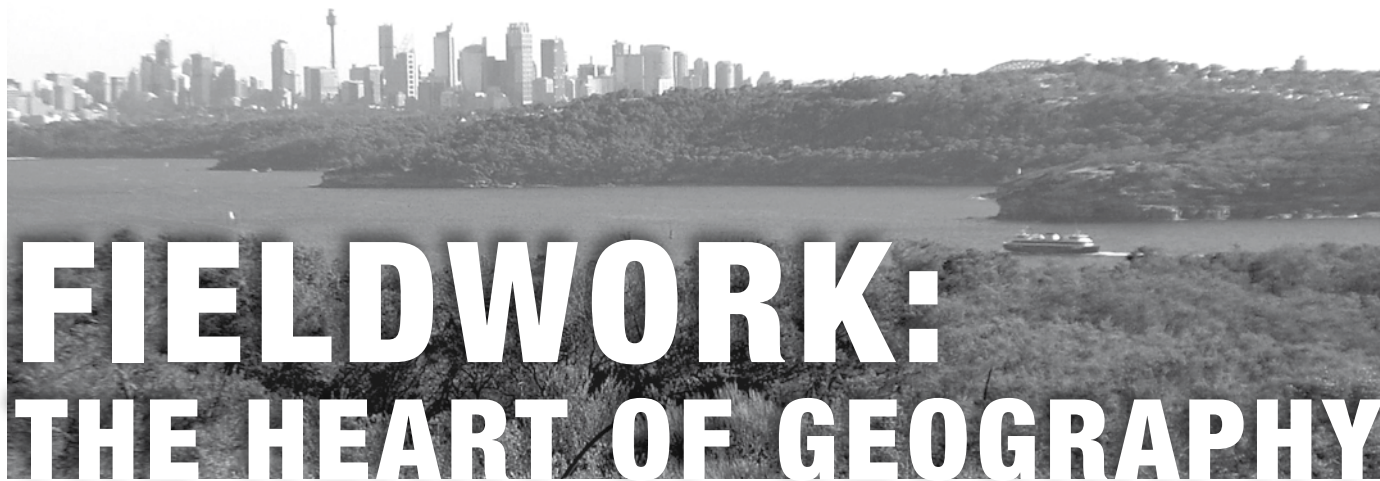
Designing an Assessment Task

TEACHER PREPARATION TEMPLATE

Syllabus name and focus area: Years 7–10 Geography 4G1 Investigating the World	Outcomes: 4.1 identifies and gathers geographical information 4.2 organises and interprets geographical information 4.5 demonstrates a sense of place about global environments
Background information: The task draws on the data gathered during the fieldwork activity. It is the final activity for the unit.	
Task: Write a report (one page) on a visitor's appreciation of the Greater Blue Mountains as a World Heritage Area and the catchment for Sydney's water supply.	
Rubric In your answer include: <ul style="list-style-type: none"> • a sketch map of the Greater Blue Mountains World Heritage Area and the catchment for Sydney's water; • the actual criteria for declaring the Greater Blue Mountains a World Heritage Area; • a summary and interpretation of the results from the survey conducted at a tourist location in the Blue Mountains; and • geographical terminology and mapping conventions. 	
Marking Criteria	Mark range
<ul style="list-style-type: none"> • Provides a detailed and accurate sketch map of the area, including the Greater Blue Mountains Area and the catchment for Sydney's water • Provides actual criteria for World Heritage Listing • Gives a concise summary of survey results • Comprehensively interprets survey results • Uses high level geographical terminology and appropriate mapping conventions 	9–10

FIELD HIGH SCHOOL – ASSESSMENT TASK FOR YEAR 7

Information This is the final assessment task for Term 2. The task is based on the fieldwork you will participate in. The fieldwork will be conducted in pairs and you will work on the results of the survey in the pairs, but your report is your individual work.
Task Write a report (one page) on a visitor's appreciation of the Greater Blue Mountains as a World Heritage Area and the catchment for Sydney's water supply.
Rubric In your answer include: <ul style="list-style-type: none"> • a sketch map of the Greater Blue Mountains World Heritage Area and the catchment for Sydney's water; • the actual criteria for declaring the Greater Blue Mountains a World Heritage Area; • a summary and interpretation of the results from the survey conducted at a tourist location in the Blue Mountains; and • geographical terminology and mapping conventions.
Date due: 20th June Marks: Your work will be marked out of 10 but it is worth 20% of your total assessment for Year 7.



Dr Susan Bliss
NSW Director of Global Education

Sauer's presidential address to the Association of American Geographers (AAG) in 1956 stated 'the principal training of geographers should come, wherever possible by doing fieldwork' (Sauer, 1956, p. 296) and this perspective is reinforced in curricula today (UK Quality Assurance Agency QAA 2002). Fieldwork is perceived at the heart of Geography (Gold *et al.*, 1991); intrinsic to the discipline as clinical practice is to medicine (Bligh, 1975); and Geography without fieldwork is [perceived as being] like Science without experiments (Bland *et al.*, 1996, p. 165).

Fieldwork is an essential part of the study of Geography and is (or should be) the fun and exciting part of Geography. It is a geographical tool integrated and embedded as a learning tool within courses that helps facilitate the understanding of geographical processes and geographical inquiry. Fieldwork can enhance learning opportunities for a wide range of students because it caters for a variety of teaching and learning styles.

Observation and primary research

Geography has always been a discipline of observation. Observation has formally been incorporated into Geography through fieldwork. Anyone can do fieldwork, and every good geographer does. Fieldwork is important to Geography because it contributes to geographical research and to our basic understanding of the earth's surface. To understand Geography or do geographic research, one must consult primary sources. Historically, two views have tended to dominate fieldwork, at least in American Geography:

- geographers studied a particular problem in depth and then went into the field to look for answers to the problem (deductive method); and
- geographers identified vague topics and then conducted thorough, unbiased fieldwork to identify problems and answers (inductive method).

Geographers regard fieldwork as a vital tool for understanding the world through direct experience, for gathering data about the world, and as a fundamental method for enacting geographical education. The concept of fieldwork has a considerable history in the

field of Geography. Research has demonstrated that the theoretical aspects of fieldwork have been interpreted differently in regions around the world, but the importance of fieldwork remains strong, globally. The pedagogic implications for fieldwork, in formal education, offer ideas both for promoting it in geographical education and for maintaining its place in the Geography curriculum. Most forward-looking geographers recognise that alternative strategies, especially those involving the use of information technology, should be developed to reaffirm the centrality of fieldwork in geographical and wider education.

Fieldwork approaches

The UK Quality Assurance Agency (QAA) benchmark statement defines fieldwork as 'active engagement with the external world' (QAA, 2006), and Geography fieldtrips should not be confused with picnics or class excursions (Lewis, 1968). Fieldwork can be categorised according to its degree of student-centredness. The more traditional, teacher-centred approaches to fieldwork involve explanation or lectures, note-taking and direct observation. Under such conditions there is little scope for active student involvement. At best students are required to observe, describe and explain features of the environment using previously acquired knowledge. A more effective approach is one that incorporates the processes of field research. While still incorporating the elements of observation, description and explanation, it adopts a problem-solving or inquiry centred learning focus following these steps:

- identify a geographical question as a result of their observations or studies;
- formulate a line of inquiry or hypothesis;
- design an appropriate research approach;
- observe, collect and record data; and
- process and analyse information.
- draw conclusions that address the original question.

This field research approach reinforced in the NSW Stage 4/5 Geography syllabus (BOS, 2003) aims to enhance students' ability to apply inquiry-based skills in different geographical contexts.

FIELDWORK: THE HEART OF GEOGRAPHY

Fieldwork strategies

Adapted from fieldwork strategies and purposes (Job, Day and Smyth, 1999:14)

Strategy	Purposes	Characteristic activities
Traditional fieldwork excursion	Students develop: skills in geographical recording and interpreting; the concept of landscape evolving over time; an appreciation of the landscape.	Guided by teacher Students listen, record and answer questions
Field research based on hypothesis testing	Students: apply geographical theory to the real world; generate and apply hypothesis; develop skills in analysing data in order to test field situations against geographical theory.	Deductive approach: geographers study a particular problem in depth and then go into the field to look for answers to the problem; initial consideration of geographical theory leading to formulating a hypothesis: collection of quantitative data in the field tested against theory. Inductive approach: geographers identified vague topics and then conduct thorough, unbiased fieldwork to identify problems and answers
Geographical enquiry	Students: identify, construct and ask geographical questions; offer explanations and interpretations of their findings; apply findings to the wider world.	Geographical problem identified. Students supported by gathering quantitative and qualitative data. Findings evaluated and applied to wider world
Discovery fieldwork	Students: discover their own focus of study; in control of their learning.	Teacher assumes the role of guide, allowing students to follow their own discovery. Discussion and recording sessions identifies themes for further investigation
Sensory fieldwork	Students: use all the senses to develop new sensitivities; nurture caring attitudes; acknowledge sensory experiences is a valid intellectual activity in understanding surroundings.	Structured activities to stimulate the senses. Examples: sensory walks, sound maps, artwork Develop a sense of place, aesthetic appreciation or critical appraisal of environmental change

With increasing number of untrained Geography teachers, professional fieldwork assistance is provided by the Department of Education and Training Environmental Education Centres, businesses that provide fieldwork and organisations such as National Parks. Most structure their presentations to meet the outcomes and content of syllabuses. An increasing number of teachers refer to virtual fieldwork. This practice should not replace fieldwork but be used as a model for fieldwork, pre- or post-excursion activity, or an additional case study.

Changing fieldwork

Fieldwork over 60 years has evolved from its traditional, observation and description based origins to a diversity of learning and teaching processes. Geography fieldwork in 1950s referred to as the traditional Cook's Tour (Kent *et al.* 1997) changed and by 1960s and 1970s fieldwork focused around the study of geographical processes (Finlayson, 1981; Burt, 1988) and research and problem-solving approaches (Bradbeer, 1996; Fuller *et al.*, 2000). Such approaches demanded development of subject-specific technical skills, especially transferable skills such as teamwork, and student employability.

The role of technology in fieldwork teaching remains subject to debate. It is over 30 years since Gardiner & Unwin (1986) used computers on fieldtrips to analyse results. Technology can play a useful role in enhancing effectiveness of fieldwork, used as an integral part of all stages of fieldwork: preparation, practice and debriefing (Kent *et al.*, 1997).

Changes in the delivery of fieldwork have occurred. Some fieldwork has been adjusted for important pedagogic reasons and reorientated towards small-group learning and small-scale problem solving (Simm & David, 2002). This contrasts with the traditional 'expedition' or 'Cook's tour' approach to fieldwork common in the 1950s and builds on the problem-orientated, project-based fieldwork introduced in the 1970s (Kent *et al.*, 1997). Today the focus on active learning aims to improve the affective domain and enhance the value of fieldwork (Kern and Carpenter, 1984; 1986). The shift from passive to active learning using fieldwork is a global trend amongst the pedagogically-responsive community.

FIELDWORK: THE HEART OF GEOGRAPHY

How effective is fieldwork in improving learning?

Academics and students consider fieldwork an effective and enjoyable learning and teaching method (Kent *et al.*, 1997; Fuller *et al.*, 2003). There are a number of common themes which make fieldwork effective as listed in the table. From the students' perspective, the strongest is the hands-on experience of the real world which fieldwork provides across cultures and continents. However, the extent to which fieldwork achieves this depends upon the nature of the fieldwork. The impacts on the effectiveness of learning in the field varies from the basic, to deep understanding, through to the pedagogic practice employed before, during and after the fieldwork.

Effective fieldwork from an international perspective

Findings from international research

International research on fieldwork found the following important aspects of fieldwork:

- enhanced student learning (Kern and Carpenter 1986).
- develops skills (transferable and technical).
- develops social skills, breaking down barriers between staff and student and strengthening group identity (Gold *et al.*, 1991).
- the field is central to the way we experienced Geography, both as a discipline and as a context within which to think about the way the world works (Stoddart & Adams 2004, p.46).
- fieldwork gives opportunities for learning which cannot be duplicated in the classroom. It enhances students' understanding of geographical features and concepts, and allows students to develop specific as well as general skills (Her Majesty's Inspectorate 1992, 1992, p.1).
- fieldwork provides us with information that is outside the text, thus broadening the scope of study; words are limited in bringing across the sights, sounds, feelings both physically and emotionally, it's much more interesting too and very much easier to remember lessons learnt; fieldwork, in certain cases may help to operationalise concepts learnt in the classroom or help in crystallising these abstract ideas. For example, when studying concepts such as sense of place or legibility of a place, doing fieldwork allows us to see for ourselves the meanings behind these concepts. (National University of Singapore – NUS).
- fieldwork is perceived to facilitate an understanding of complexity within geography, recognising that concepts and theories don't always fit (NUS).
- provides reassurance that the subject is relevant and improves understanding of places and spaces (NUS).
- fieldwork developed observation skills and critical thinking (NUS).
- enhanced students' understanding of geography, both in terms of depth and breadth (Liverpool Hope University College – LHUC).
- developed mutually supportive relationships (LHUC).
- affected learning by teaching new skills and making theory much clearer (LHUC).
- fieldtrips are far more important than lectures for metacognition i.e. knowing and thinking about what you have learnt (New Zealand: Massey University).
- although lower levels of learning (information recall) were not affected, deeper learning, (comprehension, application, analysis and synthesis) was significantly improved (Kern and Carpenter, 1986).
- research shows that good quality education outside the classroom can promote cognitive, personal and social development and add depth to the curriculum.
- enhanced understanding that comes from observing “real world” manifestations of abstract geographical concepts and processes; increased geographical interest derived from interacting with the environment; better understanding of the processes that contribute to the development of environmental features; increased appreciation of the aesthetic qualities of the biophysical and built environments; development of investigative, communicative and participatory skills; the social benefits derived from working cooperatively with others in a setting outside the classroom.
- experiential learning: fieldwork provides opportunities to learn through direct, concrete experiences, enhancing the understanding that comes from observing ‘real world’ manifestations of abstract geographical concepts and processes.
- developing and applying analytical skills: fieldwork relies on a range of skills, many of which are not used in the classroom.
- experiencing real-life research: developing investigative, communicative and participatory skills.
- developing environmental ethics and increasing the appreciation of the aesthetic qualities of the biophysical and built environments.
- teamwork: fieldwork experiences provide an important teamwork element, with social benefits derived from working cooperatively with others in a setting outside the classroom.
- skill development: observation, synthesis, evaluation, reasoning, instrumentation skills, practical problem solving, communication, use of information technology, improving own learning performance and problem solving.
- students' perceived fieldwork positively (where it is well executed), providing opportunity for experiential, holistic learning, and developing subject knowledge and technical skills within a non-threatening environment (Fuller *et al.*, 2003).

Source: Geography Programme, School of People, Environment & Planning, Massey University, New Zealand.

FIELDWORK: THE HEART OF GEOGRAPHY



Pitfalls

Some argue that the extent to which fieldwork is at the core of the subject is debatable (Scott *et al*) and fieldwork is just another means of supporting teaching and learning of geographical theory and not central to the subject. Research also noted that fieldwork does not always improve student learning as 'effective learning cannot be expected just because we take students into the field' (Lonergan and Anderson, 1988, p.70). Effective field teaching requires careful design, and alignment of the activity within the course. Gold *et al.* (1991) identified guidelines to improve the effectiveness of a field course covering course design, location, curriculum, preparation, staff supervision, skills development, data analysis and post fieldwork activity. The need for carefully integrated preparation, debriefing and feedback was also emphasised by Kent *et al.* (1997).

In 2003 an academic survey carried out by the National Foundation for Educational Research (NFER) in Britain, USA, Canada and Australia found that young teachers had little fieldwork experience and felt insecure and feared loss of control of students. Others stated problems such as: costs (not all students can afford field trips); time consuming organisation for teachers; students had time out of other subjects; teacher had to leave their classes; not all students attended resulting in difficult follow up lessons and assessment tasks; teachers ignored pre

and post field work in the classroom; increasing legal responsibilities; uninterested and unqualified staff; and a classroom transferred outside with students taking notes, as teachers talk, was boring for the students.

In all three of Fletcher and Dodd's (2004), Fuller *et al.*'s (2003) and Scott *et al.*'s (2004) research, the positive perceptions of fieldwork as an effective learning tool outweighed the negative aspects. However there remains a need for more extensive research on the generic value of fieldwork. Fink (1977) suggested that fieldwork positively affected students' attitudes to study and what they remembered was transferred into the workplace. Gerber (2000, p.197) suggests 'fieldwork as one of life's experiences should not be underestimated' as they can be transferred beyond school to the workplace such as. observation and analytical skills (Fuller *et al.*, 2003).

NSW Geography curricula

Fieldwork is integrated within Geography syllabuses in Australia. It enables students to: acquire knowledge about environments by observing, mapping, measuring and recording phenomena in the real world in a variety of places, including the school; explore the geographical processes that form and transform environments; use different kinds of geographical tools including information and communication technology to assist in the interpretation of, and decision-making about, geographical phenomena; locate, select, organise and communicate geographical information; and explore different perspectives on geographical issues.

In the mandatory NSW Stage 4 course (Year 7), fieldwork uses Australian examples in teaching/learning programs to facilitate understanding of global issues and environments. Information and communication technology provides an avenue for students to undertake virtual fieldwork activities. Fieldwork involves students conducting research in the community by distributing questionnaires, taking photographs, recording observations, interviewing citizens, and collecting samples. These activities help arouse the students' curiosity; foster active learning by enabling students to observe, ask questions, identify problems, and connect their school activities with the world in which they live.

In the mandatory NSW Stage 5 course (Year 10), students undertake fieldwork activities. In one such activity, students develop and implement a Research Action Plan following eight steps: identify the aim/purpose of the investigation; generate a number of focus questions; decide which primary and secondary data are needed to answer the focus questions; identify the techniques that will be used to collect the data; collect primary and secondary data; process and analyse the data collected; select presentation methods to communicate the research findings effectively; propose individual or group action in response to the research findings and, where appropriate, take such action.

FIELDWORK: THE HEART OF GEOGRAPHY

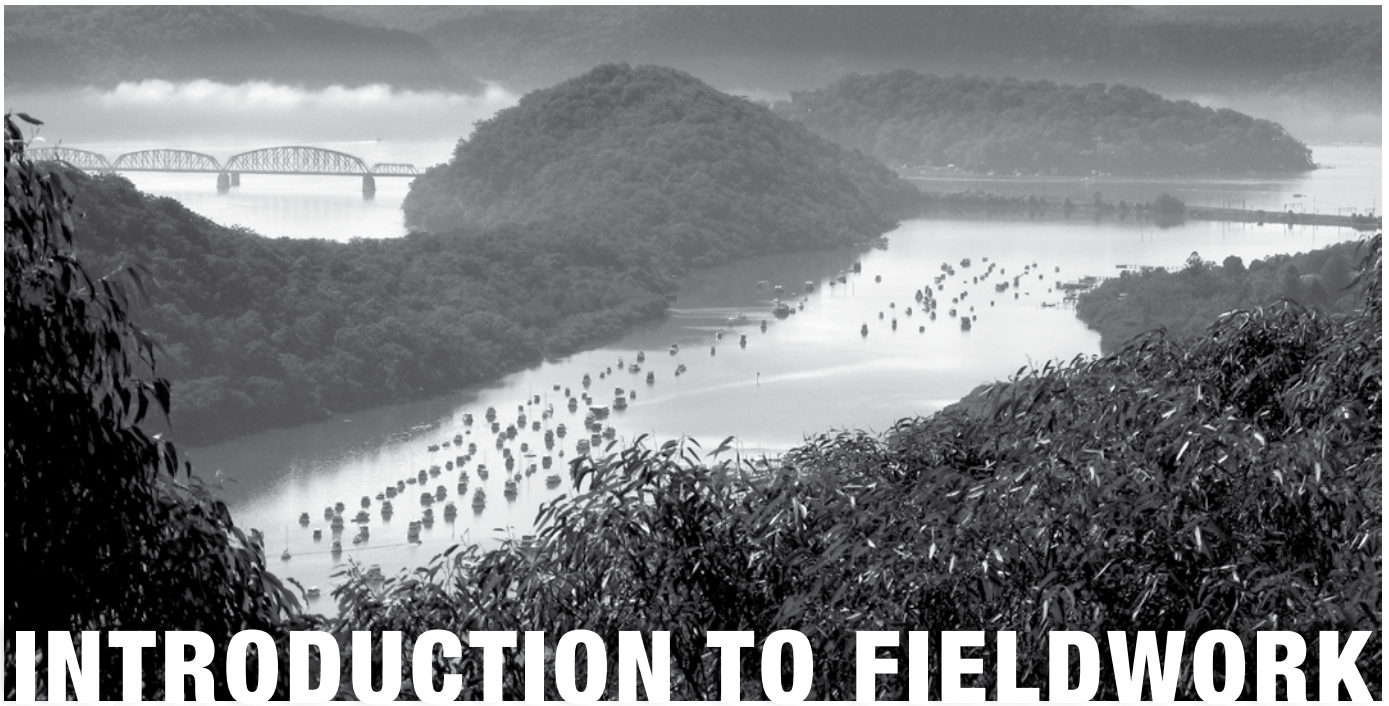
Fieldwork is a significant part of the HSC Geography course. The syllabus specifies a minimum of 24 hours of fieldwork for the Preliminary and HSC courses (i.e. 12 hours for each course). In the HSC course, 10% of the students' HSC assessment mark must be derived from fieldwork, and there can be a question about fieldwork investigation in the HSC examination paper.

Transformed Geography Research Projects

Mention the word Geography project and people visualise colouring and pasting in pictures and maps, endless notes copied/plagiarised from books or written by parents. This is another misconception. Today, Geography syllabuses encourage or mandate students to undertake individual research projects that involve fieldwork, primary research and active learning (Geography Stages 4, 5, 6, BOS 1999, 2003). For example Stage 6 students (11-12) are mandated to complete a Senior Geography Project (SGP). This requires the student to select and research a geographical issue which relates to their course using active inquiry methodologies. Students are to investigate the issue geographically by formulating a plan and asking geographical questions for active inquiry; organise a plan of investigation; gather and process relevant primary and secondary data; critically review the plan, the process and their findings; and research communicated to a variety of audiences. The students also learn the ethical responsibilities of conducting geographical inquiry such as: respecting confidentiality and anonymity; avoiding use of deception or coercion; minimising damage to landscapes; observing academic conventions regarding plagiarism; and acknowledging source materials.

References – in alphabetical order

- BLAND, K., CHAMBERS, B., DONERT, K. & THOMAS, T. (1996) Fieldwork. In Bailey, P. & Fox, P. (eds) *Geography Teachers' Handbook*. Geographical Association, Sheffield, pp. 165–175.
- BLIGH, D.A. (1975) *Teaching Students*. Exeter University Teaching Services, Exeter.
- BOARD OF STUDIES NSW (1999) *Geography Stage 6 Syllabus*. Sydney: Board of Studies.
- BOARD OF STUDIES NSW. (2003) *Geography Stage 4/5 Syllabus*. Sydney: Board of Studies.
- BRADBEER, J. (1996) Problem-Based Learning and Fieldwork: A Better Method of Preparation. *Journal of Geography in Higher Education*, 20(1) pp.11–18.
- BURT, T. (1988) A practical exercise to demonstrate the variable source area model, *Journal of Geography in Higher Education*, 12(2), pp. 177–86.
- FINK, L.D. (1977) Listening to the learner: an exploratory study of personal meaning in college geography courses, Research Paper 184, Department of Geography, University of Chicago.
- FINLAYSON, B. (1981) The analysis of stream suspended loads as a geomorphological teaching exercise, *Journal of Geography in Higher Education*, 5(1), pp. 23–35.
- FLETCHER, S. & DODDS, W. (2004) Dipping Toes in the Water: An International Survey of Residential Fieldwork within ICM Degree Course Curricula. *Littoral 2004: 7th International Symposium; Delivering Sustainable Coasts: Connecting Science and Policy*, Aberdeen Scotland, UK, Volume 1, pp. 305–309, Cambridge Publications
- FULLER, I.C., RAWLINSON, S.R. & BEVAN, J.R. (2000) Evaluation of student learning experiences in physical geography fieldwork: paddling or pedagogy? *Journal of Geography in Higher Education*, 24(2), pp. 199–215.
- FULLER I.; GASKIN S.; SCOTT I. (2003) Student Perceptions of Geography and Environmental Science Fieldwork in the Light of Restricted Access to the Field, Caused by Foot and Mouth Disease in the UK in 2001, *Journal of Geography in Higher Education*, 27(1), pp. 79–102.
- GARDINER V. & UNWIN, D. (1986) Computers and the Field Class, *Journal of Geography in Higher Education*, 10, pp.169–179.
- GOLD, J.R., JENKINS, A., LEE, R., MONK, J., RILEY, J., SHEPHERD, I.D.H. & UNWIN, D.J. (1991) *Teaching Geography in Higher Education*, Blackwell, Oxford.
- GOLD, J.R., JENKINS, A., LEE, R., MONK, J., RILEY, J., SHEPHERD, I.D.H. & UNWIN, D.J. (1991) *Teaching Geography in Higher Education*, Blackwell, Oxford.
- HMI (HER MAJESTY'S INSPECTORATE) (1992) A survey of Geography fieldwork in degree courses, summer 1990–summer 1991: a report by HMI, Report 9/92/NS (Stanmore, Middlesex, Her Majesty's Inspectorate, Department of Education and Science).
- JOB, D., DAY, C. AND SMYTH, T. (1999) *Beyond the Bikesheds: Fresh approaches to fieldwork in the school locality*. Sheffield: Geographical Association.
- KENT, M., GILBERTSON, D.D. & HUNT, C.O. (1997) Fieldwork in geography teaching: a critical review of the literature and approaches, *Journal of Geography in Higher Education*, 21(3), pp. 313–332.
- KERN, E. & CARPENTER, J. (1984) Enhancement of student values, interests and attitudes in Earth Science through a field-orientated approach, *Journal of Geological Education*, 32, pp. 299–305
- KERN, E. & CARPENTER, J. (1986) Effect of field activities on student learning, *Journal of Geological Education*, 34, pp. 180–183.
- LEWIS, P. F. (1968) On field trips in geography. In *Association of American Geographers, Field Training in Geography*, Washington, DC, Association of American Geographers, Technical Paper 1, Commission on College Geography.
- LONERGAN, N & ANDERSON, L.W. (1988). In *Teaching Geography in Secondary Schools: Field work in School Geography Curriculum* by Margaret Smith, Maggie Smith, Open University - 2002 – Education, pp. 70
- QUALITY ASSURANCE AGENCY UK (2006). Subject benchmark statements: Geography. Draft for consultation August (<http://www.qaa.ac.uk/academicinfrastructure/benchmark/statements/drafts/geographydraft06.asp>)
- SAUER, C. (1956) 'The education of a geographer', *Annals of the Association of American Geographers*, 46, pp. 287–299.
- SCOTT, I., FULLER, I.C. & GASKIN, S. Life without fieldwork: some staff perceptions of geography and environmental science fieldwork. *Journal of Geography in Higher Education*, submitted 2004.
- SIMM, D.J. & DAVID, C.A. (2002) Effective teaching of research design in physical geography. *Journal of Geography in Higher Education*, 26(2), pp. 169–180.
- STODDART, D .R. & ADAMS, W. M. (2004) Fieldwork and Unity in Geography. In J. A Matthews and D. T Herbert (eds) *Unifying geography: Common Heritage, Shared Future* pp. 46–61 Routledge, London



INTRODUCTION TO FIELDWORK

by Lorraine Chaffer, Gorokan High School

Fieldwork is integral to the study of Geography. It is the methodology used to obtain primary information and an important step in the RESEARCH ACTION PLAN (RAP). Fieldwork is what separates Geography from other disciplines and can incite in students a love of the subject.

Fieldwork should never be viewed as something teachers “have to do” and should never simply transfer the classroom to the outdoors where the teacher presents the information for students to record on ‘worksheets’. Fieldwork requires students to collect information themselves using a variety of methodologies. Later, in the classroom, teachers can help students to analyse what they have discovered ‘in the field’.

Fieldwork can be used to reinforce concepts already discussed in class e.g. features of rainforests OR it can be used as a ‘discovery learning’ activity where students discover a new environment.

There are THREE steps to successful fieldwork.

1. Pre fieldwork activities

- Introduce the concepts of primary and secondary data and, depending on the student group, qualitative and quantitative data.
- Discuss the steps in a Research Action Plan (RAP) and the place of fieldwork.
- If the fieldwork is to be an ‘assessment of learning activity’, explain how they will be assessed.
- Demonstrate the use of equipment that will be used.
- Take students outside the classroom to practice using the equipment.
- Cover basic concepts in class e.g. aspect.
- Clearly explain the AIMS of the fieldwork.

2. The fieldwork

- Put the responsibility of collecting information onto the students.
- Set a number of short activities and some ongoing ones.
- Split students into pairs or groups – this will depend on the equipment available.
- Set time limits for each activity.
- Keep worksheets simple and easy for recording information e.g. tables.

You might choose an outside provider for the fieldwork component.

BASIC EQUIPMENT can include:

- **A trundle wheel** to measure distance between observation points.
- **Compasses** to determine direction and to orientate maps.
- **Clinometers** to determine tree height and the angle of slopes.
- **Thermometers** for temperature.
- **Clear grid** to determine % tree cover / % cloud cover.
- **A handheld GPS** to determine latitude, longitude and altitude.
- **A digital camera.**
- **Water testing equipment** for water quality testing. This can be as simple as dip nets and water bug identification sheets. **(Students love dip netting activities.)**

Borrow from other faculties, OR purchase expensive items such as GPS between schools. **KIDS LOVE THE GPS.**

INTRODUCTION TO FIELDWORK

Example Tasks for Stage 4 Geography

Activity 1: Measuring the Lithosphere (An ongoing activity)

Indicate what instrument is to be used.

STOP	LATITUDE	LONGITUDE	ALTITUDE	DISTANCE TRAVELLED	OBSERVATIONS What do you see around you? Are there changes since the last stop?
STOP 1					
STOP 2					
STOP 3					
STOP 4					
STOP 5					

In this activity students

- Use a handheld GPS (Triton 300), trundle wheel and observation.
- Students have the responsibility of recording their observations and using the relevant equipment.
- In post fieldwork activities students draw a landform profile using the distance and altitude. This is annotated using the observation information.



Left: Year 7 students from Gorokan High School doing a group activity in the Redgum Forest. September 2008.

Right: Water testing, Narawang Wetland, Sydney Olympic Park "Geography Challenge"



Activity 2: Observing the Biosphere

PLANT FEATURE	Tick when you have seen this feature	Briefly explain how you think this feature would help the trees survive in the Australian climate.
Leaves that hang vertically and rotate with the sun 		
New shoots form along stems after fire 		NOTE: Have about 5 features of plants for students to observe. Eucalypt Tree features from Riverina Environmental Education Centre – http://www.reec.nsw.edu.au/geo/woodland/text/wod13.htm

3. Post fieldwork activities

- Discuss the results and/or compare group/pair results.
- Develop 'whole class' findings where relevant, e.g. tally survey results.
- Use statistics to draw graphs (this might incorporate the use of ICT skills).
- When all of this is completed, give students the 'assessment of learning activity'. This could be a poster, multimedia presentation (ICT) or literacy task.

A well prepared fieldwork activity can cover fieldwork, ICT and literacy requirements of the Stage 4 and 5 Geography courses. Fieldwork can also be used to promote active citizenship.

For a copy of the complete task: *STAGE 4 FIELDWORK: Redgum Forest: Wyrabalong National Park* contact Lorraine Chaffer at Gorokan High School. The task is easily adapted for other environments.



Fieldwork Research Years 7–8

Dr. Susan Bliss, NSW Director Global Education

Students will learn to

- apply key geographical questions to a local environment;
- use geographical tools to measure and record elements of the local environment; and
- present geographical information about the local environment using a range of written, oral and graphic forms.

Students are to complete a mini research project on either their front yard or back yard. If they live in a flat they could use the schoolyard or a friend's yard. Students will discover a unique ecosystem in their yard and be able to describe and analyse the information they have observed, collected and collated.

The aim of this task is to introduce students to the methods of primary and secondary research and the integration of geographic skills and tools. This task involves students finding out about their local environment, both physical and human.



ADDRESS:
245 AUSTRALIA ROAD,
GEOVILLE,
SUSTAINABLE EARTH

Activity 1: Map of the Home

Draw a map of your front or back yard to scale. Walk around the perimeter of your land. Then measure your steps.

The scale of the map is to be 1:100. This means 1 centimetre on the map represents 100 centimetres on the ground. Remember the following map rules:

- print neatly on the map
- heading or title
- linear scale
- latitude and longitude
- legend or key.

Distinguish between physical and human features e.g. grass, flowers, trees, clothes line, swimming pool, barbeque, fence, steps, dog kennel, swings and tennis court

What direction does your yard face? Draw in the north direction.

Activity 2: Map of Local Area

Draw a map locating your home within the surrounding suburbs. Include: roads; transport links such as bus routes and railways lines; shopping centres; clubs; churches; mosques; temples; schools; parks and sporting facilities. Include title, scale, key, direction, latitude and longitude.

Use a map of Aboriginal Australia to locate your home and surrounding suburbs, to identify the Aboriginal nation in your area.

Activity 3: Sketch

Sketch your yard and label the physical and human features. Describe the location of the features on the sketch using terms such as: left, centre, right, foreground, middle distance and background.

Activity 4a: Lithosphere

a. Landform

What is the height of your yard? A topographic map will help answer this activity

Describe the landform of your backyard. For example: flat, gentle, steep or split levels

What is the gradient?

Do you have a creek running through your yard? Are the creeks permanent or intermittent? What direction does the water run when it rains?

Collect water after it has rained and flowed across your yard. Measure its pH. Does the water contain fertilisers, pesticides or sewerage sludge? You could try this activity at a creek near your home.

DISCOVERING MY BACKYARD

Fieldwork Research Years 7–8

Can the drains cope with heavy rain?

What catchment is your home located in?
In other words where does the water from your home end up? Ocean? River?

Have humans changed the landform of your backyard? e.g. built retaining walls to stop soil erosion or flooding areas.

What would your yard have looked like before settlement?

b. Soils

What is the bedrock? eg. sandstone, shale or granite

Take three soil samples from different places in your yard: one exposed to sunlight, one protected by buildings and/or trees and one area that is used by most people e.g. pathway

Describe the colour of the soil (e.g. reddish-yellow, black, light brown) and texture (sandy, clay, moist, dry) at three different locations.

Include in the task, soil samples in plastic bags, labelled shady area, exposed area and busy area.

Compare the different soil samples and give reasons for the differences.

Extension activity: Soil structure describes the way soil particles are arranged and how they are held together in chunks. Good structure allows the movement of air and water through the soil and holds the soil together to resist erosion. Earthworms help maintain good soil structure when burrowing, ingesting and excreting soil particles.

Investigate the number of earthworms in a shovelful of soil in your backyard (20 x 20 x 10cm) to indicate soil health/structure. Compare and contrast findings with soil samples collected in a native bushland area. Give reasons for the differences. Results: Under 5 poor; 5-10 good; and over 10 excellent.

Activity 4b: Atmosphere

a. Temperature

Record the temperature in the coolest part of the house and in the hottest part of the house as well as in the shadiest and the most exposed area in the yard.

Record your findings on a chart for 2 weeks, then calculate the average.

Answer the following key geographical questions.

- What were the highest temperature and the lowest temperature?
- When did they occur?
- Calculate the range of temperature over 2 weeks.

b. Precipitation

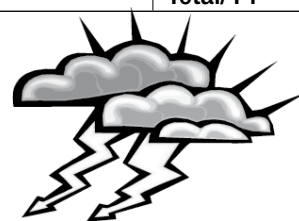
Using two small jars place one jar under trees in a shady protected area and place another jar in an exposed area. Each day at about 6 pm measure with your ruler how many millimetres of rain has fallen in both jars.

Record your findings on a chart for 2 weeks, then calculate the average precipitation. Give reasons for the differences in the precipitation at different places in your yard.

c. Compare the temperature and precipitation with the daily newspaper statistics. Give reasons for the differences.

Activity 4b: Sample of Table

Temperature	Site 1 Exposed area in yard	Site 2 Protected area in yard	Site 3 Inside house A – cool area	Site 4 Inside House B – hot area
Total of 4 sites				
Average	Total/14	Total/14	Total/14	Total/14
Precipitation	Exposed area in yard	Protected area in yard		
Total of 2 jars				
Average	Total/14	Total/14		



Activity 5: Cloud cover

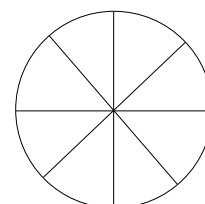
Over one week calculate the cloud cover in the sky. Remember use eights.

Describe the clouds at the time e.g. cumulus, cirrus, nimbus and stratus.

Activity 5: Wind direction and speed

Place some light material on a long stick and describe the wind direction over a week

Use the Beaufort scale and describe the wind speed.



DISCOVERING MY BACKYARD

Fieldwork Research Years 7–8



Activity 7: Vegetation

Describe the type of plants found in your yard.
Collect vegetation samples. Place on cardboard. Press and label them.
Describe their leaves (e.g. thin, broad, waxy, hard) and flowers.
Determine whether they are native or exotic.

Extension activity 1: Hollows in trees are important shelter and nest sites for native birds, bats, lizards and possums. It takes 150 years for suitable hollows to form in river red gum trees. Compare the local park with a native bushland. Sample 25 trees in each area and record the trees with hollows. Account for the differences.

Extension activity 2: Herbivores are an important part of the food chain because they pass on energy from the leaves to the carnivores. If there are too many herbivores and fewer carnivores, the herbivores can damage plants. For example introduced plants, such as bitou bush, have population explosions when there are few native animals to control them. Students are to pick leaves from 10 native and 10 exotic plant species. Give reasons why they are different. Discuss why some plant species need more water than other species. What type of plants should you grow in your backyard with water shortages?

Extension 3: In country areas, roadside vegetation is often the last remnant of the original vegetation and has become a valuable resource as habitat for native animals. Do a plant biodiversity survey along a road that changes from urban to rural. Record the number of native and exotic species. Account for the differences.



Activity 8: Fauna

Describe the animals and their habitats that you find in your yard.
Draw and label two species that are natives e.g. spider.
Do a bird count for 10 minutes, 3 times a day. Compare native versus introduced species.

Activity 9: Analysis

Which part of the yard has the highest density of plants and animals? eg. wettest or most protected area.
Why do you think most of the animals are located in this area? eg. soil, water, food, sunlight, slope or human interaction.

Activity 10: What's in the gutter?

Stormwater is an efficient method of cleaning rubbish from gutters. This rubbish flows into a lake, river or the sea. Do a litter survey of 100 metres along the roadside gutters outside your house. Compare this with gutters near your school, parks and industrial areas. Collate material, draw graphs, discuss spatial distribution and draw a mind map on future management scenarios.



Activity 11: Disasters

Is your house subject to potential disasters such as fires, floods, droughts, cyclones, storms and landslides?
Describe the precautions required to minimise the effects of the disaster on your life and your home.

Activity 12: Civics and Citizenship at the local scale

What is the name of your local council? Visit its website and the department of local government for that state or territory. For example if located in NSW visit the Department of Local Government http://www.dlg.nsw.gov.au/dlg/dlghome/dlg_home.asp and print in your suburb e.g. Bilgola Beach. It will give you a map and details of your local council such as area of 91 sq km and population 56642.

What are the local council laws that apply to your backyard e.g. fence, pool, buildings and noise.

What are the local laws that protect you as a citizen?

DISCOVERING MY BACKYARD

Fieldwork Research Years 7–8

Find out about the special local council programs for example Septic Safe and Companion Animals.

Compare the rates paid in 5 different councils in your state or territory. Give reasons for the differences.

Visit the local council – compare fieldwork findings with secondary sources.

What is the role of the NSW Ombudsman? <http://www.nswombudsman.nsw.gov.au/>

Activity 13: 'Not in my backyard'

What does the phrase mean?

Would you protest against a nuclear power station, garbage dump and high rise apartments beside your house?

How would you protest?



Activity 14: Environmental audit

- **Prepare an environmental audit of your home or school.**

Use primary and secondary research data: Refer to:

Lithosphere: use of mulch and fertilisers

Atmosphere: use of air conditioners (CFCs), special light globes and solar energy

Hydrosphere: recycle wastewater, drip watering system, time spent in the shower, special taps and half flush toilet system

Biosphere: native or exotic vegetation, native or feral animals

Recycle waste, compost bins, asbestos and lead paint in home, phosphorous free detergents, pesticides, weed killer, how many cars in the family, unleaded petrol and use of public transport

Eco home network <http://ecohome.org/>

- **Renewable energy sources in your house**

List your activities using fossil fuels over one day (oil, natural gas, coal). How can each of these activities use renewable energy sources (e.g. hydroelectric power, solar power, wind.)? What prevents or discourages your use of renewable energy sources?

- **Fieldwork**

Visit a sustainable house in your state or territory. Compare and contrast the sustainable home with your own home.

For example Chippendale Terrace House <http://www.sustainablehouse.com.au/> and <http://www.abc.net.au/rn/science/earth/handouts/chippendale.htm>

- Design your own sustainable house for the future (multiple intelligence exercise).

Activity 15: Using Information and Communications Technology

What is your ecological footprint?

Years ago people grew their own food, made their own clothes and built their own homes. Each family or community was almost self-sufficient and used only what they needed to live on. Today our materialistic 'throw away' society is leaving a large ecological footprint (EF) as there are more people consuming limited resources and producing more waste. Humans are currently overusing the earth's resources by 20 per cent. If the current trend continues we will need two planets in order to live sustainably by 2050.

The Neighbourhood Ecological Footprint is a tool that enables each person to see their effect on our planet. Environmental awareness must be from the local (backyard) to the global scale for a sustainable future <http://www.allspecies.org/neigh/nbrfootp.htm> Compare your footprint with the traditional Aboriginal people who lived in your local area. How could you organise an earth day in your neighbourhood or school? <http://www.allspecies.org/neigh/blocka.htm> Have a look at the Ekokids program. <http://www.allspecies.org/ecokids/index.htm>

Many Australians place huge demands on nature by misusing resources in their home, such as water, soil and energy, to support their lifestyles. By using the ecological footprint (EF), students can measure the demand that they are placing on nature, compared to the supply of natural resources available. Refer to the Internet sites on the EF. How would you change your backyard?

EXTENSION:

Ecological footprints of nations <http://www.ecouncil.ac.cr/rio/focus/report/english/footprint/> . Resources for the future <http://www.rff.org>

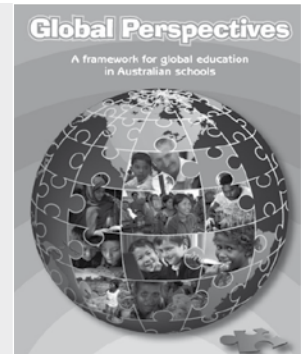
Energy Efficiency and Renewable Energy Network <http://www.eren.doe.gov> from the U.S. Department of Energy aims to strengthen America's energy security, environmental quality, and economic vitality in public-private partnerships.

Energy Quest <http://www.energy.ca.gov/education/index.html> is an energy education site especially for kids from the California Energy Commission, with projects, experiments, and descriptions of many types of energy.

FIELDWORK'S LINKS TO GLOBAL EDUCATION

Dr Susan Bliss, NSW Director Global Education

The UN Decade of Education for Sustainable Development is from 2005–2015. Its vision states that 'Education for sustainable development is about learning to respect, value and preserve the achievements of the past; appreciate the wonders and the peoples of the Earth; live in a world where all people have sufficient food for a healthy and productive life; assess, care for and restore the state of our planet; create and enjoy a better, safer, more just world; be caring citizens who exercise their rights and responsibilities locally, nationally and globally'. (UNESCO, 2005)



Global Perspectives: A Framework for Global Education in Australian schools (2008) provides a revised structure for Global Education and advice for teachers about how to implement the framework at a school level. Support resources available at: www.globaleducation.edna.edu.au

Fieldwork is integrated throughout Global Education's knowledge and understanding, values and attitudes, skills and processes, and action and participation:

- Knowledge and understanding (pp. 4–6): Global Education is about environmental and social change (p.4). A sustainable future is one of the five main themes in Global Education (p.5). This involves an 'understanding of the ways in which we can meet our current needs without diminishing the quality of the environment or reducing the capacity of future generations to meet their own needs.' The framework also includes 'an understanding of the interdependence of all living things and that each has value and the imperative of sustainability' (p.6).
- Values and attitudes (p.6): Global Education and fieldwork both have 'an appreciation of and concern for the environment and a commitment to sustainable practices'.
- Skills and processes (p.7): Global Education's skills overlap with fieldwork skills. For example 'research and enquiry skills, evaluating and organising information, extrapolation and prediction, and problem solving skills in order to take personal or group action.' The framework also states that when teaching Global Education students should 'use a variety of spatial tools - maps, photographs and satellite images'.
- Action and participation (p.7): The Global Perspectives framework overlaps with fieldwork in:
 - 'the ability to identify and investigate different opportunities for action and participation'
 - 'a willingness to be involved in action to support desirable outcomes'

- 'a capacity to identify possible barriers to successful participation and ability to devise strategies to overcome these'
- 'a capacity to reflect on and evaluate forms of action, to review progress and to reconsider forms of action.'

Opportunities to learn (p.12)

Sustainable futures emphasised in Geography fieldwork is a key Global Education concept. Students at different stages (K–12) should have the opportunity to:

- 'understand the relationships between humans, living things and the natural environment'
- 'investigate the spatial relationships between global phenomena and their impact on natural and human environments using spatial concepts (such as distribution, region, movement, association) and maps to investigate resource use'
- 'explore resource use and environmental sustainability and relate knowledge and action to country and regional contexts.'
- 'explore how Indigenous peoples in Australia and internationally relate to their environments and use scarce resources in order to live more sustainably.'
- 'explore the direct contribution of Australian governments and people to sustainable development in developing countries (AusAID handouts on environment and aid and FOCUS magazines)'
- 'investigate the ways that people, governments and international organisations contribute to sustainable futures locally and globally'
- 'recognise and discuss the relationships between ecological, economic, cultural, political, and social aspects of sustainability'
- 'examine and predict the consequences of unsustainable practices.'
- 'investigate policies in the management of sustainable places.'

FIELDWORK'S LINKS TO GLOBAL EDUCATION

Using Information and Communications technology (p.21)

'Information and Communication Technologies have the potential to engage students with a wider view of the world, extend student learning about how the world works and facilitate a change in learning, thinking and teaching.' Virtual fieldwork uses ICT as a means of teaching students some of the geographical skills before they go into the field. It also provides students with comparative examples. For example, students are able to compare their fieldwork with overseas examples and management practices.

Inquiry based learning (p.23)

Inquiry-based learning activities at all stages of schooling can become journeys of discovery. Fieldwork is an example of this type of learning. It can create a strong sense of purpose; promote critical thinking and cooperative learning, and support students in taking responsibility for their own learning. This following model in the Global Perspectives framework is similar to the Research Action Plan in Stage 5 Geography.

A model of inquiry learning

Tuning in: Identifying and defining an issue with questions for investigation

Finding out: Collecting data to develop understandings

Drawing conclusions: Drawing conclusions, expressing understandings and conclusions about an issue

Considering social action: Taking action in response to new understanding and conclusions about an issue

Reflection and evaluation: Reflecting on the outcomes of their actions and using this information for further planning and inquiry

Experiential learning (p.23)

Fieldwork in Global Education makes use of opportunities to learn through concrete experience (e.g. 'hands on' experience, site visits) and authentic tasks to promote active, involved learning.

Controversial and contentious issues (p.21)

Fieldwork and Research Action Plans involve the study of issues that may be contentious, or that may be ethically or politically controversial and give rise to conflicting opinions and viewpoints. Learning about controversial issues is an important part of the educational growth and development of students. Handled appropriately, it can equip students with the knowledge, critical thinking skills and literacy to engage in democratic decision-making. For example, fieldwork to a wetland or rainforest that is cleared for development leads to debate and different perspectives on their management.

Global Education's fieldwork sources:

- Educating for a Sustainable Future: A National Environmental Education Statement for Australian Schools (2005) provides a nationally agreed description of the nature and purpose of environmental education for sustainability www.environment.gov.au/education/publications/sustainable-future.html

- The Statements of Learning for Civics and Citizenship (2006) is concerned with the development of students as informed and active citizens of Australia. www.mceetya.edu.au/verve/_resources/SOL_CivicsCitizenship.pdf
- The National Framework for Values Education in Australian Schools (2005) includes a vision, nine Values for Australian Schooling, guiding principles and key elements, and approaches that inform good practice. The vision outlines the need to develop 'student responsibility in local, national and global contexts ...' (p. 3). The nine values listed are implicit within the global education framework. www.curriculum.edu.au/verve/_resources/Framework_PDF_version_for_the_web.pdf

FIELDWORK AND RESEARCH ACTION PLAN

Land, Water and Waste Management Focus Area 5A3

Compare fieldwork with global examples and their different management programs

- a. Desertification, salinity and future impacts of global warming are national and global environmental issues that can involve fieldwork and primary research

AusAID http://www.ausaid.gov.au/publications/focus/sep07/focus_sep07.pdf

- b. Fire is a national and global environmental issue. Fieldwork – effects of fire and land-water-air management

AusAID http://www.ausaid.gov.au/publications/focus/sep07/focus_sep07.pdf

- c. Coastal management and declining species a national and global issue

AusAID http://www.ausaid.gov.au/publications/focus/sep07/focus_sep07.pdf

- d. Clearing of wetlands, rainforests and native vegetation a national and global environmental issue that requires sustainable management. Fieldwork to Homebush wetlands and Blue Mountains a World Heritage site

AusAID Borneo. Once virgin rainforest logged, burnt and cleared. Photo Paul Lowe/Panos Pictures. http://www.ausaid.gov.au/publications/focus/sep07/focus_sep07.pdf

- e. Clearing forests – farms, mines, settlements, roads in Australia and overseas. Land-water management. http://www.ausaid.gov.au/publications/focus/jun05/focus_jun05.pdf





Bruce Foott, Teacher-in-Charge,
Gibberagong Environmental Education Centre (Bobbin Head)

If you need help with fieldwork the NSW Department of Education and Training has twenty-three Environmental Education Centres (EEC) throughout NSW giving most schools in every region access to a trained fieldwork teacher to assist them with organising and conducting a fieldwork experience at the centre or in their local area. Fieldwork activities at the centres are designed to complement the mandatory fieldwork in junior and senior Geography syllabuses.

A list of the centres can be found on the DET website, <http://www.schools.nsw.edu.au/learning/yrk12focusareas/environed/edcontact.php>

Whilst these centres are owned and staffed by DET (except Penrith Lakes – jointly owned with CEC), priority is naturally given to DET schools. However, every attempt is made to assist teachers from all sectors through their websites and with individual assistance. Most centres have a website, some have virtual fieldwork online and downloads of excursion outlines. The centres in each region can advise teachers where the best locations are, to conduct particular fieldwork and accompany the group if required. Some centres have both day and overnight options while all centres can organise one-day fieldwork experiences.

Staff at the centres, in collaboration with teachers, can design specific fieldwork activities that relate to their students' class work. Staff at the centres can also visit schools and local fieldwork sites to help teachers use their school grounds or local area for fieldwork, rather than travelling long distances.

Any fieldwork that can be done at school should be done at school.

Fieldwork rationale

Fieldwork cannot be underestimated for its importance, impact and the teaching value as a learning experience. For some students it may be the only time they get to see, feel, hear and smell the environment. For this reason alone it has an impact on the student far beyond the time spent doing the fieldwork.

Fieldwork is far more valuable if the students are properly prepared with pre and post fieldwork activities.

Fieldwork can be used to interpret, understand, monitor and manage the diversity in the environment.

Fieldwork can be carried out anywhere from the school playground to pristine natural areas to garbage tips.

Fieldwork sometimes is the only way to discover what is out there.

Fieldwork should be interesting and fun, as well as educational for you and your students.

Fieldwork policies

The Department of Education and Training has specific policies relating to excursions and bushwalking. Make yourself familiar with these and your school's excursion policies before organising a field study.

A teacher/adult to student ratio of one to fifteen is required for bushwalking and the teacher must have visited the area at least once.

Before the day:

- Contact an **Environmental Education Centre** if you need assistance.
- Follow your school's excursion policy. Get a number of quotes for the bus cost.
- Visit the study area **at least once prior** to the field day. Conduct a risk assessment and submit.
- Estimate the time needed to undertake the fieldwork. If there is walking involved allow time for this as well as food breaks and travelling time. Choose the closest location to the school to cut down travelling time and maximise time in the field.
- Plan the day and fieldwork activities. Organise field equipment and design worksheets include bus trip as part of the fieldwork. **Don't attempt too much or too little!**
- Assign students to groups or individual tasks. Teach students at school how to use equipment and fieldwork techniques needed for the field study.

Fieldwork at Environmental Education Centres

- Tell students what is expected of them on the day and the reports to be handed in after the field trip.
- Send home permission note. Check all the students' medical condition and medication requirements.
- Have an emergency procedure to follow in case of an accident.
- **What if it rains?**

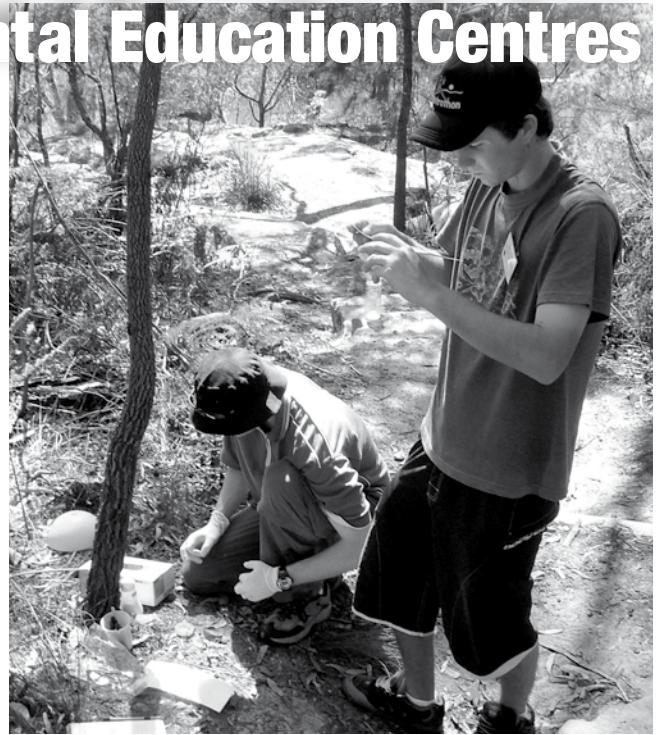
On the day:

- Check that all the students who need it have their medication. Otherwise they don't go!
- Make sure you have all the fieldwork equipment and worksheets.
- Take a first aid kit and mobile phone.
- Check to see if the bus driver and you are going to the same place.
- ***Take nothing but photos leave nothing but footprints. Have an enjoyable day.***



Pre fieldwork activities

- Students should be fully aware of what the purpose of the fieldwork is.
- Make them familiar with the study area through maps, aerial photographs, computer mapping system, slides, video, previous student work.
- Locate the study area on a map of the area and where it is located in relation to the school.
- Draw the route to be followed from the school to the study area/s.
- From maps construct cross sections across the study area.
- Ask the students questions about the landform, vegetation, drainage, human impact of the area from the maps, photographs, etc.
- List all the fieldwork equipment you will need, such as questionnaires, maps, cameras, computers, test kits.
- Practise the fieldwork techniques (using equipment, recording skills) in the classroom and playground. If they are not familiar with the techniques it wastes valuable time on the field study day.



- Let students know the expectations of the fieldwork and what is expected of them on the day.
- Students should be aware of the type of report they are required to hand in after the fieldwork. This is important so they can bring cameras etc.

Field study day

- The bus trip can be used as part of the field day. Have a map from the school to where you are going. Have the students trace the route to be taken on the map as a classroom activity before the day.
- Have some question for the bus trip based on the features along the way. Shopping centres, transport links at different points, list suburbs, direction travelling at certain points, landscape features etc. Make the questions like a rally asking what they see at different points along the way. You can use grid references or numbers on the map. Make the bus trip part of the assessment.
- When arriving at the study site define the area where the students are allowed to go.
- Make sure all the students understand the tasks they need to complete.
- Have the students form their predetermined groups.
- Hand out equipment such as clinometers, thermometer, hygrometers, wind and light meters, soil and water test kits.
- Hand out worksheets.
- Move amongst the groups helping with any problems.

Post fieldwork activities

- A written report on the fieldwork including graphs, drawings and diagrams if appropriate.
- A written report with photographs. Include a critical evaluation on the fieldwork techniques used and the results gained, including a review of the expectations prior to the fieldwork.

ISSUE: URBAN GROWTH and DECLINE in WAGGA WAGGA

Pam Cook, Koorringal High School (Wagga Wagga)

This case study was presented to teachers at a Fieldwork Workshop held at the Riverina Environmental Education Centre

Internet Activity: Visit the Wagga Wagga City Council site and the local tourism site to obtain an overall picture of Wagga Wagga.

Location of Wagga Wagga

Activity: Map work: Locate Wagga Wagga and neighbouring towns, regional centres and cities. Include latitude and longitude.

Students define the site and situation of Wagga Wagga.

Urban Growth of Wagga Wagga

To what extent has urban growth occurred in Wagga Wagga?

Two methods of analysing the actual growth of Wagga Wagga include:

1. Population statistics: An examination of the population statistics of Wagga Wagga over time will give the student an overall picture of the growth of Wagga Wagga. Use these statistics to construct a line graph. Interpret graph.
2. Wagga Wagga maps: Analysis of Wagga Wagga maps from 1944, 1975 and 2006 will give you information on the spatial changes that have occurred over time. Activities could include calculating the area of the city on each map and a discussion of the changes that have taken place.

Whilst on an excursion students can survey residents about perceived changes. These responses can also relate to the processes involved and the decision making steps.

Processes involved in this issue

1. Suburbanisation: Activities could include:
 - a) locate and name the suburbs of Wagga Wagga on the map. Give population statistics for Wagga Wagga's suburbs; and
 - b) examine the population for the suburbs in 1976, 1981, 1986, 1991, 1996, 2001 and 2006. Analyse trends and reasons for these trends. Could also complete transect across the maps.
2. Urban decay, urban renewal, urban consolidation, spatial exclusion and gentrification: On an excursion students could take photographs of buildings and classify these pictures. Do some streets/areas have a predominance of one process more than another? (Land survey map to record information.) Why? (Another source of photographs is the local real estate paper.)
3. Decentralisation: Which businesses have moved location and why? Map their present and past locations. Use an old phone book and compare it with their address in a current phone book.

4. Domino effect: Using the health services in Wagga Wagga walk around the streets situated around the Base, Calvary and Day Surgery and compile a landuse survey map marking in all the buildings associated with the health profession. Why are they all together?
5. Urban village: Visit web sites for Settlers Village and Riverina Gums Estate. Make a note of all the facilities supplied.
6. Counterurbanisation and exurbanisation: Use map work to locate these places. Use the local real estate paper or the phone book as an alternative source of information.

Decision making processes

1. Organise a person from the town planning section of Council to speak to students about the changes and also the development application process. Treat it as an interview.
2. Follow a controversial development application and examine the steps and processes involved. Students can participate in active citizenship activities for example by debating this issue; developing strategies to create public awareness. Relate the processes to sustainability, social justice and equity.
3. Create a diagram showing the different perspectives relating to this issue and people's/groups/ government responses.

Research action plan

Applying the steps involved in a research action plan to this issue.

1. Identify the aim or purpose of this investigation.
 - Examine urban growth in Wagga Wagga.
2. Generate a number of focus questions to be addressed (answered) in this issue.
 - How has the population of Wagga Wagga changed over time?
 - How has the spatial dimensions of Wagga Wagga changed over time?
3. Decide which primary and secondary data is required.
4. Identify the techniques that will be used to collect the data. (survey residents about changes; interview; landuse survey maps; take tour to collect photographs; analysis of maps, books, newspaper articles, statistics, pictures, maps).
5. Collect primary and secondary data.
6. Process and analyse data collected.
7. Select presentation methods to communicate the research findings effectively.
8. Propose individual or group action in response to the research findings and, where appropriate, take such action.

SURVIVOR: North Era

Connecting PDHPE & Geography

Context

A five week unit for Year 9 connecting parts of 5A1 – Investigating Australian Environments and connecting that to parts of the PDHPE syllabus specifically team building and life long fitness.

Pedagogy

Use the theme “Survivor” from the TV show and each lesson, students face a new challenge in their ‘mobs’ and ‘clans’ (groups of about three or four – which were how many we could fit in our tents). Commit to every lesson being held over the five weeks to being partly or entirely outdoors. Hold group “survivor challenges” that can be used as assessment for learning. The “challenges” are practical lessons based on “survival” skills for the Australian environment (simply disguised Geographic skills, learn to and abouts from Geo 5A1). These can vary from using a topographic map to calculate gradient, or walking along a local watershed of a catchment.

Over the course of the unit, students’ survivor challenges are aimed at preparing them for a final field trip to North Era in the Royal National Park. This involves planning all the equipment, food, water, clothing, etc they need to take; navigating to North Era using topographic maps, etc.

This practical approach to pedagogy develops an appreciation for the environment in which they hike, and equips them with the skills needed to go on future hikes of their own.

Costs

An incredibly cheap overnight camp – costing < \$30pp per night. Students were encouraged to bring in their own packs & tents. Parents and Friends were very happy to support our affordable outdoor education experience by purchasing tents and backpacks for hire for students who could not source their own. These outdoor education resources are now made available for future year groups and are a significant asset of the P&F.

Fieldtrip

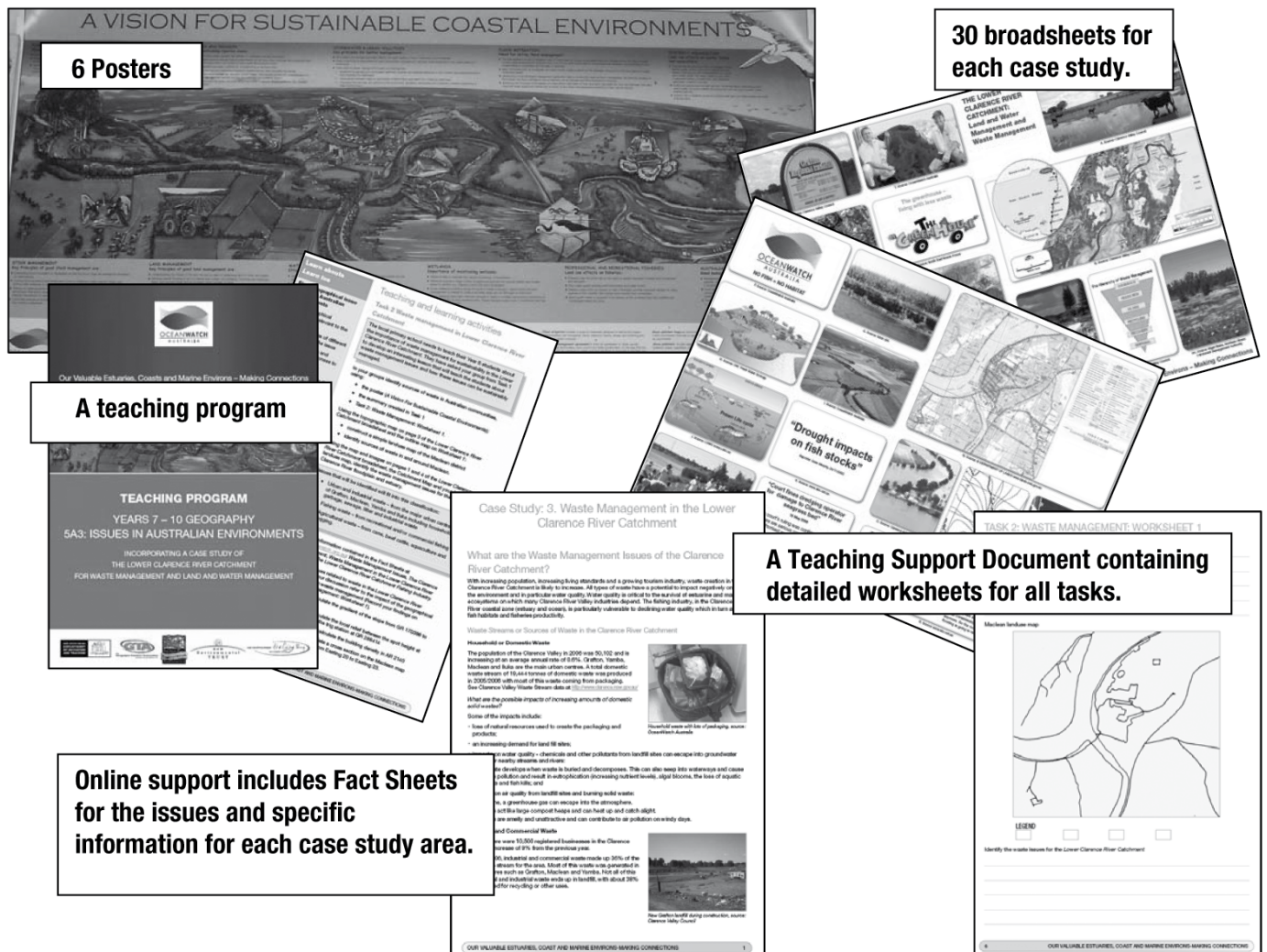
Hike from Otford Station along designated paths – along route planned in class to North Era site. Observing flora & fauna and changes along the route, watersheds, catchments, landforms, etc. Walk, camp and cook pre-planned meals in teams. Access to fresh water through natural filtration. Pack and leave along route of crosssection, transect, seeing gradient of slope calculated previously. Carry appropriate communication equipment such as a satellite phone, One teacher can drive to and park at Garie Beach and walk in from the other side – useful as an alternate or for emergency transport out from camp site.

Lesson 1 (Outdoors) Introduction Formation of Mobs and Clans Team Building	Lesson 2 (Outdoors) Drainage Basins Local Catchment – walking North Era Catchment – map	Lesson 3 (Outdoors) Team Building Australian Geo Challenge – formative assessment of relative size/shape of Australia
Lesson 4 (Outdoors) Bearings – The Amazing Race	Lesson 5 (Outdoors) Team Building Tent Assembly Tent Assembly blindfolded	Lesson 6 (Outdoors) Menu Planning Cooking using Metho burner
Lesson 7 (Outdoors) Hike planning: Considering Calorific intake Food Water Equipment Weight OHS	Lesson 8 (Indoors) Route Planning Gradient of a slope Aspect of a slope Cross Section Local Relief	Lesson 9 (Outdoors) Continuation for previous lesson Campsite Selection Synoptic Charts
Lesson 10 (Indoors) Overview of Natural Hazards	Lesson 11 (Indoors) Patterns of Flora and Fauna	Lesson 12 (Indoors) Major Landforms
Hike and Camp Meet at CCCHS, use public transport to Otford. Hike in along route planned in class to North Era site. Observing flora and fauna and changes along the route, watersheds and catchments. Camp over night, cook and drink planned meals. Access fresh water through natural filtration. Pack and leave along route of cross-section, transect, see gradient of slope calculated previously. Assessment.		Lesson 15 (Indoors) Debrief Self Assessment

A NEW RESOURCE FOR TEACHERS: OCEANWATCH KIT

Lorraine Chaffer, Gorokan High School

The OceanWatch Kit called "Our valuable estuaries, coasts and Marine environs – Making Connections" was developed by OceanWatch Australia (OWA) in partnership with the The Geography Teachers' Association of NSW (GTANSW), NSW Department of Education and Training (NSW DET), the NSW Commercial Fishermen's Cooperative Association and funded by the NSW Environmental Trust – Education Program.



The resource:

- is based on TWO CASE STUDIES – The Lower Clarence River and the Lower Shoalhaven River;
- covers all syllabus requirements for 5A3: Issue in Australian Environments including the “learn to” and “learn about” statements, ICT and geographical tools;
- focuses on land and water management and waste management issues;
- has a teaching program based on large task, student-centred learning activities;
- is supported by online resources and websites; and
- can be used to teach and practice a range of geographical skills to all Geography students.

The resource contains the items shown above:

- 6 posters
- 30 broadsheets
- A teaching program
- A teaching support document
- Online support

A NEW RESOURCE FOR TEACHERS: OCEANWATCH KIT

Using the kit:

- Use the kit to complete the whole of 5A3 by following the complete program.
- Use parts of the kit to fit around the issues you already do.

For example:

- use the poster activity (TASK 1 in the teaching program) to cover the overview of the six issues in the syllabus OR to revise issues before the School Certificate Test.
 - adapt the tasks to suit the issues you study.
 - use TASK 3 and the associated worksheets as a basis for a research activity of your own.
 - please remember that if you substitute a task, make sure you replace all of the knowledge (learn about) skills (learn to) and tools.
- Use the poster to develop skills in interpreting images. The types of skills that can be developed using the poster include brainstorming the messages portrayed in the poster, developing a mind map, constructing a consequence diagram, develop a scenario for students to respond to e.g. What would happen downstream if a dam was built at point X ?, write a story, draw an annotated diagram. Cater to students' interests.
 - Use the broadsheets to teach or revise a range of concepts, skills and tools to any Geography class.

Geographical tools and skills for 5A3

Maps

- calculate the density of a feature
- calculate local relief
- identify the aspect of a slope
- measure bearings on a map
- construct a cross-section
- calculate the gradient of a slope
- construct a transect
- construct a land use map
- read and interpret synoptic charts

Fieldwork

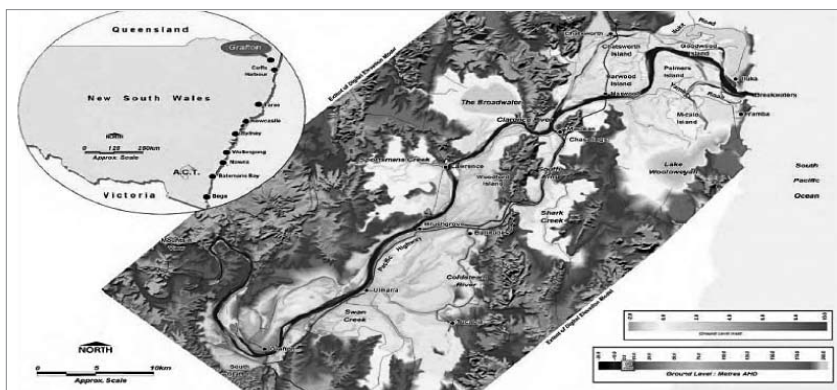
- develop a research action plan
- use a variety of techniques to collect and record primary and secondary data

Graphs and Statistics

- recognise and account for change using statistical data

Photographs

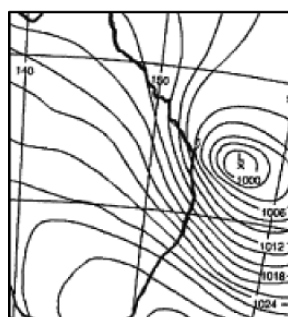
- collect and use digital images



Example: Describe the spatial pattern of the Lower Clarence River Valley.

For this activity, using the Clarence River Broadsheet, you can teach students to look for latitude and longitude, distances, the location of places in relation to other places (situation), patterns, shapes and directions and to use statistics where possible. This is much more effective than copying notes on spatial pattern from a text.

- The variety of stimulus materials on the broadsheets, including maps, tables, diagrams, photographs and media reports make them ideal for skill development.
- Use these tools to develop thinking skills. eg. What makes this synoptic chart relevant to a study of land and water management issues?



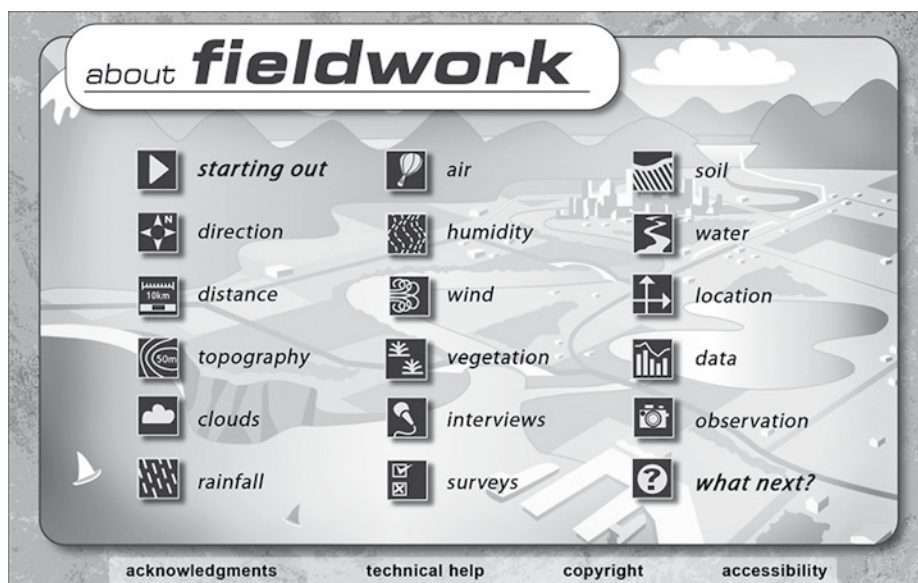
The OceanWatch Kits were distributed free to schools that attended the DET and GTANSW workshops throughout 2008. To get copies of the Teaching Program, Support Document and Fact Sheets go to: <http://gtansw.org.au/> or <http://www.oceanwatch.org.au/OurValuableEstuariesYear10.htm> There are a limited number of sets of posters and broadsheets available from GTANSW (postage costs only). All enquiries to geog@idx.com.au

About fieldwork – a CLI resource

Darren Tayler, Centre for Learning Innovation (CLI)

Fieldwork is integral to what Geography is all about. Through fieldwork we can reconnect with nature, identify issues of concern and investigate the underlying causes and flow-on effects of interactions between the physical environment and the human environment (rural/urban).

It is important that students realise that just about everything we learn about in Geography is derived from someone's work in the field. For students to truly recognise the relevance and value of Geography however, they need opportunities to go out into the field themselves.



The challenge for Geography teachers is to inspire in students a lifelong interest in, and consciousness of, their surrounding environment so that they can develop a better understanding of it. This depends on their experiences of Geography as a school subject and the skills of analysis that they acquire. Of all the activities at a Geography teacher's disposal, fieldwork is the best placed to achieve this.

Fieldwork is a mandated requirement in 4G1, 4G4, 5A2 and 5A3. A fieldwork task however, large or small, can be integrated into any unit of work with a little imagination and creativity. Fieldwork offers a great deal of scope for targeting elements of quality teaching such as student direction, engagement, higher order thinking and connectedness.

When students are in the field they should be spending their time actually collecting primary data to address their focus questions. Learning about the tools that are available and how to use them should be done in the classroom as a pre-fieldwork activity. *About fieldwork* is a new resource being developed by the Department of Education and Training's Centre for Learning Innovation (CLI) that will support teachers in this endeavour.

About fieldwork is a digital resource for Stages 4–6 with a focus on Stage 5.

The resource is in response to a widely identified need among Geography teachers for:

- guides to help demonstrate the use of a range of geographic tools in the field, accessible from the one resource;
- more visually rich, interactive, digital content; and
- links to quality-assured resources to reduce time spent searching for appropriate material on the internet.

The links include a 3D map tool and an interactive online compass that assist students to grasp fieldwork-related concepts such as topography and direction. The resource is easy to navigate so that students can find what they need quickly and it contains templates in word doc form which students can take with them into the field.

The Research Action Plan is modelled in the resource so that students can see where the collection of primary data fits in as part of the overall fieldwork investigation process.

The resource covers these sections and tools:

- Starting out (the purpose and value of fieldwork)
- Direction (compass, using a map in the field)
- Distance (trundle wheel, using a map in the field, GPS)
- Topography (clinometer, using a map in the field)
- Clouds (estimating cloud cover, cloud identification chart)
- Rainfall (rain gauge)
- Air (barometer)
- Humidity (hygrometer)
- Wind (anemometer, weather vane, Beaufort wind scale)
- Vegetation (vegetation identification chart, transect, quadrant)
- Interviews (preparing and conducting an interview)
- Surveys (preparing and conducting a survey)
- Soil (collecting soil samples and testing)
- Water (collecting water samples and testing)
- Location (choosing fieldwork locations/parameters, GPS)
- Observation (creating a field sketch, taking digital photographs, using counts)
- What next? (Research Action Plan)

As with any resource, the extent to which it can support quality teaching depends on how it is used in the classroom. Students could be asked to identify issues of concern in their local area and then select the tools they think would be needed for different geographic inquiries, using the resource.

About fieldwork – a CLI resource

Students need to undertake fieldwork feeling it is a purposeful and worthwhile experience. To reinforce the relevance of the tools, each is illustrated with a real world example (physical and/or human) with a vocational perspective.

Other CLI resources to support fieldwork include these print units for Stage 5:

- Fieldwork: Overview
- Fieldwork Part 1: Getting started
- Fieldwork Part 2: Out in the field
- Fieldwork Part 3: Back at your desk
- Fieldwork Part 4: The final report

Multimedia-based Geography resources produced by CLI include:

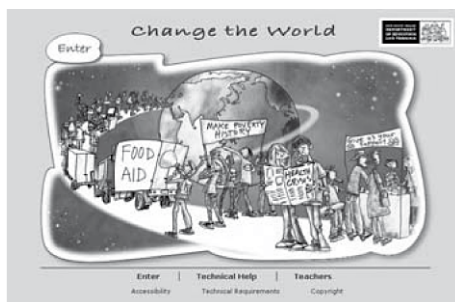
How Eco-friendly are you?

Students investigate global geographical issues through a 'Think globally, act locally approach'. Developed for Stage 4.



Change the world

A Stage 4 resource focused on global inequalities and active citizenship.



Going global

Students explore what globalisation means for individuals, local communities, Australia and the world in this Stage 4 resource.



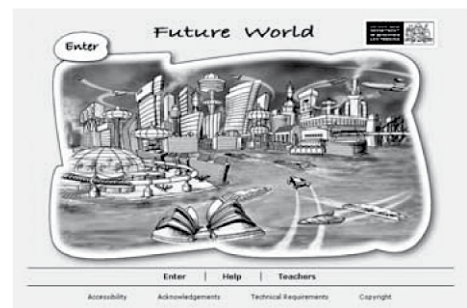
Fire Challenge

Recreates a fire fighting situation for students to respond to. Developed for Stage 5.



Future world

A Stage 5 resource about demographic trends in Australia and their implications for our future lives.



About GIS

An introduction to the use of Geographic Information Systems (GIS) designed for Stages 4-6.



Access these resources through the Teaching and Learning Exchange (TaLe) – www.tale.edu.au (NSW DET access only).

'About fieldwork' will be available in November 2008.

These resources can also be purchased on CD from the CLI catalogue www.cli.nsw.edu.au/cli/index.shtm Click on 'Catalogues', 'School Products', 'Human Society and Its Environment'.



WATERWORKS –

New resource for Stage 4 Geography

The Centre for Learning Innovation (DET) has produced a new resource *Waterworks* that teachers new to teaching Geography may find particularly useful.

Waterworks is an engaging, interactive Middle Years resource for Stage 4 English, Geography, Science and Visual Arts with each KLA focussing on a different aspect of the theme of water.

In the Geography section, students look at geographical research and explore several geographical tools. Students are given the opportunity to conduct a water audit in their school or home and consider actions they can take to reduce their water use. They are also encouraged to consider the theme of water from a global perspective.

The resource particularly supports *Focus Area 4G1 Investigating the World* - where students learn about geographical research, key geographical questions and fieldwork including the use of geographical tools in

investigating the physical and human environment. In 4G1 students also learn to **apply** key geographical questions to a local environment and use geographical tools to measure and record elements of the local environment.

In the **Field study** section of the resource students are presented with a graphic of a 'local' school and surrounds in which students are conducting fieldwork. When students scroll over each student figure they are presented with information e.g. about data collection surveys, cloud types, climatic graphs, topographic maps, synoptic charts, water testing and tools for measuring wind and rain.

Waterworks includes: interactive Flash-based activities, printable worksheets, links to resources on the web and video clips.

The resource is available to download from the Teaching and Learning Exchange (TaLe) <http://www.tale.edu.au> (you will require your DET username and password).

Waterworks: Geography

Field study

Join a team of geographers as they conduct fieldwork at Littletown School.

Click on the seven geographers conducting investigations below and learn about the tools they are using.



How to... find out about fieldwork locations

Finding the best location for fieldwork is different for every school, depending on the topic, the location, time factor, cost limitations, group size and most of all the confidence of the organising teacher.

- Many schools used the same locations every year and they are part of the school calendar and culture.
- Some schools will use their networks to get recommendations for good locations.
- Other schools will leave it to the booking agent (bus company or travel group).
- Schools can choose from books and websites designed to assist teachers with their planning.
- Teachers can do their own research either real or virtual.



There are a number of businesses that advertise a range of fieldwork options for you to consider, either through hard copy or websites.

1. School Excursion and Education Resource Register

Website – www.seerr.com

This group has been producing a book on excursions for years, with destinations, accommodation and transport organized by States.

2. Australian Directory of School Activities, Excursions and Accommodation

Website – www.schoolactivities.com.au

This group has a book with extensive lists of accommodation, activities, tour groups, tourism information, educational programs, galleries, museums and other attractions. This resource has some interesting editorial articles as well.

3. Teachers in the Loop

Website – www.teachersintheloop.com.au

This is a broader education website with information to support teachers such as professional development, professional associations, funding opportunities and competitions. The excursion information has been organised to fit the different KLAs in primary and secondary schools.

4. Cursions

Website – www.cursions.com.au

This is the most recent provider of information on excursions, incursions, classroom activities and resources. This website is new and some of the areas are still under development. It has a search tool that locates destinations according to subject, year level and proximity to school.

5. Travelways Australia

Website – www.travelwaysaust.com.au

This is a bus company that organises tour packages for two and three days. Their glossy brochure may give you some good ideas.



However you go about it, do your research yourself and make sure it is a quality learning experience for your students and a justifiable use of family money.

Your Parklands... *The Geography Challenge*

Emy Petery, Manager of Product Development
Parklands Foundation at Sydney Olympic Park

The Parklands Foundation at Sydney Olympic Park hosts an Information Communications Technology (ICT) program titled *The Geography Challenge*, which seamlessly integrates classwork, with fieldwork during an excursion to Sydney Olympic Park's constructed freshwater wetland – Narawang Wetland.

The Geography Challenge is strategically designed to engage students by adopting a problem solving approach for decision-making.

The Geography Challenge saves time for teachers with lesson preparation and delivery by providing all the content, scaffolded learning activities and support material. The material has been written to focus predominantly on *Land and Water Management* in Focus Area 5A3 *Issues in Australian Environments*. However, there is enough information on Waste Management for teachers to cover both topics through *The Geography Challenge*. This would mean *The Geography Challenge* would be the resource for a term's work. The support materials are extensive and they can also be used to support Geography Stage 6.

The on-line environment of *The Geography Challenge*, comprises an authentic scenario which sets the scene for an investigation. The activities have been designed around the steps of the research action plan (RAP).

A Geographic Information System (GIS) application is a key component of *The Geography Challenge*. The live GIS is a key contextual and data management tool providing students with an opportunity to obtain skills and become familiar with an application now used in many industries. Within *The Geography Challenge*, the GIS facilitates integration of secondary data relevant to the interactive tasks the students can work on, either individually or in groups.

Program Attributes

Students become immersed in the learning challenge where they will investigate authentic geographical issues relevant to the management of a freshwater wetland at Sydney Olympic Park, Homebush Bay. They will select an investigation area that is directly relevant to the management of land and water (or waste) at Narawang Wetland and be coached to research all available geographical resources.

Within *The Geography Challenge* a student will learn:

- the geographical processes relevant to an issue;
- the perceptions of different stakeholder groups; and
- decision-making processes involved in managing an issue.

Unique Features

The learning material is student centred and self-paced, allowing students to utilise a database of resources and to receive program feedback when a task has been completed.

Quality features of the program include:

- hands on experiential learning during the fieldtrip – using a variety of field electronic equipment and analytical field techniques;
- use of GIS rich in database to interrogate datasets and map information layers;
- an excursion to Sydney Olympic Park facilitated by qualified Education Officers;
- an area which allows teachers to monitor students' progress throughout *The Geography Challenge*; and
- students analysing stored individual data and assess it against group and historic data available on line.



Your Parklands... *The Geography Challenge*



Teacher Professional Development

We can provide Geography teachers and non-geographers teaching Geography for the first time, with targeted professional development relevant to *The Geography Challenge* program, or in the area of geographical techniques for collecting and interpreting field data. Our training program may be delivered at your school, or at our excursion venue, by a professionally qualified Geography teacher, who has a vast experience in quality teaching and curriculum advice.

Partnerships

The Geography Challenge has been developed in collaboration with key education project partners the NSW Department and Education and Training (DET) through the Curriculum Directorate and the Centre for Learning Innovation, Sydney Olympic Park Authority (SOPA), GIS software partner ESRI and Catholic Education Offices.

Contact Us

To find out how you can book *The Geography Challenge* for your school or our special Teacher Professional Development program for your faculty, please contact The Parkland Foundation offices at Sydney Olympic Park on 02 9714 7119 or email us on – info@parklandsfoundation.org.au.

If you would like to view *The Geography Challenge* website please visit www.geographychallenge.com.au or visit us at the Parklands Foundation at – www.parklandsfoundation.org.au.

Access and Delivery Mode

Teachers and students will be able to access all program related learning materials on-line by logging into an education website portal designed to support delivery of the program both on and off site. The time taken to complete *The Geography Challenge* varies from approximately four to ten weeks depending on school arrangements.

Students can access the program on-line both before, and after their excursion to Sydney Olympic Park. On site, field data will be collected during the excursion. Opportunities for primary and secondary data entry will be available at school, at home and at Sydney Olympic Park.

Testimonials

Over 1000 students have now completed *The Geography Challenge* successfully and schools from different school systems have enjoyed being part of our initial launch of this wonderfully unique product.





Minnamurra Rainforest Centre

Secondary Geography Education Program

The National Parks and Wildlife Service NSW invites interested school groups to visit the Minnamurra Rainforest Centre (Budderoo National Park) for an opportunity to view and study this rare remnant of rainforest which once covered vast areas of the Illawarra region. Minnamurra Rainforest is particularly special because of the diversity of rainforests types, the range of ferns, and wildlife that exists within a relatively small area.

The Minnamurra Rainforest Centre provides a number of superior educational packages suitable for secondary geography students, covering specific outcomes set out in individual syllabus stages. The activities within this unit are suggestions only and are offered in a manner that allows teachers to personalise the program to suit their particular class and program.

Minnamurra Rainforest is located in the beautiful Jamberoo Valley 15kms west of Kiama and it is within a 2-hour coach journey from Sydney.

Package 'A' – PowerPoint presentation

Approximate duration 30 mins, \$6.60/student

This includes a PowerPoint presentation on the syllabus stage requested, the history of Minnamurra Rainforest, its flora, fauna and rainforest ecology.

Package 'B' – PowerPoint presentation and guided tour of the Rainforest Loop Walk

Approximate duration 45 mins, \$8.80/student

This package is our **"Premium Package"**. It includes the PowerPoint presentation (as per Package A), and the ultimate guided rainforest experience. Programs are specifically designed to reflect individual Syllabus stages. Upon receiving confirmation of your booking, teachers will be forwarded a Disk (CD-ROM) containing various files to assist in delivering pre and post classroom resources. A Risk Assessment, excursion information and worksheets are readily available for you to copy for students. The activities offered will cover the learning experiences linked to outcomes in individual Stages.

We can also extend the above premium package to include the collection of field data by using a range of geographical tools. Measuring, collecting and studying various biotic and abiotic aspects of the rainforest ecosystem, such as soil and water testing, atmospheric and vegetation analysis.

(This additional fieldwork will lengthen the program delivery by a further 40 mins minimum.)

Available Programs

STAGE 4 Program:

4G1 Investigating the World, 4G2 Global Environments
4G3 Global Change, 4G4 Global Issues and the Role of Citizenship

The Minnamurra Rainforest Stage 4 program provides a foundation which will help students demonstrate and understand the geographical processes that form and transform rainforests and the interconnectedness between Minnamurra Rainforest and global rainforests, and describes peoples interactions with environments such as Minnamurra Rainforest and why caring for these environments is essential. Staff at Minnamurra Rainforest explain how various beliefs and practices influence the ways in which people interact with, change and value their environment, and demonstrate the importance and practices of 'management issues' within Minnamurra Rainforest.

STAGE 5 Program:

5A3 Issues in Australian Environments

While undertaking study topic 5A3 at Minnamurra Rainforest, students are introduced to a range of geographical issues relating to Minnamurra Rainforest, such as land and water management. Students will be informed as to why and how these issues are managed.

STAGE 6 Program:

8.2.1 Biophysical Environments

When carrying out the 'Biophysical Interactions' case study at Minnamurra Rainforest, students are informed of the four biophysical processes, and their interactions that occur at Minnamurra Rainforest, and educate students that by understanding these geographical processes, they contribute to sustainable management.

8.3.1 Ecosystems at Risk, a case study of Minnamurra Rainforest ecosystem – virtual fieldtrip

When visiting Minnamurra Rainforest, students are able to examine topics viewed on this virtual fieldtrip first hand. Gather information on historical practices and why Minnamurra Rainforest is referred to as an Ecosystem at Risk, and how it is being managed today.

How to secure a booking

To make your booking, please contact the booking officer on (02) 42 360 469. We will then forward you an itinerary of your proposed visit for your consideration & confirmation. Website: http://hsc.csu.edu.au/geography/ecosystems/case_studies



Discover North Head Sanctuary with Harbour Trust

North Head Sanctuary is located in the former School of Artillery, near Manly. This expansive site is on the headland at the northern entrance to Sydney Harbour, and features endangered vegetation communities, a hanging swamp, sandstone cliffs and a complex of historical military buildings. There are impressive views to South Head, the Sydney CBD and across Sydney Harbour.

North Head Sanctuary is one of eight sites managed by the Sydney Harbour Federation Trust (Harbour Trust), and was opened to the public in May 2007 after decades of military occupation.

Its geographic remoteness, along with its military isolation, has allowed this site to support a unique natural environment in the middle of Australia's largest city. Along with the challenges of managing human impact, these features make North Head Sanctuary an ideal location for Geography fieldwork.

Fieldwork excursions to North Head Sanctuary were introduced in 2008 and have been designed specifically for the Stage 6 Biophysical Interactions topic. It is a great place for teachers looking for 'somewhere different' to go with their students and a refreshing alternative to other sites around the CBD. The site presents a good mixture of natural elements for first-hand investigations, and good examples of human impacts as points for discussing future management challenges.

The full-day excursions are facilitated by the Harbour Trust's team of Teacher Guides (qualified teachers). Students work in small groups, using a specifically designed fieldwork guide, to complete a series of fieldwork experiments including basic orienteering, weather observations, plant and animal identification, soil sampling, mapping and sketching activities. The students will work outdoors at stations set-up throughout the Sanctuary area and all equipment is provided.

The activities are designed for students to develop skills to investigate geographically and to use a range of geographical tools and skills such as compasses, maps and aerial photographs. These skills may also be useful for students' Senior Geography Project.

The excursions cost \$20 per student (GST inclusive) with a minimum fee of \$240 (equivalent to 12 students). Accompanying teachers attend free of charge. There is no restriction on the minimum number of students, however due to the nature of the site, the maximum number of students per excursion is 50.

North Head Sanctuary is accessible by public transport and free parking is available on-site. For more information, or to make a booking for your class, please phone the Harbour Trust on (02) 8969 2100 or visit the website – www.harbourtrust.gov.au.



Resources for Geography Teachers

SydneyAttractionsGroup



**Sydney
WildlifeWorld**

Study Australia's unique terrestrial environments and wildlife in the heart of the city, right next door to Sydney Aquarium.

Stage 5 Focus Area 5A1: Australia's physical environments and the responses of people to the challenges they present.

At Sydney Wildlife World, the theme is Australia's unique wildlife and environments, endangered species and the attempts by a variety of conservation groups and individuals to halt the tide of destruction and extinction.

Resources available at www.sydneywildlifeworld.com.au



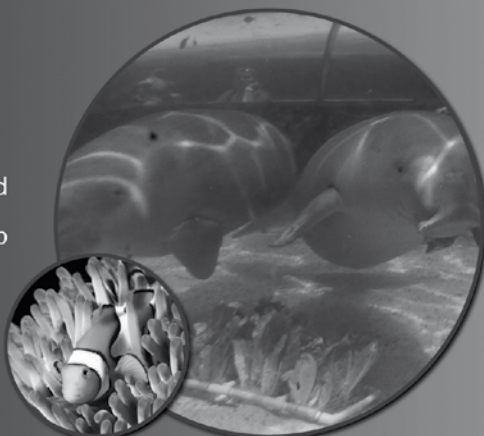
**SYDNEY
AQUARIUM**

Dive into your studies at Australia's most stunning Aquarium, featuring unique aquatic habitats and the flora and fauna they support. The brand new Dugong exhibit features 2 of only 5 dugongs in captivity in the world and the only opportunity to see these vulnerable-listed animals up close in Australia.

Study: Ecosystems at Risk – case study Great Barrier Reef
– Aquatic Habitats

Stage 6 - case study Sydney Aquarium as an economic enterprise for the Global Activity of Tourism. LECTURE AVAILABLE

Resources available at www.sydneyaquarium.com.au



SydneyTower

OBSERVATION DECK ■ OZTREK ■ SKYWALK

If you haven't brought your Geography students to Sydney Tower it's high time you did!

The combined experiences of Sydney Tower + OzTrek provide an excellent FIELDWORK opportunity for Geography students in Year 10.

Focus Area 5A3 Issues in Australian Geography
Urban Growth and Decline
Air Quality

Resources available at www.sydneytower.com.au



**NSW TEACHERS ARE FREE OF CHARGE AT ANY TIME
ON PRESENTATION OF TEACHER ID**

**FOR BOOKINGS, RESOURCES OR MORE INFORMATION PLEASE PHONE
02 8251 7811 OR email Kevans@sydneyattractions.com.au**



Land's Edge is an independent company that has been operating for ten years, facilitating education out of the classroom: curriculum based field studies, outdoor education and recreation programs. *Land's Edge's* programming is a valuable and highly regarded **teaching resource for schools**.

The company offers Geography fieldwork in four of NSW's most stunning locations – Sydney Harbour; The Illawarra; Murramarang National Park; and **Kosciuszko** National Park.

Land's Edge provides all its programming in a safe, enjoyable and appropriately educational context, with students and organised groups guided at every turn by highly experienced and professional teaching staff.

Land's Edge staff adhere to comprehensive safety and risk-management procedures.

About *Land's Edge* Curriculum Based Field Studies

All Curriculum Based Field Studies (CBFS) take the students and teachers out of the school classroom and into the outdoor classroom where the *Land's Edge* team excels.

The company guides the students through the day's outcomes via fact-finding activities. Their clear, easy to follow booklets ensure that the students have a record of these first-hand observations, investigations, data collection and discussions.

All CBFS include:

- Teacher summary of each particular study
- Pre and post material
- Student fieldwork booklet
- All necessary appendices and equipment
- Logistics and program details
- Detailed location maps

The duration of studies varies from three hours to multi-day programs.

The company's aim is to provide a service which makes the experience for school educators as problem-free and enjoyable as possible. All curriculum-based field studies are carefully designed and written to meet Board of Studies subject syllabus outcomes. *Land's Edge* clients include school groups from Primary to HSC level.

Land's Edge and Geography – How we work together

Land's Edge facilitates an inquiry-based approach to learning for Geography students, drawing on research and practical activities such as information collection. In short, the geographic knowledge and geospatial skills learnt in the classroom can be applied to the real world with *Land's Edge*.

Land's Edge programs differ from a normal excursion because they involve collection of data – students investigate environments and, through the gathering of data, gain an experience of the wholeness of the environment they are studying.



Cockatoo Island Orienteering Course

Geography Fieldwork in the Illawarra

Land's Edge offers many exciting fieldwork opportunities for Geography teachers. For example, in the Illawarra, *Land's Edge* can facilitate the following:

STAGE 4 – Year 7

- 4G1 Investigating the World
- 4G2 Global Environments – Rainforest To The Sea

STAGE 5 – Year 9

- 5A2 Changing Australian Communities
– Communities Study

STAGE 5 – Year 10

- 5A3 Issues in Australian Environments
 - Local Environment Study
 - Research Action Plan
- E1 Physical Geography – Rainforest To The Sea
- E2 Oceanography – Marine Protected Areas

STAGE 6

- 8.2.1 Biophysical Interactions
 - Rainforest to the Sea
 - Rainforest Study
 - Study of a Coastal Ecosystem
 - Sand Dune Systems Study
- 8.3.1 Ecosystems At Risk
 - Rainforest Study
 - Study of a Coastal Ecosystem
 - Sand Dune Systems Study
 - A Catchment at Risk Study
- 8.3.3 People and Economic Activity
 - People and Economic Activity Study



Stormwater Session

Geography Fieldwork on Sydney Harbour

Geography fieldwork can also be undertaken with *Land's Edge* on Sydney Harbour. With the new education/ accommodation facility as its base, *Land's Edge* is presently working with individual schools to develop unique Sydney Harbour fieldwork experiences appropriate for the Geography syllabus and tailored to the needs of specific schools. The first of these is a unique orienteering course on Cockatoo Island which is now on offer. It teaches spatial concepts and hands-on mapping skills such as:

- | | |
|--------------------|--------------------------|
| – Scale | – Topography |
| – Contour lines | – Feature identification |
| – Transect studies | – Compass direction |
| – Field sketching | |



Land's Edge for Fieldwork



SIMS Land's Edge Programming

In fact, students who undertook this orienteering course recently were state finalists of the Australian Geography Competition who were in Sydney to compete in the finals.

They were accommodated at the *Land's Edge* harbour-front facility and took part in many activities, including this challenging orienteering course.

Another example of Sydney-based *Land's Edge* Geography fieldwork which will be available to schools shortly for fieldwork purposes is a long-term research study currently a collaboration between *Land's Edge*, The Sydney Institute of Marine Science (SIMS) and a Sydney secondary school. Looking at sea urchin diversity in Sydney Harbour and whether there is any correlation between species, species numbers and rubbish/litter it will:

- be available to any Geography, Senior Science, Biology, Earth and Environmental Studies student;
- take two and a half days and involve at least five snorkel sessions between Chowder Bay and Balmoral to collect data;
- meet many curriculum outcomes with both pre and post program material provided; and
- provide SIMS with the necessary data to draw conclusions about sea urchin diversity in Sydney Harbour.

As with much of its programming, *Land's Edge* enjoys partnering with other organisations such as the AGTA to bring the best in education into the field. *Land's Edge* has positive working relationships with companies such as Sydney Harbour Federation Trust; SIMS, as mentioned above; Streamwatch and Landcare.



Land's Edge Water Testing

Sydney Learning Adventures

Bringing Sydney's past and present to life



With access to some of Sydney's most famous places and incredible artefacts, our educational programs promise a fascinating, multi-layered learning experience.

Sydney Learning Adventures' programs include:

- Exclusive entry to historical sites and buildings such as Merchant's House and Dawes Point Battery in The Rocks.
- Hands-on experiences with genuine artefacts, replica Edwardian toys and historical memorabilia.
- Unique Aboriginal cultural experiences including harbour cruises onboard the *Deerubbun*.
- The chance to explore multiculturalism and changing environments on location in Chinatown and Pyrmont.
- An opportunity to discover the art of marketing with Sydney success story Ken Done.
- Comprehensive teacher resource packs.
- Curriculum links to HSIE, history, ancient history, geography and Aboriginal studies.

Plus great deals are available on joint packages with other education providers.

BOOKINGS AND INFORMATION

T: (02) 9240 8552

F: (02) 9247 3455

www.sydneylearningadventures.com.au



SHFA.NSW.GOV.AU

Excursions to Warragamba Dam

Geography Excursions Stages 4 and 5

The Sydney Catchment Authority (SCA) delivers educational programs for Geography teachers and students. The programs meet outcomes of the NSW Board of Studies Geography syllabus. Experienced education officers facilitate age appropriate and engaging learning activities with each booked group.

Exhibition space and water classroom

Syllabus linked water and catchment management information, themes covered include:

- Where does Sydney's drinking water come from?
- How is water quality protected?
- What are the future water supply options for a growing city?

Fieldwork opportunities

Access to Warragamba Dam is not available to the public. Pre booked school excursion groups can access Warragamba Dam in escorted groups. This is an amazing experience for your students. Students gather geographical information: observations, field sketching, impacts of the dam, taking photos.

Free Program

Bookings are essential and numbers are strictly limited. Student worksheets and teacher support materials are supplied for each booked group.

Available upon request is a venue and safety risk assessment for the Warragamba Dam school excursion program.



Contact information – For more information about the program or to make a booking contact the SCA Education Team on 02 4720 0344



What is the LCCC?

The Lake Cowal Conservation Centre (LCCC) is an environmental education centre where students can identify, investigate and address local environmental issues and restore the native habitat of the site.



Specific units of work and activities have also been developed to provide students with many opportunities to combine skills and knowledge from across a variety of learning areas from the NSW school curriculum.

The LCCC is located 35kms North East of West Wyalong, and 3kms South of the Barrick Cowal Gold Mine (CGM) site at Lake Cowal. The land is owned by Barrick CGM, who have allocated the land to the Lake Cowal Foundation Limited (LCFL) for this project. The centre is a joint project between West Wyalong High School, the Lake Cowal Foundation Limited (LCFL), Barrick CGM and the Lachlan Catchment Management Authority.



FACILITIES

The site is easily accessible by buses, has an insulated barn style visitor centre with an internal display highlighting the main environmental themes of the region.

Classroom facilities include multimedia presentation equipment, lab, microscopes, paved outdoor area, bbq, heating and cooling, kitchenette, toilet block, and digital /NextG reception.

Landscape features of the site include; a significant patch of bushland on the rocky ridge, "The Lookout" from which Lake Cowal and Barrick's CGM are visible, and 'Mini Lake Cowal'.

WHATS ON OFFER?

Activities include revegetation, ecological sampling, bushwalking, water/soil monitoring, and plant and animal identification. Students work in small mixed groups for the activities, assisted by their accompanying teachers, and on-site staff.

The Lake Cowal Conservation Centre has an on-site teacher and is available for school and community group visits by appointment, catering for all levels of students from Preschool to Year 12 and beyond.

Secondary units currently offered include;

- * Yr 7/8 Climate Change Snapshot
- * Yr 10 Geography Biodiversity Study
- * Yr 11 "Catchments" unit
- * Yr 11 Biology/ Senior Science Field Study
- * All levels "Water Bug Survey"

Infants & Primary units include ;

- * Water Bug Survey
- * Bush Detectives
- * Junior "Catchments" unit.

Activities can be developed to teacher requirement (notice is required).

ABOUT LAKE COWAL

Lake Cowal is a nationally significant wetland possessing several unique features that are of the highest environmental value. The area boasts many important habitats and species, and well as its unique natural landform features. It is a key distinguishing location within the Lachlan Catchment, and is surrounded by many agricultural properties and the developing CGM. Thus the site possesses a diverse range of educational opportunities for students.



COST

All equipment, teaching and student resources are included in the cost of \$5 per student.

BOOKINGS: To book your visit to the LCCC, or for more information, please contact Karen Worthington on (02) 69754819.



Fieldwork Competition 2008 Report

Sue Field, Fieldwork Competition Organiser

Fieldwork Competition 2008

The Geography Teachers' Association of NSW (GTA NSW) organises an annual competition for students 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.

In 2008 the competition was remodelled, to make the competition more accessible to a greater range of students. It is open to all secondary schools, both GTA members and non-members.

All the categories of the competition are based on the research action plan outlined in the syllabus 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.

In 2008 there were seven categories for the competition:

1. **The Dr Don Biddle Visual Presentation Competition** (Stage 4 only) on any relevant topic
2. **The Dr Maurine Goldston-Morris Fieldwork Competition** (Stage 5 only) on characteristics that make Australia unique
3. **The Water for Life Fieldwork Competition** (Stage 5 only) on a relevant water issue in NSW
4. **The Issues in Australian Environments Fieldwork Competition** (Year 10 only) on an issue in NSW
5. **The Brock Rowe Fieldwork Competition** (Year 11 only) on the Senior Geography Project
6. **The Sustainable Schools Fieldwork Competition** (Stage 4–6) on an issue at the school
7. **The Global Education Fieldwork and Research Competition** (Stages 4–6) on a relevant global topic

It should be noted that categories 1–6 require fieldwork to be undertaken and it is an option in category 7.

There was an overall award from categories 3–7 for civics and citizenship, for a project that demonstrated such action had been taken.

Fieldwork Awards Night 2008

The awards were presented at a ceremony at Ravenswood School for Girls in Gordon (Sydney).

All place winners and highly commended participants received a certificate, a book and a voucher from Scenic World for the family. Place winners received cash awards as well.

The Dr Maurine Goldston-Morris Awards and the Brock Rowe Awards were made possible through the generous donations by Dr Maurine Goldston-Morris, who has supported the GTA Fieldwork Awards since their inception.

The Water for Life Awards were funded by the Department of Water and Energy and presented by Reid McNamara, the Acting Manager for the Water for Life Project.

The Issues in Australian Environments Awards were funded by Ku-ring-gai Council.

The Sustainable Schools Fieldwork Awards were funded by the NSW Department of Environment and Climate Change and presented by Sue Burton, the Senior Project Officer for Sustainability Programs.

The Global Education Awards were funded by Global Education NSW and presented by Dr Susan Bliss, the Director for Global Education for NSW and ACT.

The Civics and Citizenship Award was funded and presented by Barry O'Farrell MP, Member for Ku-ring-gai.

The remaining cash awards were made available from GTA funds.

GTA NSW sincerely thanks all the organisations that have supported this competition with funds and officers attending the Awards Night to make it special for the students and schools involved.

There were 28 students in all who received prizes, coming from 11 different schools from Sydney, Wollongong, Central Coast, Newcastle and Tamworth.

All students received a voucher to enjoy a visit to Scenic World, Katoomba. The voucher was for five adults and worth \$140 per family. GTA NSW sincerely thanks Scenic World for such a generous donation and their commitment to Geography and fieldwork.

Fieldwork Competition 2009

This year the competition will take on a similar format with some minor modifications. Look out for the brochure to hit schools in Term 1.

GTA Professional Development for Terms 1 and 2 2009

MARCH

Preliminary Workshop

Thursday 19 March, 8.30am – 3.30pm

Audience: Secondary Teachers

Target Group: 11, KLA: Geography

NSWIT endorsed course

Venue: PTC NSW Conference Centre,
Cnr Norton and Marion Sts, Leichhardt

Designed for teachers new to the preliminary course or
other teachers seeking re-invigoration.

Places available: Limit 30.

Registration closes: Wednesday 11 March

Cost: Member \$50, Non member \$75

Twilight Workshops – Examinations

Tuesday 31 March, 4.00pm – 7.00pm

Audience: Secondary Teachers

Target Group: 10 –12, KLA: Geography

NSWIT endorsed course

Venue: PTC NSW Conference Centre,
Cnr Norton and Marion Sts, Leichhardt

Experienced teachers provide valuable insights on
setting appropriate examinations for students

Places available: Limit 30.

Registration closes: Wednesday 25 March

Cost: Member \$30, Non member \$50

MAY

Twilight Workshops – Using GIS

Tuesday 12 May, 4.00pm – 7.00pm

Audience: Secondary Teachers

Target Group: 10 –12, KLA: Geography

Venue: PTC NSW Conference Centre,
Cnr Norton and Marion Sts, Leichhardt

An investigation and review of the diverse career paths
available to Geographers.

Places available: Limit 30

Registration closes: Wednesday 6 May

Cost: Member \$30, Non member \$50

Engaging Students in Geography

Wednesday 20 May, 8.30am – 3.30pm

Audience: Secondary Teachers

Target Group: 7–10, KLA: Geography

NSWIT endorsed course

Venue: Taronga Zoo, Bradleys Head Rd, Mosman

Workshop of innovative programs and global
education resources and speakers for Stages 4 and 5,
plus assessment for global education in 5A4.

Places available: Limit 30

Registration closes: Wednesday 13 May

Cost: Member \$50, Non member \$75

Engaging Students in Geography

Friday 22 May, 8.30am – 3.30pm

Audience: Secondary Teachers

Target Group: 7–10, KLA: Geography

NSWIT endorsed course

Venue: Newcastle Catholic Education Office,
841 Hunter St, Newcastle

Workshop of innovative programs and global
education resources and speakers for Stages 4 and 5,
plus assessment for global education in 5A4.

Registration closes: Monday 18 May

Cost: Member \$50, Non member \$75

Twilight Workshops – Interactive Whiteboards

Tuesday 26 May, 4.00pm – 7.00pm

Audience: Secondary Teachers

Target Group: 7–12, KLA: Geography

NSWIT endorsed course

Venue: PTC NSW Conference Centre,
Cnr Norton and Marion Sts, Leichhardt

Using Interactive Whiteboards to enrich learning in
the geography classroom.

Places available: Limit 30

Registration closes: Wednesday 20 May

Cost: Member \$30, Non member \$50



Presenter Nick Hutchinson distributes handouts to participants at the Confidence with Geography Skills Workshop, held at the PTC NSW Conference Centre in Leichhardt on Friday 20 February 2009.

GTA Professional Development for Terms 1 and 2 2009

MAY

Leadership Conference

Friday 29 May, 9.00am – 4.00pm

Audience: Secondary Executive

Target Group: 7–12, KLA: Geography

NSWIT endorsed workshops, refer to conference programme.

Venue: Monte Sant' Angelo Mercy College,
128 Miller Street, North Sydney

A conference for middle managers, National Curriculum and teacher accreditation are likely to feature on the program for the conference along with sessions designed to support HODs in their complex roles.

Places available: No limit.

Registration closes: Tuesday 26 May

Cost: To be confirmed refer to website

JUNE

HSC Lectures for Students

Wednesday 10 June, 8.30am – 3.30pm

Audience: Secondary teachers and students

Target Group: 11–12, KLA: Geography

Venue: University of Wollongong

Experienced teachers, HSC markers and distinguished academics will provide a summary and fresh perspective on the HSC course.

Places available: No limit.

Registration closes: Wednesday 3 June

Cost: Member \$30, Non member \$50

Teachers free if accompanying students

Engaging Students in Geography

Thursday 18 June, 6pm – 9pm (inc. dinner) and Friday
19 June, 8.30am – 3.30pm (inc. breakfast)

Audience: Secondary Teachers

Target Group: 7–10, KLA: Geography

NSWIT endorsed course

Venue: Nan Tien Temple, Berkeley Rd, Berkeley

Workshop of innovative programs and global education resources. Speakers for Stages 4 and 5, plus assessment for global education in 5A4.

Registration closes: Tuesday 16 June

Cost: Member \$120, Non member \$150, includes all meals and shared accommodation at Pilgrim Lodge, Nan Tien Temple. Single accommodation \$50 extra.

JUNE

HSC Lectures for Students

Week of 15 to 19 June, 8.30am – 3.30pm daily

Audience: Secondary Teachers

Target Group: 11–12, KLA: Geography

NSWIT endorsed course

Venue: St Andrews Cathedral School,
474 Kent St, Sydney

Experienced teachers, HSC markers and distinguished academics will provide a summary and fresh perspective on the HSC course.

Places available: No Limit

Registration closes: Wednesday 10 June

Cost: Member \$30, Non member \$50 Teachers free if accompanying their students.

HSC Lectures for Students

Week of 22 to 26 June, 8.30am – 3.30pm daily

Audience: Secondary Teachers and Students

Target Group: 11–12, KLA: Geography

NSWIT endorsed course

Venue: Central Coast (to be advised)

Experienced teachers, HSC markers and distinguished academics will provide a summary and fresh perspective on the HSC course.

Places available: No limit.

Registration closes: Wednesday 17 June

Cost: Member \$30, Non member schools \$50.
Teachers free if accompanying their students.

Engaging Students in Geography

Monday 22 June, 8.30am – 3.30pm

Audience: Secondary Teachers

Target Group: 7–10, KLA: Geography

NSWIT endorsed course

Venue: Indonesian Embassy, Canberra,
8 Darwin Ave, Yarralumla ACT

Workshop of innovative programs and global education resources and speakers for Stages 4 and 5, plus assessment for global education in 5A4.

Registration closes: Wednesday 17 June

Cost: Member \$80, Non member \$110

Event contact –

Terry Fogarty, Geography Teachers' Association

Email: office@gtansw.org.au

Web: www.gtansw.org.au



Advice to contributors

1. **Objective:** The *Geography Bulletin* is the quarterly journal of the New South Wales Geography Teachers' Association, Inc. The role of the *Geography Bulletin* is to disseminate up-to-date geographical information and to widen access to new geographic teaching ideas and methods. Articles of interest to teachers and students of geography in both secondary and tertiary institutions are invited, and contributions of factually correct, informed analyses, and case studies suitable for use in secondary schools are particularly welcomed.
2. **Content:** Articles, not normally exceeding 5000 words (no minimum specification), should be submitted to the Editor at the following address:
PO Box 162, Ryde, NSW, 1680

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:** An original on disk plus one hard copy should be submitted. 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 photographing. Photographs should be on glossy paper, and strong in contrast. An indication should be given in the text of approximate location of tables, figures and photographs. Every illustration needs a caption.
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:** A covering letter, with return forwarding address should accompany all submitted articles. If the manuscript has been submitted to another journal, this should be stated clearly.
6. **Photo of Contributor:** Contributors should enclose a passport-type photograph and a brief biographical statement.
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. **Italics** should be indicated by underlining.
9. **Spelling** should follow the *Macquarie Dictionary*, and Australian place names should follow the Geographical Place Names Board for the appropriate state.



Books for review should be sent to:

Mr David Hamper, Review Editor,
The International Grammar School
Locked Bag 1022
Broadway NSW 2007

Deadlines for articles and advertising

Summer issue – 1 December
Autumn issue – 1 March
Winter issue – 1 May
Spring issue – 1 August

Notice to Advertisers

'Geography Bulletin' welcomes advertisements concerning publications, resources, workshops, etc. relevant to geography education.

FULL PAGE (26 x 18cm) – \$368.50
Special issues \$649.00

HALF PAGE (18 x 13cm or 26 x 8.5cm) – \$214.50
Special Issues \$382.80

QUARTER PAGE (13 x 8.5cm or 18 x 6.5cm) – \$132.00
Special issues \$242.00

INSERTS (A4 supplied) – \$374.00
All prices include GST

Advertising bookings should be directed to:

Terry Fogarty, GTA Office Manager
Telephone: (02) 9564 3322
Fax: (02) 9564 2342
Email: office@gtansw.org.au

