Teaching Geography

Volume 35 | Number 1 | Spring 2010

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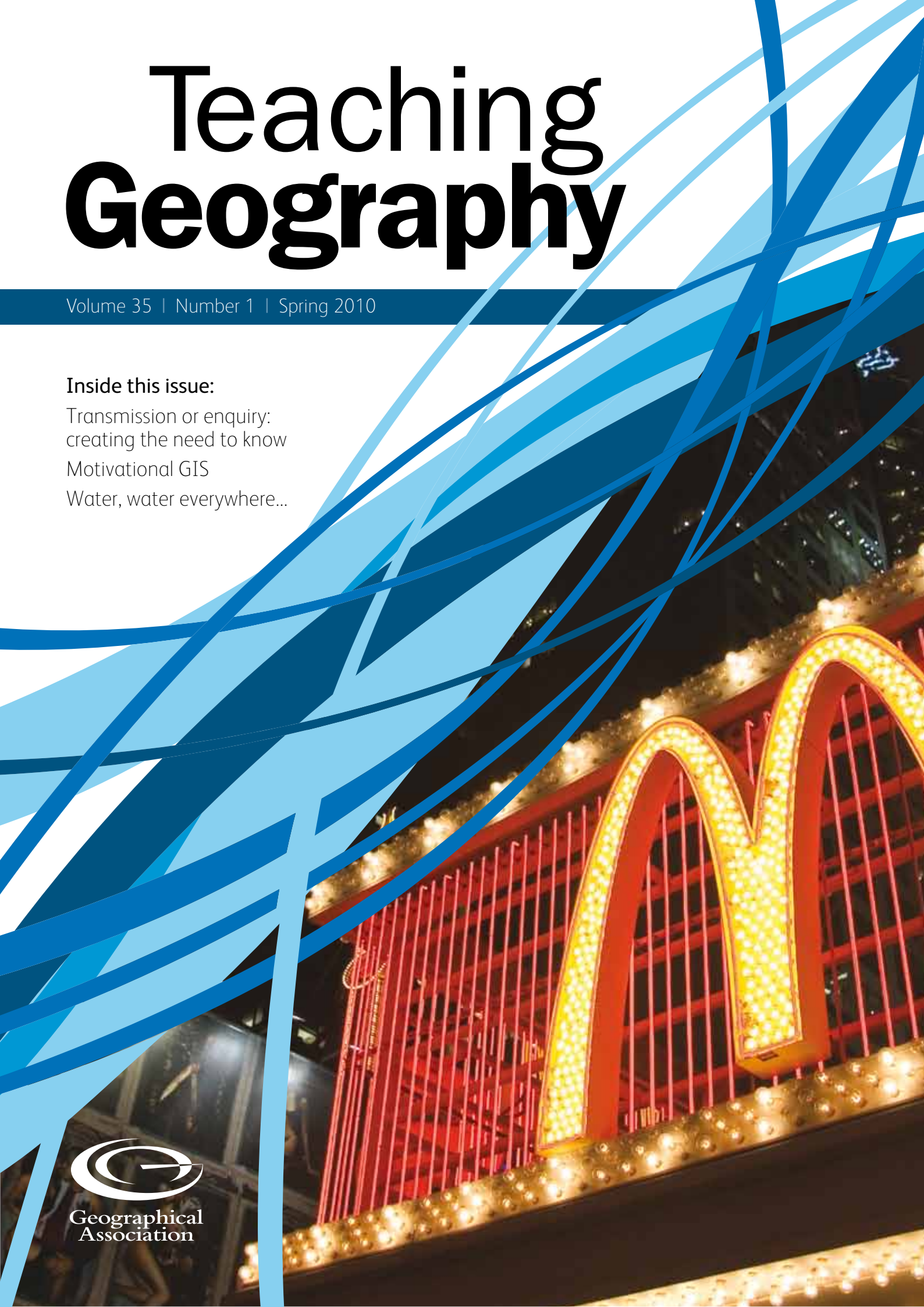

Geographical Association

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Would you like to write for *Teaching Geography*?

Teaching Geography provides a forum for the sharing of:

- practical strategies for teaching geography
- critical reflection on geography teaching and learning
- curriculum innovation and change in geography.

If you have a teaching strategy, practical idea, resource to share or a particular view on educational practice, we would like to hear from you.

Teaching Geography welcomes articles from PGCE students, NQTs and practicing teachers. If you have an idea but have never submitted an article before and would like some advice, please contact Mary Biddulph (*mary.biddulph@nottingham.ac.uk*), the Editor of Teaching Geography, who will be happy to discuss it with you.

Articles are published in the journal and on the GA website. Any additional resources associated with specific articles such as teaching resources, schemes of work, images and web links will be made available to download from the GA website.

Each issue of *Teaching Geography* has a 'focus', for which the articles are usually commissioned. We welcome the submission of the following types of article for *Teaching Geography*:

1. Planning and pedagogy (1500 words)

These articles critically discuss and illustrate approaches to teaching geography. Planning and pedagogy articles could be based on:

- teaching and learning strategies/techniques
- learning opportunities
- student activities
- planning
- assessment.

They can:

- be accompanied by electronic resources to support the article (PowerPoint, PDFs, Word)
- contain photos.

2. The G-Factor (1500 words)

These are short articles plus a teaching resource (supported by more resources online), based around a practical idea for teaching a lesson or sequence of lessons. G-Factor articles:

- set the scene and the context (who? where? when?)
- cover the geographical learning (what is it? why teach it?)
- discuss the teaching and learning process (could be a bulleted list)
- reflect on the quality of learning (what was effective? what could be developed or changed?)
- contain photos, including samples of students' work to illustrate points raised in the reflections section
- are supported a one-side teaching resource plus additional resources on the GA website.

3. News, views and comment (1500 words)

These short articles discuss current educational views and how they impact upon geography. For example, articles could discuss the Primary Review, Ofsted, community cohesion or APP.

4. How to... (750 words)

How to... articles provide practical advice and strategies for geography departments.

5. Resource reviews

Resource reviews are done by volunteers and Centre of Excellence schools. If you would like to offer to review resources, please email Dorcas Turner (*dturner@geography.org.uk*).

There is detailed information on preparing articles for publication at *www.geography.org.uk/download/GA_GITGGuide.pdf*

Volume 35 Number 1

Copy editing: Andrew Shackleton.
Design: Ledgard Jepson Ltd.
Printed by: Buxton Press.

Cover photo: McDonalds at night in New York. **Photo:** Pavel Aberle.

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Teaching Geography is published three times a year.

2009/10 subscription rate: £81.00 (group membership); £57.00 (full personal membership); £28.50 (associate personal membership). You can join or renew online at *www.geography.org.uk*.
Or you can download a membership form and send your subscription to: Geographical Association,160 Solly Street, Sheffield S1 4BF
tel: 0114 296 0088 fax: 0114 296 7176
e-mail: *info@geography.org.uk*
The Geographical Association is a registered charity: no. 313129

ISSN 0305-8018

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Number 1
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Environmental policy

At regular intervals we revisit the production arrangements for our journals, ensuring the GA gets best value by putting the production work out to tender and seeking suppliers who share our mission to reduce the environmental impact of our activities.

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Editorial: Exploring geographical enquiry

Mary Biddulph, Editor

Photo: Bryan Ledgard.

Welcome to a new look *Teaching Geography*! Over the past few months the TG editorial board has been working with authors, staff and designers to update both the look and content of the journal. Each edition of TG will now have a lead section exploring the theory and practice of a specific issue in geographical education; alongside this we look forward to publishing a wide range of articles which we hope you will continue to submit. Lead articles will be written by a specialist in a specific area; two or three additional articles will help to make the theory to practice connections. In this edition we explore 'geographical enquiry' and its underpinning principles. The Summer edition will focus on 'young people's geographies' and how these can shape and influence what and how we teach, and in the Autumn we will bring together ways of thinking about 'place' as a geographical concept in the school curriculum. In addition to this new structure and design, the journal will extend its use of the GA website. You will find any additional material linked to articles (such as teaching schemes, teaching resources, worksheets, PowerPoints and exemplar material) on the TG pages (*www.geography.org.uk/tg*). These are available for you to adapt and use.

The new 'Guidance for Authors', published on the inside front cover, outlines the aims of the journal as well as the different kinds of articles we seek to publish. If you are interested in writing for TG and want to explore possible ideas then please contact me (*mary.biddulph@nottingham.ac.uk*).

And so to this edition. Our lead article by Margaret Roberts presents a discussion of the 'what' and 'why' of geographical enquiry. Enquiry is contextualised here as being personal in its construction and by definition ever changing: the questions we ask and the connections we make are likely to be personal and dependent on age, experiences, perspectives and so on. Because of this, Margaret makes a clear case for the contribution of different forms of enquiry to students' geographical understanding. By embedding enquiry into wider considerations of student motivation, curiosity and critical engagement, Margaret encourages us to think beyond the positivist models often associated with scientific enquiry and to consider what constitutes 'truly educational' enquiry.

Subsequent articles provide some valuable insights into what truly educational enquiry might look like and how differently enquiry can be interpreted and used with students. They also illustrate how encouraging students to ask and pursue critical geographical questions enables students to review and reconsider what they think they know, and in turn deepen and extend their geographical understanding. These articles also all suggest that intellectual challenge, interaction in a teacher/student and student/student way, and relevance to the students' own lives, captivates students and better connects them to some of the big ideas in geography.

One such big idea, highly relevant in the light of the recent United Nations Climate Change Conference, is the Low Carbon London (LcL) project. Based on the ambitious carbon emission targets set for London, the LcL project provides teachers and students with access to a wide variety of resources – expert witness interviews, data and online discussion material – which enables students to question the very basis of the targets, as well as critically evaluate their own lifestyles in relation to carbon emissions.

Other articles in this edition also provide practical and real insights into approaches to teaching geography. David Wright's follow-up to his solid geology article completes the picture, using analogies and straightforward diagrams to make drift geology accessible. Viv Pointon recommends some interesting data and information sources to encourage students to think more carefully about their own, and others', water consumption.

Collectively these articles highlight the potential of geographical enquiry to support high-quality geographical thinking. The capacity to 'think geographically' provides us all with a particular lens through which to not only view the world, but also to make some sense of it. On Radio 4 recently the children's author Michael Rosen used the phrase 'a deprived curriculum for deprived children' when discussing the limited place of literature in the curriculum today. It could be argued that, in denying young people access to the kinds of geographical enquiry – personal, critical and capable of 'capturing the imagination – that are explored here, the geography curriculum is in danger of differently but equally depriving young people of educationally worthwhile experiences that support their understanding of what the GA calls 'the big picture'. | **TG**

Teaching Geography *has a new look and a new format. This edition explores geographical enquiry through a lead article, on the 'what' and 'why' of enquiry, and practical articles, full of teaching ideas and resources, which show how an enquiry approach can be used in the classroom.*

Margaret Roberts

Geographical enquiry

Research has revealed different views on the meaning of 'geographical enquiry', and why it is important. This article suggests that its meaning is related to why it is important. Three reasons for advocating an enquiry approach are suggested in relation to how we think about geographical knowledge, how we think about students' role in constructing knowledge and how students are motivated to learn. Learning through enquiry is contrasted with transmission teaching in which students have a more passive role.

Introduction

Through my teaching and my research I have found that what different people understand by geographical enquiry varies considerably. Also, although 'enquiry' has been a statutory part of the Geography National Curriculum since 1991, many are unsure why it is thought to be important. In this article I want to outline the variations in understanding I have found through my research, to examine reasons why I think geographical enquiry is important, and finally to explore some of the differences between the 'transmission' and 'enquiry' approaches to teaching geography.

Understandings of geographical enquiry: findings from research

In 1996 I carried out two pieces of research investigating enquiry in the Geography National Curriculum (GNC). First, I interviewed, individually, six members of the advisory group involved in the construction of the 1995 GNC, and secondly, I interviewed geography teachers in six different schools.

The advisory group were in agreement that enquiry should be included in the geography curriculum. However, there were some interesting differences in understanding about what this actually meant. Some understood enquiry as an approach to learning that applied to absolutely everything studied; some thought more in terms of distinct 'enquiries'; and one person thought that an investigative approach 'should not be the only way you teach things'. However, the group had concerns about whether the term 'enquiry' would have been acceptable to the Thatcher government, either because the New Right associated the word with public enquiries and controversial issues, or because it suggested how geography should be taught and this was beyond the remit of the National Curriculum legislation (Education Reform Act, 1988). Some thought that the word 'investigating' might have more 'hard-nosed credibility' because it was associated with science.

When I conducted my teacher interviews, I also studied their schemes of work, assessment items and their students' work (Roberts, 1998). Enquiry was commonly associated with fieldwork, independent learning and a sequence of investigation. However, each teacher attached very different degrees of importance and different meanings to each of these, and this in turn had an impact on classroom practice. Where enquiry was strongly associated with fieldwork, e.g. 'when they go out', there was little enquiry work in the classrooms. The extent to which enquiry was associated with independence varied from 'doing a bit on your own' to 'The nearer you get to handing the whole learning process over to the kids, the nearer you are to true enquiry-based learning.' How teachers carried out sequences of investigation varied too. One department emphasised scientific method and hypothesis testing ('They have to set a hypothesis'), while another put emphasis on qualitative data, values and attitudes ('We don't do much number-crunching').

Three things became clear to me from this research. Firstly, the word enquiry has connotations from its use in everyday life and in other subjects; for some, it is not a neutral term. Secondly, how people understand geographical enquiry is influenced by their own personal biographies, the ways they have encountered enquiry through their study of geography, their teaching and involvement in projects. Thirdly, because the word is used and understood differently, it seems impossible to define the meaning of 'geographical enquiry' precisely and fix it. Enquiry is a word whose meaning has developed, and will continue to develop, through the ways in which it is used and enacted in practice. What I can write about in this article, therefore, is what I personally understand by geographical enquiry, but this is dependent on why I think geographical enquiry is important.

Why I think geographical enquiry is important

My views on geographical enquiry are informed partly by a constructivist view of knowledge. This means that I do not think of geographical knowledge as something simply waiting to be collected 'out there' in the field. Instead I think that what is 'collected' and how it is represented is shaped by the questions geographers ask, how they set about answering them and their existing understandings or imaginations (see Figure 1). Also, as Massey (1995) states, 'Our knowledge of the world and how we make sense of it is always from a certain standpoint, a certain location. We see it from here rather than from there'. Geographers understand the world and how it works in different ways, producing 'a diversity of geographical knowledges' (Castree, 2005). I am not arguing that all constructions of geographical knowledge are equally valid, but that all constructions of geography are provisional and open to interpretation and challenge.

I also accept a constructivist theory of learning. I believe that geographical knowledge cannot simply be 'delivered' to students. Students need to be actively involved in making sense of it for themselves. This involves connecting new information and ideas with what they already know and understand (Barnes and Todd, 1995). So the sense that students make of what they study will depend on the connections they make, and this varies considerably as each individual brings to the classroom different direct and indirect experiences, and different ways of thinking about the world. The role of language and talk between teacher and student is crucial in this process of making sense (Vygotsky, 1962; Webster *et al.*, 1996; Mercer, 2000). As Mercer wrote:

> *Language is the prime tool of teaching-and-learning. Education happens in conversations where the combined mental resources are focused on developing the learner's understanding.*

Figure 1: Seeing different things in the same landscape or place can be illustrated with an analogy. These patterns were created from exactly the same base pattern (or landscape). My two daughters with their different imaginations identified different patterns within it.

Another reason why I think geographical enquiry is important is related to motivation. It seems important that the questioning attitude that young children have about the world is fostered throughout the years of schooling. I believe that students will learn more if they have been made curious about what they are about to learn and are encouraged to continue asking questions. The notions of key questions was introduced to geography by the Schools Council Projects of the 1970s and 1980s. Before this, Bruner stressed the importance of questions in 'Man: A Course of Study', an innovative course developed in the 1960s (Bruner, 1966). The course was framed by key questions (What makes human beings human? How did they get that way? How can they be made more so?) and its aims were expressed as a set of principles, the first of which was: 'to initiate and develop in youngsters a process of question-posing'. I think that key questions are important to frame learning.

My own understanding of geographical enquiry

I think of geographical enquiry as an approach to learning that accepts that knowledge has been constructed and prioritises the need for students to make sense of things for themselves – an approach which could include individual projects. I do not see it as an optional approach, to be used occasionally.

Although geographical enquiry is often associated with sequences of skills, I believe that these skills need to be developed and refined in specific contexts rather than in discrete exercises in a skills-based curriculum. I have identified (Roberts, 2003) four important aspects of enquiry:

- creating a need to know
- using data
- making sense
- reflecting on learning.

For each of these aspects I will explore the meaning of enquiry by contrasting it with a transmission approach to teaching.

Creating a need to know

In a traditional transmission approach to teaching, the teacher decides what the students are going to learn and then what the learning outcomes will be by presenting lesson objectives at the start of the lesson. This assumes that it is possible for all students to achieve the same objectives in spite of the different knowledge, experiences and skills they bring to the lesson.

In contrast, an enquiry approach puts an emphasis on questions and encourages curiosity. At the start of a lesson, instead of identifying the end-points of learning, an enquiry approach identifies the starting point: a question to frame what is being studied. I think it is useful for the big questions that frame units of work to be planned by the teacher. Some GCSE and A-level specifications provide key questions to frame the content but it is less common to find key stage 3 schemes of work structured in this way. Here we can learn from history teaching where for many years it has been common practice for 'rigorous, challenging and intriguing' historical questions (Riley, 2000) to be used for planning 'quality learning'. Riley characterises a good enquiry question as one that captures interest and imagination, that places a historical concept or process at the forefront of students' minds, and that results in a tangible, lively, enjoyable activity. Among many examples of questions he suggested for structuring key stage 3 were: 'Why did it take so long for women to get the vote?' and 'Why do historians disagree about the causes of the Second World War?' There is scope for geographers to identify similarly probing and challenging questions as a framework for key stage 3 and to involve students in devising subsidiary questions.

In an enquiry approach to learning, it is important that the big questions become the students' own. This involves provoking curiosity, possibly by setting up some puzzling situation or problem, or through a stimulus (Davidson, 2006). It might include getting students involved in planning the curriculum (see Young People's Geographies Project, *www.youngpeoplesgeographies.co.uk*). It might involve giving students a choice, e.g. which volcano to investigate or which countries to 'visit' in a Pole to Pole project (see p.60 in Roberts, 2003. Extract available on the TG pages of the GA website).

Using data

In a transmission approach, data are selected and presented by the teacher as unproblematic,

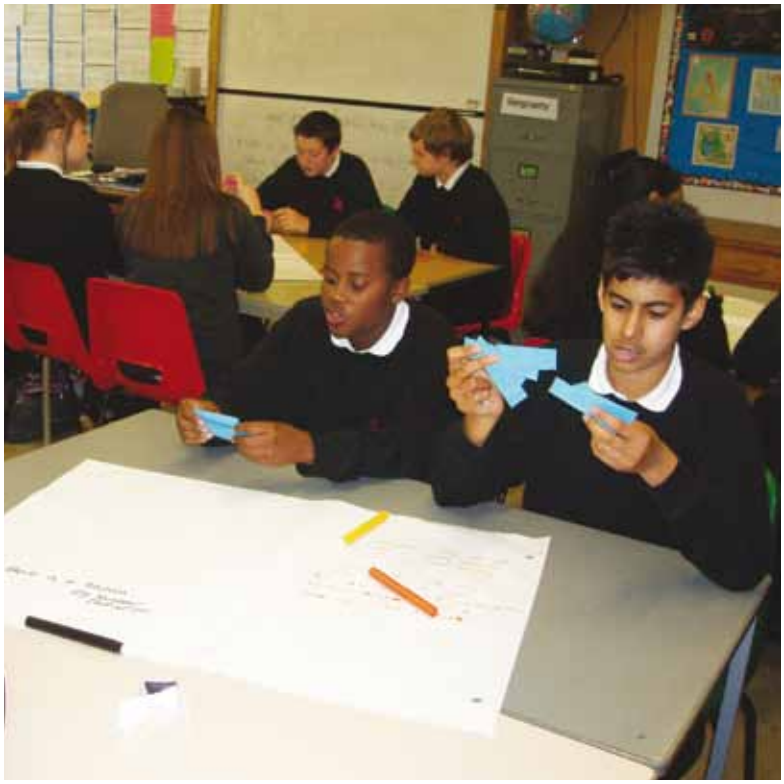

Figure 2: Students working to categorise data.
Photo: Gemma Caudrey, Littleover Community School.

authoritative information to be accepted, studied and possibly remembered. Textbooks often provide data that has already been processed into lists of key points, or categorised in some way, e.g. into lists of advantages/disadvantages. This denies students the opportunity to work this out for themselves.

In an enquiry approach, students are expected to analyse, interpret and challenge data. Students are made aware that data has been selected, either because they deal with selection problems themselves in the field, library or at the computer, or through some activity, e.g. dealing with conflicting data on the same topic. Also, in an enquiry approach students learn to handle data presented in a relatively unprocessed form, so that it is the students rather than the teacher or textbook author who categorise data into advantages/disadvantages etc. (see Figure 2).

Making sense

In a transmission approach, the teacher makes sense of data for the students. The teacher describes, explains, analyses and interprets, often with the help of a PowerPoint presentation. The teacher might make links between the new information being presented and what has been taught and learnt in geography previously. The teacher tends to do most of the talking, and questions focus on whether students have grasped what is in the teacher's mind.

In an enquiry approach, opportunities are provided for students to make sense of data for themselves. First, they need time and space to relate new information and ideas to what they already know; they need time to think, rather than being hurried along by a need for 'pace'. Second, they need to be introduced to the big ideas of geography that will help them to make sense of new data – ideas such as sustainability, interdependence, globalisation. The role of classroom talk is essential in helping students make sense. This might include whole-class discussion or role-play. It might involve students working in small groups, where activities might include categorising, ranking or evaluating pieces of information, or making links on spider diagrams and concept maps, or developing arguments for or against something (see Figure 3). Where frameworks such as the 5Ws and the Compass Rose are used, students are made aware that these frameworks do not simply produce 'correct' answers, but are a way of structuring information and focusing on different aspects of a topic. I think there is a need for new frameworks to help students with data, partly to extend the range of questions they consider to include the moral aspects of geography, 'e.g. What ought to happen?' and 'Who should be responsible?', and partly to help students develop different ways of thinking about sustainability, globalisation etc. Making sense might involve extended writing, preceded by class discussion and some draft writing. The key point about all these possible activities is that they require students to study the data and make links for themselves, supported in developing their understanding through conversations with the teacher and each other.

Reflecting on learning

In a transmission approach to teaching, success is determined by the extent to which the objectives have been achieved. When debriefing, the emphasis is on whether the student has learnt what the teacher had planned.

In an enquiry approach to teaching, the teacher returns to the questions that framed the enquiry and explores with a class the extent to which the questions have been answered. When debriefing, the emphasis for the teacher is on trying to understand what has gone on in the students' minds, what sense they have made of what they have studied, and whether they have had to rethink what they knew before. An enquiry approach is more likely to 'lead the student to unanticipated rather than predicted outcomes' and this, according to McKernan (quoted in 2009 in the GA's manifesto for geography, *A different view*, which can be downloaded from *www.geography.org.uk/adifferentview*) would make the experience 'truly educational'.

Conclusions

It might seem surprising, after the assertions I have made in this article, that I agree with Castree when he wrote:

> *'The what, the how and the why of teaching is always up for grabs. There is no one 'proper' way of learning: there are no 'self-evident' goals of education. Instead there are only ever choices about what to teach, how to teach and to what ends.'* (Castree, 2005).

In this article I have set out my own choices and recognise that they are shaped by my beliefs about the nature of knowledge and learning, and by my educational values. They have been influenced by my experiences of teaching geography and observing lessons, and by my research and my reading. They are, like all views, open to challenge and debate.

What I have set out are ideals which I am fully aware might be difficult to achieve in practice. The school curriculum is strongly influenced by current ways of thinking about education that emphasise objectives, accountability, quantitative evidence and pace in

Figure 3: Students working to make sense of data.
Photo: Gemma Caudrey, Littleover Community School.

lessons. Schools and geography departments are under pressure to produce results which show up in statistics and league tables. We live in a culture where right answers are valued by the media and popular culture. Geographical educational practice is often a compromise between what we want to do and what is possible within the constraints under which we operate. I agree, however, with the Geographical Association's manifesto (2009) when it states that 'Designing a curriculum is not just a technical matter – it is a moral concern.' So, even within the current educational climate, I would still strive to work for an education that encourages students to challenge authoritative views, to be critical of what is presented to them and to question constantly. I would continue to argue for an education which helps young people learn to make sense of the world and their own experiences within it through their active engagement in learning geography. | **TG**

Online resources

Go to *www.geography.org.uk/tg* and click on 'Spring 2010'.

- 'Pole to Pole activities' extract from Margaret Robert's book *Learning through enquiry* (2003)

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www.geography.org.uk/shop

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Oliver Picton

Shrinking world? Globalisation at key stage 3

This article looks at a research project exploring how KS3 students construct globalisation. Globalisation is an important geographical concept and process, but one which can be hard to explore in the classroom. The article suggests how ideas from academic geography can be introduced into KS3 geography through enquiries into mobile phones and McDonalds, to develop engaging geographical learning. The article also demonstrates the value of 'concept mapping' in helping students explore complex ideas, such as globalisation.

Introducing critical geographies of globalisation at key stage 3

In the Summer 2008 issue of *Teaching Geography*, Martin Cox explored the concept of globalisation in geography education. His article raised some important issues about how we might tackle globalisation while questioning the notion of 'global cultural islands' (places distanced at a cultural level) and avoiding the simplistic binary of being 'for' or 'against' globalisation. This article reports on the results of a small-scale project exploring students' changing perceptions of globalisation at key stage 3.

The study took place with 28 year 9 students from a mixed comprehensive school in south-east England. They created two concept maps: one before undertaking a geographical enquiry on an aspect of globalisation; and another following completion of the work. In addition, four students were interviewed after completing both concept maps in order to explore their understanding in more detail.

What can we learn from academic geography?

Several writers, notably Castells (1996) and Appadurai (1996), have explored global networks and flows. Massey (2002) sees the identities of places as a product of relations with 'elsewhere' – a contextualising of place as meeting places where people, things and ideas get entangled. Massey talks about 'a global sense of place' in which the 'thrown-togetherness' of physical proximity is even more significant in an age of globalisation.

> *On the one hand globalisation is represented as ineluctable – a force in the face of which we must adapt or be cast into oblivion. On the other hand some of the most powerful agencies in the world are utterly intent on its production…How easy it is to slip into ways of thinking that repress the challenge of space; and how politically significant spatial imageries can be. 'Globalisation,' told in this way, is like the old story of modernity. Once again it convenes spatial difference into temporal sequence, and thereby denies the possibility of multiple trajectories; the future is not held open.* (Massey, 2005)

It is easy to fall into the trap of seeing all places as being on the same trajectory of increasing connectedness and time–space compression and this is certainly the narrative of globalisation (and of the related concept of development) that is often presented in many school curricula, resources and possibly even in the imaginations of some teachers. Indeed, globalisation and development are often presented in many ways as modernisation – to be 'global' or 'globalised' is to be 'modern'. Massey's exploration of the concept of space is fundamental to my understanding of globalisation insofar as it puts (spatial) geography at the heart of processes such as globalisation. Massey's ideas can be outlined in five key propositions, which are relevant to teaching about globalisation at key stage 3:

1. Distance is still important but has been crumpled and distorted (the world is still big).
2. Geography is about more than just distance. Geography is about heterogeneity existing now – of peoples, places and cultures.
3. Heterogeneity – the economic, cultural and social distances between people – and different understandings of the world still exist. Inequality also still exists and many of the gulfs are widening.
4. The argument that we will/should all become the same is a prophecy leading to its precise opposite – the reassertion of local uniqueness and sometimes fundamentalism.
5. Imagining other cultures and places as being stuck at the back of a 'historical queue' – 'developing' countries waiting to become 'developed', or 'isolated' countries waiting to become 'connected', for instance – diminishes the differences that actually exist now. Substituting space for time helps to justify inequality now.

In the classroom: introducing critical geographies of globalisation

Because of the importance of globalisation as a concept and process in geography, I devised a scheme of work comprising two enquiries. They were structured around eight key assertions:

- globalisation as a concept and as a process to be explored explicitly, rather than indirectly (students should be encouraged to apply the concept to all work throughout these units and beyond)
- globalisation as interaction over space unfolding as change over time
- globalisation as spatial – experienced in space, in unique ways, in real time (maps should be used to highlight where places are)
- globalisation as contested – contested in time and space
- globalisation as embedded in complex power relationships on every scale
- globalisation as a process that affects all aspects of life and all topics/themes of interest to geographers: economic relations, socio-cultural relations, political relations, the environment (all bound in geometries of power)
- alternative globalisations, and the significance of changing geographies of power
- that students' understandings should emerge not from studying globalisation *per se*, but from the context and process of their geographical enquiries.

The planning and design of the two enquiries here focused on the students' lived experiences and in particular on their use/consumption of two familiar products: mobile phones and McDonalds. I felt that these two examples would provide familiar routes into complex ideas about globalisation.

Enquiry 1: How far has your mobile travelled?
Driving concept: (global) interaction

Lesson title	Key ideas and aims raised in lessons
Who killed the gorillas in the Democratic Republic of Congo (DMC)? (see Figure 2)	• How consumption connects us to distant places • Geographies of responsibility
Where was my phone made?	• The globalisation of production • Power and responsibility
Where are all the phones now?	• The spread of consumer goods – mobiles • Uneven development
Mobile phones – RIP?	• Recycling • The problem of toxic materials and pollution from electronics
Making the connections	• Consolidating work/outcome

Enquiry 2: Should McDonalds be allowed to locate in our town?
Driving concept: (global) interaction, but perception/representation, diversity and change are also significant

Lesson title	Key ideas and aims raised in lessons
What is McGeography?	• How can we have a geography of McDonalds? • The broader question of what is geography?
McDonalds – are you lovin' it?	• Impacts of McDonalds – economic, environmental, health-related, cultural
Is McDonalds everywhere?	• The distribution of restaurants and reasons for this • What are the challenges faced by TNCs like McDonalds?
Is McDonalds the same everywhere? (see Figure 3)	• Glocalisation and localisation – introduce ideas and consider their significance
Why is Sanjay so angry with McDonalds?	• Reactions to McDonalds • Reactions to globalisation
Against McDonalds: 'buy local!'	• Reactions to globalisation • The 'buy local' movement
Assessment opportunity	• The application of key ideas and concepts to our community.

Figure 1: Summary of the two enquiries. Full details of each enquiry can be found with this article on the TG pages of the GA website.

The two enquiries:

1. The first enquiry, driven by an understanding of global interaction, explored the geography of mobile phones. The enquiry examined the students' own use, as well as the global consumption and use, of mobile phones. They explored the extraction of the raw materials used to make the phones, the global division of labour in the production of phones, and finally the recycling/disposal of phones including reference to the environmental consequences of mobile phone production.
2. The second enquiry, driven by the organising principles of diversity and perception/representation and change, explored the global giant, McDonalds.

The overall strategy was to enable students to understand the connections and interactions that exist in the world by exploring their own experiences and lives. Where appropriate, activities such as mysteries and living graphs were used.

Students' initial constructions of globalisation

Students' initial understandings of globalisation varied greatly. Although 58% of the students in the class were familiar with the term 'globalisation', none of them had studied globalisation in school before. The pre-study concept maps varied greatly in the level of detail and understanding. However, some particular themes emerged such as a strong association between globalisation and climate change/global

Figure 2: This enquiry explores how our consumption of mobile phones impacts upon gorillas in the Democratic Republic of Congo. **Photo:** kabir/Morguefile.

Figure 3: The opening of the first McDonalds restaurant in Chungking, China. The mixture of orient and occident is evident in the use of Chinese balloons and streamers decorated with the yellow logo. **Photo:** Kevin Cook.

warming. Many students had a basic understanding of globalisation and global links/connections, and many referred to some of the key '-scapes' of globalisation identified by Appadurai (1996) such as ethnoscapes, technoscapes, financescapes, mediascapes and ideoscapes.

The detailed results from the coding of all the concept maps are on the TG pages of the GA website. In summary these maps showed that students had some understanding of the economic, environmental and people/personal 'landscape' of globalisation. However, perhaps not unsurprisingly, their understanding of links with the political, technological and values 'landscape' appeared very limited.

Figure 4 shows a concept map produced by a student in the group that highlights some of the key big ideas emerging.

Students' developing constructions of globalisation

After they had conducted their enquiries, the students' 'new' concept maps showed significant developments and shifts in their understanding. All produced more detailed and focused concept maps, incorporating a wider variety of ideas, and expressed using a wider range of geographical terms. Some key changes in understanding which emerged included:

- greater emphasis on power derived from wealth
- awareness of scope and spread of TNCs
- consideration of our role in economic globalisation
- development of ideas about localisation and glocalisation – change, adaptation and diversity
- consideration of power geometries forged by geopolitical relationships (links made between economics and politics)
- overall, fewer references to global environmental issues and greater emphasis on links between environmental concerns and consumption and politics
- ideas similar to those in pre-study concept maps but greater emphasis on connections forged by new technologies and the impacts of these
- more recognition of the importance of emerging superpowers acknowledged more – in particular China; reference made in most concept maps to places mentioned and examined in class – for example Democratic Republic of Congo, China and India
- technology in post-study concept maps is linked more to its function and role in globalisation – for example, in connecting people through information or transport of goods
- far more references to feelings, ideas about care/responsibility and equity in the globalisation process (this was often related to personal experiences).

A more detailed analysis of students' pre-study and post-study understanding can also be found on the TG pages of the GA website.

Comparing Figures 4 and 5 shows how one student's ideas developed during the two enquiries. Ideas explored in Figure 5 suggest a more critical engagement with the process of globalisation with reference to responsibility, knowledge and power. Some students even started to question the inevitability of globalising processes, and started to explore the possibility of alternative 'globalisations', perhaps led by new superpowers. There was greater questioning of the breadth and depth of globalisation, and exploration of inclusion/exclusion. These key changes can be summarised as:

- a shift away from equating globalisation so strongly with global environmental issues
- a far more complex understanding of power geometries and issues of equality
- an increased sense of responsibility, care and concern for those people/places they found themselves connected to through consumption and daily life – near and distant
- increased use of geographical vocabulary, generally used accurately
- more application of understandings to contexts and named localities
- more linkages made between different '-scapes' of globalisation – for example between economic and socio-cultural aspects of globalisation.

How do year 9 students construct globalisation?

Knowledge and understanding of globalisation as explored in this research is best understood in terms of 'spheres of understanding' (see Figure 6). 'Spheres of understanding' is a useful way to consider students' understanding of globalisation; each sphere is complementary and interconnected. One student might develop each sphere of understanding at different times, in different ways and to a different extent depending on a variety of factors inside and outside the classroom. This overlapping of understanding was illustrated by the variety of responses in pre- and post-study concept maps.

Sphere 1: the big ideas

This sphere is so labelled because connectivity, interaction and change can be applied to all

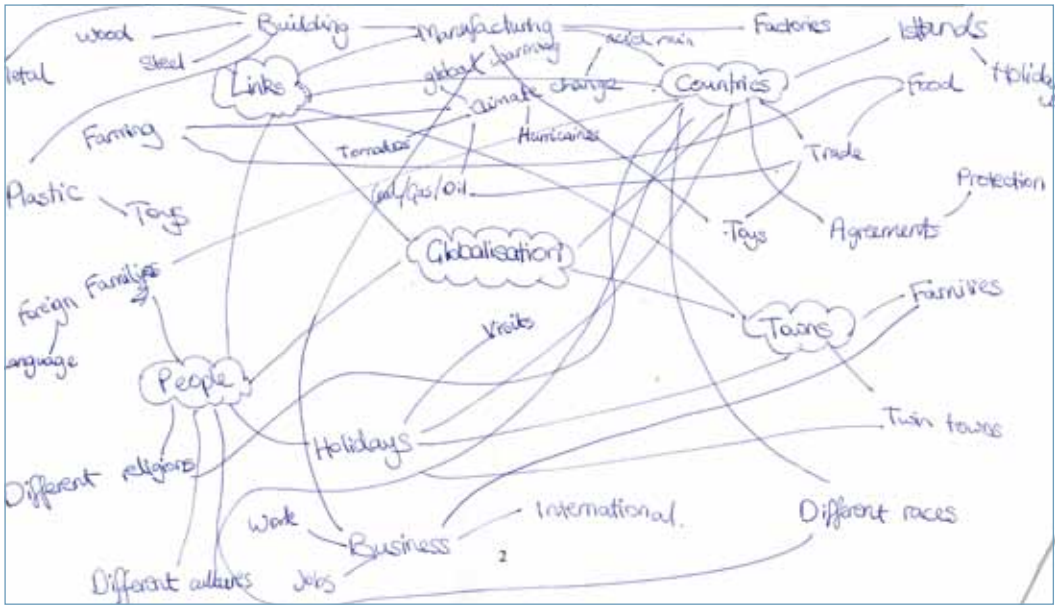


Figure 4: Example of a pre-study concept map.

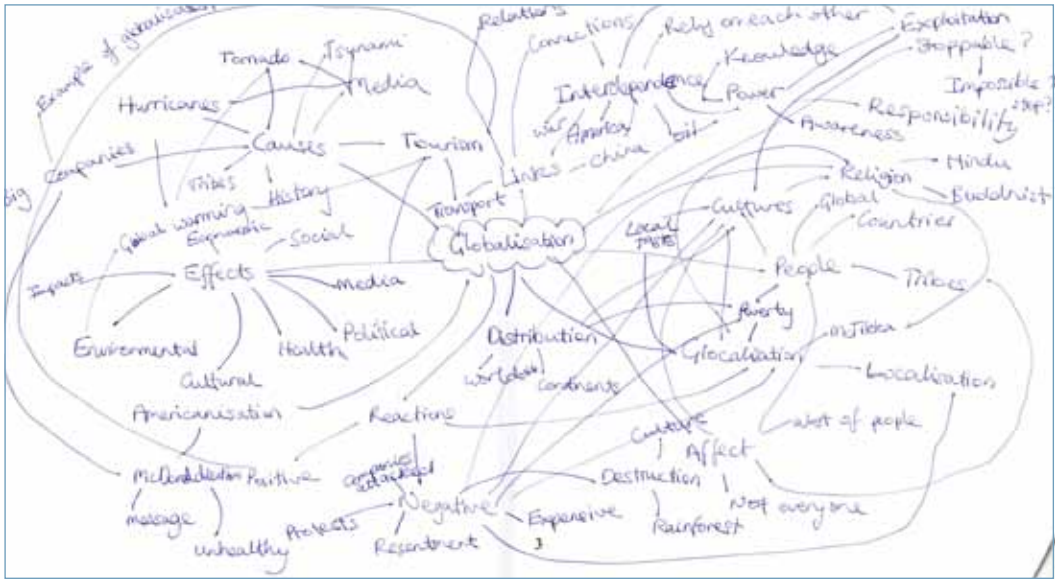


Figure 5: Example of a post-study concept map.

aspects of globalisation theory. Within this sphere, students understood that globalisation is about global interaction and change. The interaction aspect is broadly constructed by students in this case through linkages/connections. The change aspect is constructed through ideas of development, modernisation, gain, loss and 'Westernisation' – ideas referred to in both pre- and post-study concept maps and interviews.

Sphere 2: the nature of globalisation

This sphere includes the central categories of globalisation that emerged in pre-study concept maps and interviews, and which I have termed the '-scapes' of understanding. Within this sphere, links are forged between '-scapes' rather than seeing them as mutually independent. Evidence in concept maps suggests that only a limited number of students were able to see the interconnectivity and overlap between different '-scapes' of understanding – for example, the economic and socio-cultural '-scapes' of globalisation.

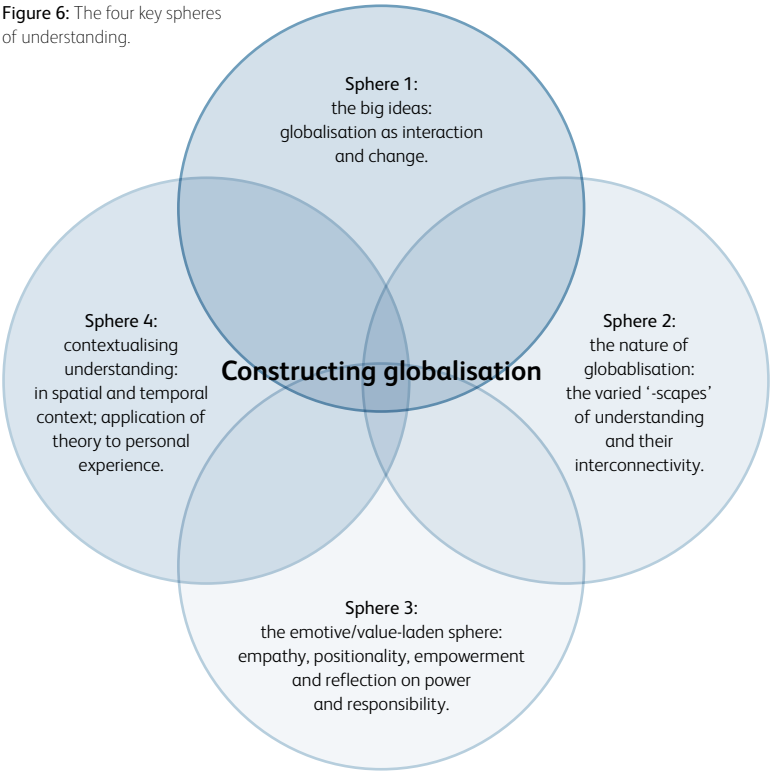
Sphere 3: the emotive/value-laden sphere

This sphere of understanding incorporates the values and emotions expressed by students – in particular, feelings of responsibility, moral justice and equity with reference to power, and the process of globalisation as interaction and change. By considering the impacts of their decisions – for example, through consumption – students can connect themselves to near and distant places, spatially, socio-culturally and emotionally. Highlighting such connections enables the emotional dimension of studying geography to come to the fore. This sphere of learning and understanding clearly developed greatly during the two enquiries as students engaged with resources and each other's ideas. The post-study concept maps were filled with references to fairness and quite politicised questionings of the processes and outcomes of globalisation. This suggests that through teaching and learning about globalisation, influenced strongly by critical academic geographies, students quickly develop a value-laden concept of globalisation, closely related to the materials and ideas developed in class. The role and ideas of the teacher become powerful here, so educators must be conscious of their influence on students' understanding of ideas in geography.

Sphere 4: contextualising understandings

This sphere of understanding involves the application of globalisation theory to specific contexts, experiences and places, such as the students' enquiries into McDonalds and mobile phones. Evidence in both pre- and post-study concept maps suggests that

Figure 6: The four key spheres of understanding.



some, though not all, students do consider their role in the processes of globalisation as they are required to move away from seeing globalisation as being 'out there' and involve themselves in the processes. By using an enquiry-based approach to teaching and learning, students were able to apply the key ideas of globalisation to a variety of places, human activity and contexts – not least their own lives.

What are the implications for practice?

Improving practice in the classroom:

I would like to suggest four key improvements to the approach of teaching and learning about globalisation that I have identified by reflecting on my experiences, and which I will be incorporating into my practice:

1. Allow more time for students to consider and develop their own constructions of globalisation, and to question ideas raised in class and texts (written, visual, digital, audio). This geographical literacy is fundamental in enabling students to think creatively, critically and geographically. In this sense I would like students to engage critically with ideas raised in class, to consider alternatives and different viewpoints and ultimately to question and debate ideas more.
2. Place more emphasis on the local construction of the global. This would reduce the sense of globalisation/the 'global' being 'out there' and would place the students themselves into the complex process and web of connections – a consideration of how we are part of processes of interaction and change. This is possible by making relevant and personal enquiries, linking students to globalisation as has been attempted in this research.
3. Encourage students to develop their locational knowledge through the study of globalisation. Consideration of links and interaction is meaningless if the people and places which are connected are not located.
4. While the unit and research has considered power and who 'wins'/'loses', in reality the situation is far more complex. Further exploration and deconstruction of the win/lose binary, and reasons for the existence of 'winners' and 'losers' in globalising processes, would be beneficial in enquiries exploring globalisation.

Overall, my experiences of teaching about globalisation have encouraged me to seek ways of incorporating ideas from academic geography into the classroom, and have allowed me to value enquiry-based teaching and learning. This not only helps to bridge the gap between school and academic geography, but often also means students are learning about more relevant and engaging topics and ideas in geography.

Teaching and learning about globalisation poses some substantial challenges, but opportunities abound to create engaging and rigorous enquiries for key stage 3 students. Teachers should not be put off by how sprawling the subject of globalisation might seem. One option is to tackle the more manageable parts of globalisation – global shift, global consumption, global warming, flows of people and so forth. While this might seem more straightforward, doing so without referring to globalisation and exploring its meaning might result in students not linking the parts together to understand the complex breadth and depth of global interaction, connectivity and change. | **TG**

Online resources

Go to *www.geography.org.uk/tg* and click on 'Spring 2010'

- Full details for mobile phone and McDonalds enquiry
- Results from pre-study concept maps
- Results from post-study concepts maps
- More examples of pre-study and post-study concept maps

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The hazards of enquiry learning

Gemma Caudrey

This article explores the use of enquiry to teach about natural hazards. Three different teaching methods which use an enquiry approach are explained in detail: 'Mystery', 'Decision-making in role' and 'Who's in the bag?'. A stimulating lesson example for each of these three methods is covered (focusing on an earthquake, a cylcone and a flood respectively), with accompanying resources for the activities available to download from the GA website.

Introduction

Asked recently to revise my school's schemes of work on natural hazards to meet the criteria of the new GCSE and A-level specifications, I encountered a significant challenge: is it possible to teach the new OCR B GCSE specification and the OCR A-level specifications using geographical enquiry?

Roberts (2006) sets out four essential aspects of enquiry learning:

- creating a need to know
- using geographical data as evidence
- making sense of data
- reflecting on learning.

I wanted to encourage my students to connect with a range of natural hazard case studies to develop their geographical knowledge while improving their data-handling skills. I decided to introduce an enquiry-based approach to my teaching; my rationale was that this would encourage students to enquire actively into a range of natural hazards rather than passively accept the conclusions of others (Naish *et al*., 1987).

This article summarises some of the approaches I developed and captures students' responses to the challenges set.

Activity 1: Mystery

Mysteries are based around one central mystery question (Leat, 2001) and require students to work in groups using sets of geographical data to solve the mystery. Mysteries meet each of the four essential aspects of enquiry learning: students' interest is captured with an unusual question; they are provided with a set of mystery cards containing geographical data as evidence; they process this data and make sense of this data to solve the mystery; and finally they reflect on what they have discovered via a de-briefing process. Mysteries are not designed to encourage students to reach 'right' or 'wrong' answers; rather, they enable students to appreciate the complex nature of geographical problems and recognise the multiple perspectives that can influence situations.

Lesson example: The Italian Earthquake (Key stage 4)

'Why is Dr Maurizio wearing a new costume to work?' was the question posed to students during this lesson. It was based on a news story following the 2009 earthquake in L'Aquila, when doctors dressed up as clowns to cheer up child survivors of the disaster (BBC News, 2009).

As a starter activity, I used 'think, pair, share' to draw out students' initial ideas on the question. At this stage students were encouraged to use their imaginations, but were also challenged to think geographically. For example, some suggestions from my year 10 students were that Dr Maurizio had designed a lava-proof outfit or that he was being sponsored to wear a costume to raise money for a hazard relief project.

During the main part of the lesson, students were provided with a set of cards containing a range of information about the Italian earthquake (available to download from the TG pages of the GA website). The mystery cards provided them with varied information about the earthquake that needed to be organised and analysed to solve the mystery. Working in small groups, students divided their set of cards evenly between group members and read their cards out to each other, which encouraged active participation from all. A series of questions, shown in Figure 1, was then displayed on the whiteboard and each group of students worked to analyse the information and discuss their ideas and answers.

Finally, the groups shared their findings and the overall mystery question was discussed in the whole class. To consolidate learning, students then recorded their answers using the evidence they had processed and sorted from the cards as support.

Activity 2: Decision-making in role

Groups of students, in role as stakeholders (e.g. local residents or government officials) work through a series of problem cards (such as the one shown in Figure 2). For each problem they must make and justify a decision using supporting data; they can then use a newspaper article or textbook to discover what really happened. Decision-making in role covers the four essential elements of enquiry learning: students develop a desire to know what really happened after making their own decisions, they are provided with a range of geographical data which they must interpret in order to inform their role-play choices, and once the truth has been discovered students can compare their own decisions and reflect on the choices they made.

Why is Dr Maurizio wearing a new costume to work?

1. Who is Dr Maurizio? Where is he from?
2. What happened in the 2009 earthquake? What caused the quake?
3. What effect did the earthquake have on L'Aquila and its people? What were the primary and secondary effects?
4. Why is Dr Maurizio dressing up? What is he aiming to do? Who sent him and why?
5. Why is Dr Maurizio wearing a new costume to work? Do you feel he is helping the children? How? What else could be done?

Figure 1: Questions posed to the students in the Italian earthquake mystery. Download from *www.geography.org.uk/tg.*

Problem 1

The Irrawaddy Delta has been badly affected by cyclone Nargis. Thousands of people have been left without food, water and shelter in urban and rural areas.

Do you…

a) send aid to rural areas as this is where the majority of your population live?

b) send aid to the cities as this is where important industries are located and where important wealthy people live?

c) wait to send out aid until you have received reports on where it is needed most?

d) send aid out to a mixture of urban and rural areas despite there not being enough aid for everyone?

Figure 2: A problem card for decision-making in role. All the problem cards for this enquiry can be downloaded from *www.geography.org.uk/tg*

Lesson example: Cyclone Nargis 2008 (Key stage 4)

This case study challenged students not only to consider hazard management, but also to explore how different countries such as Myanmar (formally known as Burma) are run very differently from their own. This activity involved students working in the role of Myanmar's government to decide and justify their course of action in the aftermath of cyclone Nargis, by working through a series of problems.

This lesson started with students analysing a photograph of cyclone damage in Myanmar, such as the image shown in Figure 3. Students were asked a range of questions about the photograph, with an emphasis on how the victims of the cyclone might have felt.

Figure 3: The damage caused to Labutta by cyclone Nargis. **Photo:** International Federation of Red Cross.

Students were then divided into groups of four and given a card providing some background information on Myanmar's government. In the role of Myanmar's government, students were asked to work through four consecutive problems. The problem cards were placed in the four corners of the room and a different group member collected the problem card each time, as and when their group was ready, to encourage them to manage their own learning. To ensure all students had an influential role in the decision-making process, the student who collected the problem card was responsible for reading the problem to the group and managing the group's discussion. The background information on Myanmar and a full set of problem cards can be downloaded from the TG pages of the GA website.

The problem was discussed in groups until a consensus had been reached, without taking a vote. Students found themselves forced to fully explain and justify their point of view, drawing on evidence to deepen their understanding of the issue (Ginnis, 2001). When groups reached a consensus, they recorded the problem, their group decision and an explanation in a summary table. This 'blank fill' table (available to download from the TG pages of the GA website) challenges students to understand the problem rather than simply copying from the problem cards (see Figure 4.). When the groups had finished making their four decisions, each group was provided with a sheet entitled 'What actually happened in Myanmar', containing news articles adapted from the BBC (available to download from the TG pages of the GA website). They could then read what actually happened in the country and complete the table.

The lesson ended with a class discussion on the success of different groups' decisions and their justifications. I found that my students had made a range of different decisions. This resulted in an interesting discussion on government decision-making across the globe. Students were also asked to consider the group decision-making process and why they thought there were differences between their decisions and the ones actually made in Myanmar by the government.

Activity 3: Who's in the bag?

This approach uses a drama activity known as 'Who's in the bag?' to introduce student to a range of stakeholders. Groups of students are given 'character bags', each containing a mixture of everyday items and geographical data. Students sort through the items and answer questions based on the 'five Ws' (who, what, why, where and when) to reveal the identity of the stakeholder, which they then present to the class.

The lesson continues with a hot-seating session in which selected students take on the role of a stakeholder and answer questions posed by the rest of the class. The lesson finishes with a debriefing to draw out students' feelings towards the stakeholders. This activity also contains the four essential elements of enquiry learning by creating a need to know with everyday objects, which also serve as data to be processed. Students are required to interpret data to work out their stakeholder's identity, and then participate in a debriefing to enable them to reflect on their learning. I have found that chunking this type of lesson into three clear sections helps students to develop a much deeper understanding than if only one part of the activity is completed.

Lesson example: The 1999 Yorkshire floods (Key stage 5)

This activity allowed students to discover how real people were affected by flooding and encouraged them to empathise with flood victims and management agencies. This lesson sought to provide students with a real-world example and was taught after students had learnt about the generic causes of flooding.

For the main part of the lesson, the class was divided into four groups. Each group was given a bag containing facts about, and various pieces of property belonging to, one particular stakeholder who had been affected by the 1999 Yorkshire floods (available to download from the TG pages of the GA website).

Problem	Your answer (a, b, c or d)	Explain why	What actually happened in Myanmar? (a, b, c, or d)	Explain why
1. Should _____ be sent to _____ or _____ areas?				
2. Should _____ accept _____?				
3. How should you get _____ to _____ village communities?				
4. Should you let foreign _____ into your country?				

Figure 4: Write-up table for Myanmar decision-making exercise.

Students analysed the items inside their bag in order to discover who their stakeholder was, what had happened to them and what problems they were now facing. Items included a tankard and beer mats for a landlord, train tickets for a commuter and a suit jacket for a flood manager. Students recorded information about their stakeholder on a write-up work sheet (available to download from the TG pages of the GA website).

Each group then presented the information they had discovered about their character orally to the rest of the class. As each group explained who was in their bag, the audience noted down information about the three other characters. When the whole class had been introduced to all of the stakeholders, groups then came up with questions they would like to ask the stakeholders during the hot-seating session. While constructing questions for the flood victims, each stakeholder group was instructed to choose one person to play the role of their stakeholder in the hot seat.

Four students came to the front of the classroom to sit in the four hot seats and respond to the questions from other students. This produced lively discussion among students around the lack of management and funding for flood defences in this area prior to the 1999 flood. To consolidate students' learning, and to encourage students to make connections between the different stages of this lesson, they were then set an exam question requiring relatively extended responses evaluating the effects and management of this flood.

Final word

The strong emphasis on the four elements of enquiry embedded into these activities resulted in the full engagement of both my year 10 and year 13 students. Creating a 'need to know' via big questions, interesting resources and unusual processes seemed to genuinely motivate students. They used geographical data enthusiastically to complete the tasks set, and follow-up work demonstrated the students' capacity to draw on a range of geographical evidence and make connections between different areas of their geographical understanding. As well as engaging students by using the enquiry approach, these activities also enabled them to work with real-world examples as required by the OCR B GCSE and OCR A2 specifications. 'Mystery', 'Decision-making in role' and 'Who's in the bag?' all successfully challenged students to enquire into the case studies of recent natural hazards, and their active involvement in the learning process resulted in more informed understanding. | **TG**

Online resources

Go to *www.geography.org.uk/tg* and click on 'Spring 2010'.

Italian Earthquake
- The Italian Earthquake mystery cards

Cyclone Nargis 2008
- Myanmar extra information and problem cards
- What actually happened in Myanmar
- Myanmar write-up table

The 1999 Yorkshire floods
- Stakeholder identity
- Who's in the bag?
- PowerPoint

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Lucy Mitchell

Why use GIS?

This article compares year 7 students' learning using GIS to their learning from watching a DVD. It provides an example of a Google Earth enquiry on the River Severn, the format of which could be adapted to different topics of study. Both the author and the students highlight the benefits of using GIS as a tool for promoting independent learning and motivating students. The worksheet which accompanies this enquiry can be downloaded from the GA website.

GIS is fast becoming a feature of secondary school geography. It appears in three out of the four key processes in the 2008 National Curriculum for Geography. In support of GIS, Ofsted says that 'The use of geographical information systems is revolutionising and extending students' experiences in geography... Satellite technology can bring landscapes to life.' (Ofsted, 2008) However, it wasn't until I was required to use GIS with one of my classes (for an assignment while I was doing my PGCE at the Institute of Education) that I realised quite how beneficial a learning tool GIS can be.

I used Google Earth with a challenging year 7 class in an inner-London school and found there to be several benefits for learning:

- the students developed a greater sense of place than they had through video-based learning on the same topic
- students' spatial orientation developed
- using Google Earth promoted peer teaching
- nearly all students were more motivated to focus on learning
- more open and independent learning took place than during previous lessons with the class.

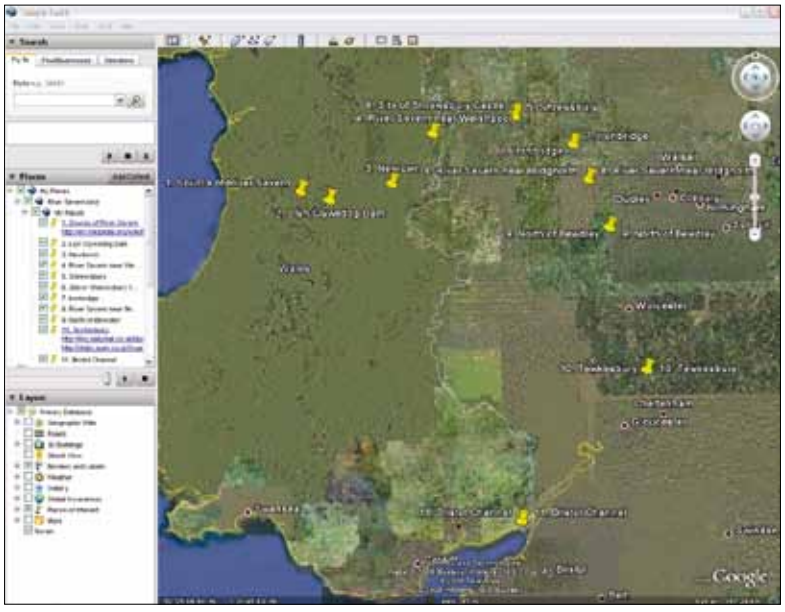

Figure 1: The trail of markers along the River Severn. Source: Google Earth © 2009 Europa Technologies © 2009 Bluesky, Infoterra Ltd & COWI AS © 2009 Tele Atlas © 2009 Infoterra Ltd & Bluesky.

In short, my students' learning experiences supported previous research into the benefits of using GIS – for example, Freeman (2005), who argues that GIS can provide opportunities to deepen and further students' learning.

I had spoken to geography teachers who feared that using GIS could be too complicated, for themselves and for students. However, I found the opposite to be true. Moreover, it was easy to incorporate GIS into existing schemes of works, it didn't incur any additional costs and, importantly, it didn't require too much extra planning and preparation.

Teaching and learning strategies

My year 7 students were studying rivers, so this GIS activity was a structured Google Earth enquiry into the River Severn, but a similar enquiry could be devised for learning about any river, as well as numerous other physical or human topics (e.g. coastal landforms, location of shopping provision, land use in National Parks).

Prior to the Google Earth lesson, the students had studied:

- the shape and features of a river drainage basin
- the characteristics of a river's course
- river processes (erosion and deposition)
- the River Severn, from source to mouth, through watching a BBC education DVD.

The purpose of the latter was to enable a comparison between the learning achieved watching a video and the learning achieved using Google Earth. My assignment was to test the hypothesis: 'Students' learning is enhanced by using GIS'.

For the main activity in the GIS lesson, students followed a 'trail' of markers along the River Severn (see Figure 1) to answer questions on a worksheet. The questions were designed to reinforce prior learning on river features and processes, and to enable students to measure scale, direction and height above sea level. I hoped that, by doing this, they would build up a sense of the shape of a river basin and identify how the river changes shape along its course. In addition, I included questions to encourage the students to view the River Severn as a 'real place', running through a lived-in and living landscape (see Figure 2). They were required to apply their geographical and non-geographical knowledge to explain what they could see in the images. The worksheet can be downloaded from the TG pages of the GA website – see the end of this article.

Planning for a Google Earth enquiry

When planning the Google Earth enquiry, I found it useful to consider a number of questions:

- In which of our topics could using GIS enhance students' learning?
- Where is the enquiry located? What is the Google Earth coverage in that area like? – e.g. is there 'street view' and if so will the students need to use it?

Figure 2: The River Severn running through Shrewsbury. **Photo:** rsharts/Morguefile.

- What do I want students to learn in terms of geography and Google Earth skills?
- What questions need to be asked for them to learn this?
- Do I need to teach the students how to use Google Earth?
- How can I assess students' learning?
- Are there any ICT limitations? (For example, the school IT support staff warned me that a class of students all using Google Earth at the same time would make the system run slowly. I was therefore able to explain at the start of the lesson that students' images might take longer than usual to focus, avoiding repeated questions about it later on.)
- How will students access the 'trail' I've created on Google Earth? (I was able to save my route to the school intranet so students could open it and save it to their own user areas, allowing them all to use it simultaneously. IT support staff should be able to advise on the best way to do this.)

Since my students had never used Google Earth in a lesson before, I incorporated some basic software instructions into the lesson (shown on the accompanying PowerPoint slides on the TG pages of the GA website). This enabled students to work more efficiently and avoided the pitfall of them being unable to access the geography due to a lack of ICT skills.

I anticipated (correctly) that the students would want to find their homes as soon as they opened the software, so I factored five minutes' 'playing time' into the start of the lesson. This gave the students an opportunity to familiarise themselves with the controls, and it meant that, when I asked them to start the enquiry, they had to 'fly' from their home to the source of the River Severn. This allowed them to develop a sense of the river's location in relation to a known reference point, thus developing their spatial awareness.

Learning opportunities

The students completed end of lesson evaluations. In these they highlighted two benefits of using Google Earth:

1. It allowed them more freedom
2. It was more fun.

As many as 71 % of the class said they had learnt more using Google Earth than by watching the video, giving reasons such as 'Instead of watching it on TV and not going where you want, Google Earth can take you wherever you want to go' and 'I like looking about where it is and facts about it.'

The emphasis in these quotes is on students being in control of their own learning. By making sense of new information themselves, the students were better able to contextualise the information. For example, one boy made cross-curricular links with history to explain why Shrewsbury Castle was built on a meander. There was, then, a positive influence on their geographical learning, with the students using enquiry and thinking skills to generate individual answers, rather than recording generic answers. I found this to be in contrast to the students' behaviour watching the River Severn DVD, when they seemed to accept the facts they were presented with, rather than thinking for themselves.

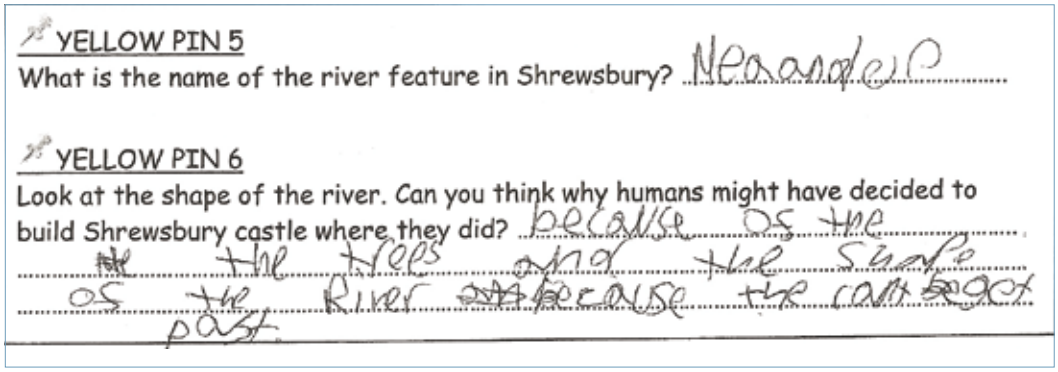

Figure 3: One of the answers provided by a student to a much higher standard than usual.

Many students commented that they found using Google Earth a more interesting way of learning (than the DVD) because it was 'fun'. This is in line with other research (Ofsted, 2008; Mitchell, 2009) and shows how motivating GIS/ICT can be. I noticed that the students who often caused low-level disruption were more on task than usual. This, of course, allowed other students to focus better on their learning. For example, one boy with dyslexia who struggled with written work and often lost focus by the end of a lesson worked solidly throughout, even wanting to continue working at the end of the lesson. The standard of his answers was also higher than usual (see Figure 3).

Assessment opportunities

The learning objectives for the Google Earth lesson were:

- to practise using GIS (see the online PowerPoint slides for the lesson)
- to develop a sense of place about the River Severn.

I assessed the former during the lesson by asking students to show me how they were finding the information for their answers. The latter was assessed through a homework task in which the students had to write a postcard from any location along the River Severn. They were asked to include as much detail as they could about the place and to describe what they could see using geographical terms.

I found using a non-GIS assessment task a useful way of checking the geography that the students had learnt. Leat (2001) suggests that tasks that require students to process information in order to 'transform' one thing into another are more challenging for the students.

The postcard proved that the students had learnt more than ICT skills alone, and it may, in fact, have been a more rigorous assessment of the students' geographical learning, as they had to synthesise their knowledge and present it in a different format.

Conclusion

Google Earth is available free and is easy to use. My experience showed how easily it can be incorporated into existing schemes of work. Using GIS created a palpable sense of excitement among the students, while undertaking an enquiry allowed them to be more independent learners. In the words of one year 7 student I worked with, 'I find it [Google Earth] interesting as you can find out things for yourself.' | **TG**

Online resources

Go to *www.geography.org.uk/tg* and click on 'Spring 2010'.

- River Severn Google Earth Enquiry worksheet
- PowerPoint

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The Low Carbon London Project

Bob Usher

This article explores the Low Carbon London project: a freely available online resource for key stages 3 and 4 that asks whether Londoner's have the commitment to make the necessary changes to secure a lower carbon future. The resource features experts in London climate mitigation and supports the development of stakeholder role play in and out of the classroom. It has been successful in providing students with an engaging and challenging learning process.

A subject in decline?

'Geography as a subject is in decline and needs to be made more relevant with a greater focus on global issues.' (BBC, 2008) This was the outcome of a report on the state of geography teaching published by Ofsted in January 2008. The report highlighted problems with the quality of teaching at key stage 3, describing much of it as 'mediocre', while acknowledging high standards of achievement in GCSE and A-level geography.

It was against this background that my colleagues and I planned to develop an inspirational climate change resource, that would engage both teachers and students in challenging, relevant and critical learning, help students appreciate geography's contribution to their broader education, and encourage them choose to study geography at GCSE.

Initially, identifying a focus for such a project proved difficult. We explored a range of ideas, finally settling on climate change. For us, climate change is having, and will continue to have, a significant impact on all of our lives. It seems crucial that young people have an intelligent, thoughtful and informed perspective on what climate change is – the possible causes, the scientific, economic and political arguments with respect to climate change, and their own individual and collective responsibility to understand the immediate, medium and longer-term consequences, not just for themselves, but for the planet.

Constructing a project

Climate Change: 'Are Londoners too selfish to make the changes necessary?'

Our next challenge was to find a more specific focus. After many suggestions, it was when we found the ambitious carbon emission targets set for London in 2007 by the Greater London Authority (GLA), stating that CO_2 emissions were to be reduced by 60% relative to 1990 levels by 2025 (London, 2007), that it all slotted into place.

London's CO_2 emission targets are the most ambitious in the world, and so the focus of our project became whether or not they could be achieved. The question 'Are Londoners too selfish to make the changes necessary?' soon became the tagline to make the concept of the project accessible to our target audience: geography teachers and key stage 3 students (Figure 1).

Having navigated our way past what we presumed would be the difficult part, we embarked on the business of creating the structure of the project. However, in the midst of this more detailed planning, Boris Johnson was elected as the new mayor of London. This shift in political emphasis could have overturned the ambitious carbon emission targets that had initially been set, and so for a while we became preoccupied by the implications of this for the Greater London Authority, for London and, of course, for our project. Clarification was needed so we sent an e-mail to the GLA:

> *I would be grateful if you could confirm whether the new mayor plans to keep to the carbon emission reduction targets set out by the previous administration (e.g. 20% relative to 1990 levels by 2016 and 60% by 2025).*

The response, from the 'Senior Policy Officer – Climate Change Mitigation and Energy Policy and Partnerships – Greater London Authority', confirmed that the new administration remained committed to the initial targets, and from this moment on, the GLA's support became key to the success of the whole project. Video interviews with the climate mitigation experts at the GLA were secured and later proved to be of significant help in explaining to school audiences why climate change matters to London.

www.lcl.lgfl.net: the Low Carbon London Project

The Low Carbon London Project comprises several distinct phases (see Figure 2).

The website is home to individual lessons, each consisting of a page containing all the resources required for each lesson. Built into the plans are support mechanisms for teachers and students, such as the use of the London Managed Learning Environment (a learning platform powered by Fronter) to extend the learning and project activities beyond the confines of lesson times. Students are encouraged to participate in online discussions and, where possible, to vote on a range of issues throughout the project. They also have the opportunity to work online between lessons in allocated stakeholder groups to extend their understanding. Alongside the lesson plans, the site contains useful and unusual links to other sites and resources. London 2012, Transport for London, the London Mayor's Climate Change Action Plan, London Chamber of Commerce and even the LTDA (London

Figure 1: London students debating the question 'Are Londoners too selfish to make the changes necessary?' **Photo:** Bob Usher.

1. Introduction to the issues of climate change

↓

2. How can we reduce the carbon footprint of London?

↓

3. What stakeholders are involved in reducing the footprint?

↓

4. Low Carbon London debate

↓

5. Decision making exercise

Figure 2: Phases in the Low Carbon London Project. **Source:** Low Carbon London (2009)

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Taxi Drivers Association) can all be accessed and used as sources to help students understand the complexity of climate change and its effect on London.

This complexity is not meant to be off-putting. We believe that learning geography is an entitlement for all students – catering for a wide range of needs, interests and levels of motivation has been a central concern in the planning and development of all our resources and ideas. We want all students to enjoy learning geography and to feel that they have something to contribute.

What schools and students thought

> *As a result of this project – I am very willing, as is my family, to give up a lot of the driving that we do. We plan to take more Transport for London services and to cycle more. If your journey takes less than an hour, you should take public transport rather than the car.*
> Year 9 student, Cardinal Vaughan Memorial School

A pilot phase is an essential ingredient for the overall success of any project, and a number of very different schools agreed to participate in the pilot phase of this project during Spring 2009. The feedback was extremely positive and we achieved our ambition to engage a wide range of young people, even those often labelled as 'challenging'. Both the teaching approaches and the subject seem to have helped with motivation levels.

> *It's a topic they can really relate to and take to their families and use in their everyday lives. It's been an easy scheme of work to follow; everything you need is there at the click of a button. I am looking forward to using the techniques I developed in this project – across my other classes and in other key stages as well.*
> Gemma Booth, geography teacher, Shene School

Students could also see the relevance:

> *I have enjoyed studying the Low Carbon London Project, as it is actually a topic that affects us – rather than something you just study at school. We can learn how to make a difference – however small – to help the situation.*
> Year 9 student, Teddington School

And they could relate some challenging geographical ideas to their own lives:

> *This is a really good project because it can change the way you think around the house. You also get the chance to put yourself in other people's shoes and be the bigger person spreading your views across the class.*
> Year 9 student, Cardinal Vaughan Memorial School

As a consequence of their feedback, suitable changes were made to the materials and structure of the project – all of these can now be seen on the website.

Figure 3: A cyclist beating London's standing traffic and the Congestion Charge. **Photo:** Kevan Wilkinson.

A noble outcome

One of the key things that we hoped to achieve from the Low Carbon London Project was to enable students not just to participate in interesting and challenging learning processes, but through this to begin to question and challenge the whole premise of the project – to raise questions such as:

- Were the targets wrong in the first place?
- Was the solution presented more technological than behavioural for London residents, and what would be the consequences of this with regard to achieving the targets?
- Would students bring in the concept of the recession and the relative importance of climate change in contrast to other issues in their life?

The project seems to have developed a real sense of collective responsibility – understanding the idea that through our own individual changes in behaviour we can all, collectively, have a significant impact on problems that we face in society (Figure 3). We think it is a very noble outcome and one that we are very proud of.

The Low Carbon London Poem

Global warming isn't fair – reduce your carbon emissions here and there.

Stop with cars, pollution and gases, think about it – we are producing masses.

Stop them baths and have a shower, you'll be saving lots of power.

It's just not funny – we need to care, it's affecting everywhere!

Year 9 students, Teddington School

The LGfL Low Carbon London Project is freely available to all schools in the UK connected to the National Education Network (e.g. all local authority maintained schools) at *www.lcl.lgfl.net*. | **TG**

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Bringing geology into geography lessons: Make sense of *drift* geology

David R. Wright

Even though about 80 % of us live on drift geology, it is a much-neglected topic in schools. This article offers simple classifications of the types of drift geology – clay, sand and gravel, river terraces, silt and peat – and suggests that drift geology can be viewed as 'icing on the cake'. Teachers are encouraged to explain the distinctiveness of the drift geology in their local area to consolidate students' learning.

Introduction

I discussed solid geology in the Autumn 2009 issue of *Teaching Geography*. Since then, there have been important developments in making geology accessible: the British Geological Survey has resolved to 'make much more information available for non-commercial use'. This information includes maps and diagrams, and is available free to schools. You can find all these resources at *www.bgs.ac.uk*. Perhaps, at last, some of the barriers for accessing geology are being broken down?

In this article, I will focus on drift geology, the millions of tonnes of material, spread by ice sheets, over much of Britain. Imagine solid geology as a layer cake (the layers are the strata). Drift geology is **the icing on the cake**, added to the cake after the cake has been made.

Drift geology is not as dramatic as some solid geology: drift has neither the drama of volcanoes, nor the beauty of igneous mountains or limestone escarpments – but so few of us live in these spectacular landscapes. Probably about 80% of us live on drift geology. Most homes and most schools are built on drift geology, so for school students an understanding of this much-neglected topic must be a key element in understanding our own local environment.

The photographs in Figure 1 emphasise the huge areas covered by glacial deposits. They show four different landscapes with varying amounts of solid geology and drift geology. Flamborough Head (Figure 1b) shows the contrast between the vertical chalk cliffs and the 45° angle of the boulder clay on top. The solid chalk at the base of these cliffs, as with the chalk base at Weybourne (Figure 1c), provides a good foundation which helps prevent slumping. This contrasts with the unstable, boulder clay cliffs at Holderness (Figure 1d).

Drift or SD or Quaternary deposits? A question of terminology

In academic texts 'drift' is now generally replaced by 'superficial deposits' (SD). However, to avoid some confusion for school students, 'drift 'may be a clearer term to use. The term 'drift' was first proposed by Murchison in 1839, and has been widely used ever since.

An analogy: icing on a cake

We need a bright, simple, memorable analogy – try the one shown in Figure 2 – and improve on it if you can:

1. Think of solid geology as a layer cake: several layers of sponge cake – sometimes a bit crooked – separated by thin layers of icing and jam.
2. Think of drift geology as the 'cream icing' put on by a six-year-old; mostly quite thin, but thicker in some parts and missing in a few other parts – quite a mess!
3. Then imagine that the lovely cake is decorated by a six-year-old, who adds grated chocolate on top. This represents the soil, and is *not* drift geology.
4. Cut some valley shapes in the cake, and notice how the drift geology (the icing) is still present on the plateau, while the layers of solid geology are visible on the valley sides.

No analogy is ever perfect – on my cake I have not managed to put alluvium onto flat valley floors.

A classification of 'drift' geology

Because this journal goes nationwide, I need to mention briefly the main types of 'recent' deposits. It may be appropriate to omit some of them in teaching. However, everyone should know about the major types of glacial deposits. The 1:625 000 Quaternary Geology map has a helpful but complex 13-point classification and explanation of the deposits. Here is a suggested simpler classification, to be supplemented locally.

Clay

Clay is the single most important item, and needs to be distinguished clearly from the clays of solid geology (Oxford Clay, Weald Clay, London Clay etc.). Many students get confused here. North of about 52 degrees north (Worcester – Oxford – Colchester), most drift clay is glacial boulder clay ('till'). There are local variations in 'till' – e.g. East Anglia has 'chalky boulder clay', with lumps of chalk dredged up from the frozen North Sea floor. Clay is acid; chalk is alkaline – a good recipe for making fertile soils!

The boulders were brought from faraway places by the ice sheets, and can make a fascinating study. The soils are heavy and sticky – check the playing-field in winter! Vast areas of Britain are covered by boulder clay: the blue colour on the two 1:625 000 drift geological maps dominates both maps. South of 52 degrees, clay-with-flints is important on chalk; other clays are of local importance. If you have a local drift clay, it is well worth finding out more – was it the key building material until 100 years ago? Today, however, almost all modern bricks come from solid geology.

Sand and gravel

Sand and gravel are vital in industry, and this is a multi-million pound industry. Again, north of 52 degrees, most are of glacial or fluvio-glacial origin, and in some areas dominate the landscape. River gravels are also important. Sand dunes – whether active or not – need to be mentioned too.

Figure 1a: Swyre Head, Dorset: there is only solid geology (chalk cliffs), no drift geology. **Photo:** Ruth Totterdell.

Figure 1b: Flamborough Head, East Yorkshire: there is thick boulder clay on top of the chalk cliffs. Photo: David Gardner.

Figure 1c: Weybourne, Norfolk: mostly boulder clay, with chalk at the base of the cliffs which helps prevent the boulder clay from slumping. **Photo:** Alan Parkinson.

Figure 1d: Barmston, Holderness: boulder clay cliffs which are very unstable. **Photo:** Ruth Totterdell.

River terraces

River terraces above the level of the flood plain are a vital topic for understanding early settlement – and yet another theme which only makes sense if people understand the geology and geomorphology.

Silt

Silt – as in the silt fens – is locally important, especially on flood plains.

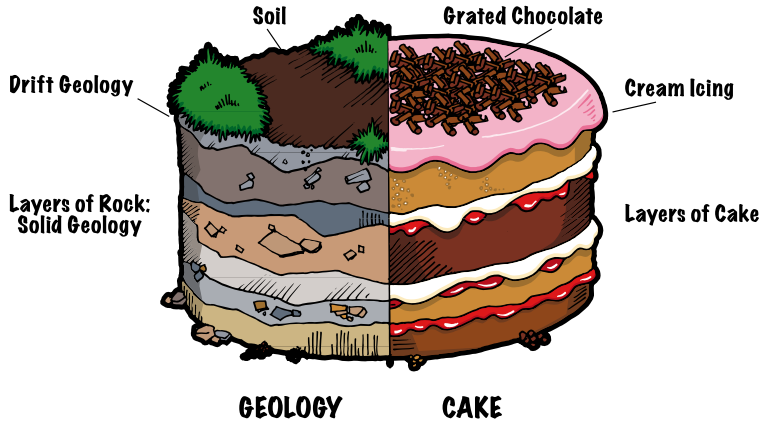

Figure 2: Drift geology: the icing on the cake.

Peat

Peat – as in the peat fens – is of organic origin. The lowland peat areas, which became some of Britain's best soil for farming when drained, need to be distinguished from acid moorland peat.

We need to show the location of these drift deposits on maps, in a manner that helps understanding, and does not add to confusion and complexity – this topic is discussed below.

Develop a local example

The above simplified classification will remain as 'superficial school knowledge' – and vanish from memory soon – unless it can be tied into a local example. Inevitably one example will not fit everywhere, but this attempt will fit several places.

Many of us teach in an area of modest plateaus and broad valleys – such as Stevenage or Norwich. On the daily journey to school, many students will encounter alluvium, clay and the local solid geology – and probably not be aware of what they see unless this is pointed out to them. There is a pattern to be discovered. The cross-section is likely to look like the one shown in Figure 3a. The geology map will confirm that there is clay on the 'plateau', solid geology on the valley sides, and alluvium (silt or peat) on the flood

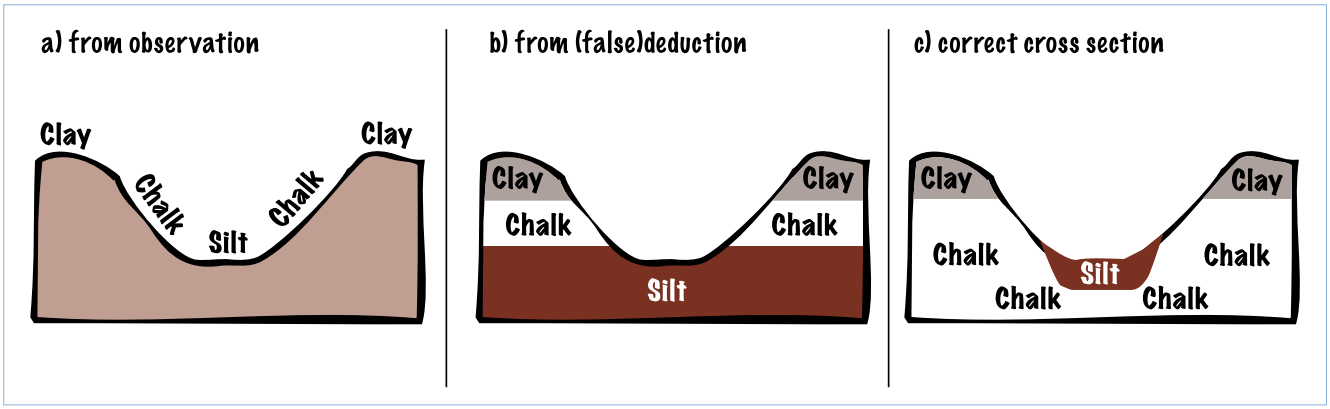

Figure 3: Understanding a typical lowland glaciated landscape. Chalk is the oldest by far; clay is glacial boulder clay and silt is post-glacial – i.e. newest.

plain. The harder the solid rock, the steeper the slopes will be, and the solid rock will be more visible and recognisable. This is illustrated in Figure 3.

But this may make no sense to some students: while they will be willing to try to 'work it all out', their textbook knowledge of layers of rock may produce some intelligent but wrong deductions (see Figure 3b). We need something different from the solid geology principle of 'lowest equals oldest'. On the layer cake, we need to place the icing – the glacial deposits – on the plateaus. We need to realise that the boulder clay has long ago been eroded from the valley sides. And we need to put post-glacial material on the valley floor. So – perhaps surprisingly – newest is lowest; glacial is highest; solid geology is in between (see Figure 3c).

Study the drift geology map

To support students' understanding of geology, the relevant 1:625 000 Quaternary Geological Map for your area would be a valuable addition to the geography department's resources. Laminate the map, display it next to the solid geology map discussed in my article in the previous issue and allow students to see for themselves the multiple layers of rock and other materials that are right under their feet. There are many other surprises too – for example, I was unaware that there was so much 'blown sand' in Lancashire, or that there was such a big area of lake deposits around York. It is now available online from BGS, and is also linked to the Google Earth site.

Solid-with-drift maps

These are ideal for geographers. They show the drift on the solid geology by using dots, dashes etc. Maps combining solid and drift help students to make sense of most landscapes. However, these maps are hard to find, even in this computer age. Hopefully, the wonders of technology will soon give us more solid-with-drift maps.

A starting point: something more practical

We want our students to make sense of their local area. 'Are games cancelled?' is a good link between geography and PE. Whether outdoor PE is loved or hated, it is an excellent introduction to the local geology, and probably this will be drift geology.

If there is a playing-field, is it

- on a flood plain?
- on boulder clay?

(The latter is by far the most common lowland feature north of 52 degrees north.)

In these two cases, we have already discovered why it is very muddy in winter!

Or is the playing-field

- on a river terrace?
- on glacial sands and gravels?

In these two cases, the field is well drained and in little danger of being waterlogged.

Or is it on solid geology, and if so, what rock?

In conclusion

These two articles on geology seek to raise the profile of geology in geography lessons, without adding another big burden to students, to teachers and to the curriculum. Geology is another dimension in our attempt to understand our world, our own country, and the local distinctiveness of our immediate area. There are still many challenges in trying to 'find one's way around' geology, but the rapid development of web-based resources could lead to a breakthrough. We now need geographers to highlight the most useful parts, to add geographical interpretations and – the hardest bit to organise – to explain the local area. | **TG**

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Shortly before the publication of this article, **David R. Wright** passed away. He was a geography education lecturer at UEA, Norwich and the author of *Maps with Latitude* and *Philip's Children's Atlas*. A full obituary will appear in *Geography* shortly.

Viv Pointon

Water, water everywhere…

Climate change is highlighting the contrasts between water-rich and water-poor countries. The use of water resources also differs markedly between poorer and more affluent countries. This article suggests teaching ideas focusing on the study of water as a resource, including using online drought maps and asking students to monitor their own water usage. This topic is central to several of the new GCSE and A-level specifications.

Do you use a dishwasher, or a washing up bowl, or do you wash up under a running tap? How much water do you use to wash your dishes? If your home water supply is metered, you may be very careful in your use of water, but we do tend to take water for granted in Britain, especially after three summers with rather more than average rainfall. It is easy to forget that water is a finite resource.

In 2008, Starbucks coffee chain received adverse publicity for leaving taps running in all of their 10,000 outlets (Figure 1). This was calculated to use more than 23 million litres of public water a day – enough to supply the entire population of Namibia for the same time period (Balakrishnan, 2008). After complaints, Starbucks changed its policy.

Figure 1: Starbucks received adverse publicity for their nationwide water wastage in stores. **Photo:** greenfinger/Morguefile.

But this incident highlights the stark contrast between water-rich and water-poor regions. Spain and Australia have been experiencing drought for several years, which may hint at longer-term climate change. Should drought conditions continue, these countries have the capital reserves to invest in major water transfer schemes and desalinisation plants.

In the Horn of Africa, notably in Ethiopia, failure of the seasonal rainfall and rising food prices have caused increasingly severe problems, with over 6 million people now in need of emergency aid. Expensive technological fixes are not an option.

University College London (UCL) has an excellent website *(drought.mssl.ucl.ac.uk)* with a global drought map that is updated monthly.

- You can select a Drought Assessment Period from 1 to 36 months, and zoom in to study regions or countries at a spatial resolution of around 100 km.
- There are five levels of drought severity in the classification. In groups, students could be asked to consider how they would respond at each of the different stages, with each stage assigned to a different group.
- Where there is variation within a country or drainage basin, A-level students could explore the potential for conflict.
- Alternatively, students could assume the roles of different users such as industry, domestic, hydroelectric power or agriculture.

UCL's website also includes links to news items on drought from around the world.

In the UK we use, on average, 150 litres of water per person per day, although domestic use only accounts for about 20% of total water use. Just one tap running for three minutes uses as much water as one African person, living in a drought-stricken area, does in one day. Many people walk miles to collect water – women in Africa and Asia commonly carry 20 kg of water on their heads, equal to some airlines' luggage allowance (see Figure 2). Figure 3 shows a group of young children in Malawi collecting water from the village pump. This contrasts with a UK child's experience of simply turning on a tap for access to safe, clean water.

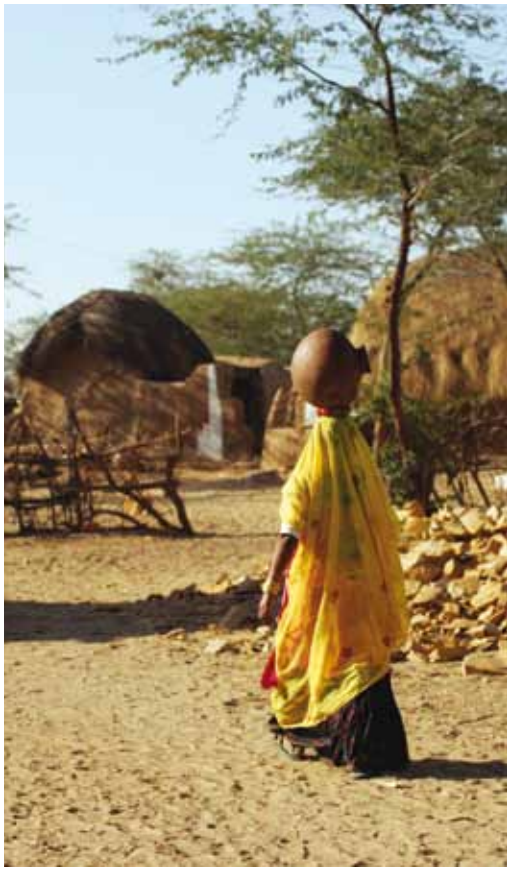


Figure 2: A woman in the Thar desert, Jaisalmer, Rajasthan, India collecting water.

In the poorest countries, the issue is much more about access to safe water. According to the charity WaterAid, 884 million people in the world lack this basic resource (WaterAid, 2009). The WaterAid website (*www.wateraid.org*) has country-based case studies and many other valuable documents useful for GCSE and A-level teaching, as well as material for key stages 1, 2 and 3.

Figure 3: A group of young children in Malawi collecting water from the village pump. **Photo:** Ruth Totterdell.

Too much water is being taken out of the hydrological cycle. Global consumption of fresh water is doubling every 20 years, mainly to meet agricultural and industrial demands for water, with the global spread of technology and development. The human output could be added to the standard diagrams of the hydrological cycle as abstraction rates increase.

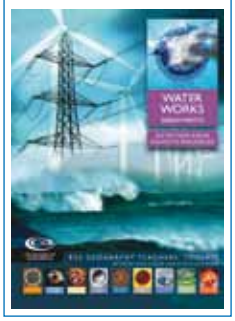
Several of the new GCSE and A-level specifications include the study of water resources. The AQA GCSE B specification, for example, uses the theme of 'Water – a precious resource' for part of the controlled assessment for their course. Edexcel and WJEC have also included this topic in their subject content at GCSE and A-level.

The authors of the new specifications have recognised that water supply and demand is a vital issue: one that is of great interest to geographers at all levels of study and one that will energise students of all ages. As global climates change, some regions will suffer increasing water scarcity and stress, and conflicts will occur between users, possibly leading to water wars. Developing students' understanding of this fundamental resource must be an essential element of the curriculum. | **TG**

Estimating water use in the home should encourage young people to understand the value of water and to develop their critical appreciation of the problems faced by many in water-poor regions.

- Ask your class to log the number of baths, showers, loads of washing, even flushes of the lavatory in their home in a 24-hour period.
- They can work out how much water is used by timing how long it takes to fill a measuring jug or bucket of known volume and then timing how long it takes to fill the bath or to have a shower.
- The amount of water used in washing machines and dishwashers should be found in the manufacturer's instructions. A lavatory uses approximately 7.5 litres per flush. Counting the volume of water used for cooking and drinking may be more difficult but student initiative may surprise here.
- Collate the class results to get a rough indication of water used. This may be set against the average rainfall for your area. You could compare the average use per family in the class with that of a family in Namibia, for example.
- You can also check these data against online water use calculators (such as the BBC news website – *http://news.bbc.co.uk/1/hi/in_depth/629/629/5086298.stm*) and then discuss the value of the different ways of assessing water use to develop students' evaluation skills in preparation for their controlled assessment.

More ideas for teaching about water can be found in *Water Works: Do we have equal rights to resources?*, one of the GA's *KS3 Geography Teachers' Toolkit* series.



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John Halocha

Geography: The Big Picture

This article looks at the main developments and initiatives currently underway in the Geographical Association. It relates these to how the GA is actively promoting geography in schools, to the government and the public. The GA's updated website, active Branches and Worldwise programme provide opportunities to access the latest thinking in geography. Finally, developments in the primary curriculum are placed in a broader context.

I am now about half-way through my year as President of the Geographical Association and I feel very honoured to hold this role. There has been a great deal of ongoing activity at the GA, all of which seeks to support quality geography teaching in schools. The following summarises some of this work.

In April 2009 the GA launched its manifesto, *A different view* (Figure 1). The manifesto is a very public statement to parents, politicians, policy-makers and society at large about the real contribution geographical understanding makes to our lives. Copies of the manifesto have been sent to all secondary schools, and it is supported by high-quality material on its web pages (*www.geography.org.uk/adifferentview)*, including guidance on using the manifesto in teaching and with parents, headteachers and others besides.

I have been very impressed with all the hard work that has gone into the GA's responses to the Rose and Alexander reviews of the primary curriculum. While the focus of these reviews may be on primary education, this work is also very important for secondary teachers. The outcomes of the reviews will impact significantly on the primary curriculum, including young children's geographical education and so any changes will have a knock-on effect on the secondary curriculum.

Our Chief Executive, David Lambert, has been working with the Director of the Royal Geographical Society (with the IBG) to raise government awareness of geography as a subject. This work has also been important in assessing how ministers view the subject, should there be a change of government in the coming months.

The GA is well known for its wide range of publishing activities in paper, electronic and web-based formats. Our journals are top-quality publications and a real benefit of membership. All three paper-based journals – *Primary Geographer, Teaching Geography* and *Geography* – have recently undergone significant reviews and continue to support our understanding of issues in geography education. These, along with Geog Ed (the GA's online journal), are all available to members via the new GA website, re-launched last autumn.

The new website is designed to support a wide range of professional development activities (see Figure 2). As well as allowing access to past and current copies of the journals, the website is *the* place for browsing and purchasing the high-quality resources published by the GA. It provides important updates on developments in geography education and details of forthcoming events for people in geography education. A real strength of the site is its responsiveness to significant events, such as the earthquake in Indonesia and the tsunami in Samoa: links to a range of information/ news sites and high-quality resources appear very quickly. If you've not had chance to browse through it, please do so, as I think you'll be amazed at the many aspects of the Association's activities.

The GA has a network of local Branches. One way you can become involved in the work of the Association is to join one of these – see the website for details of your local Branch (*www.geography.org.uk/branches*). For me, joining my local Lincoln Branch nine years ago was certainly important in making me feel professionally settled when I moved to this part of the world. GA Branches serve to support local networking activities across schools and across age ranges.

Figure 1: David Lambert, the GA's Chief Executive, discusses *A different view* with a delegate at the GA's Annual Conference. **Photo:** Bryan Ledgard.

The GA's Worldwise brand provides fun and innovative activities for schools, such as the Worldwise Quiz. I always look forward to meeting the Lincolnshire school teams who take part in our local quiz: it makes for a very pleasant evening being with young people so interested in geography. I had a very enjoyable day last September at the Field Studies Council's Juniper Hall centre, where teams had gathered to take part in the Worldwise Challenge weekend (Figure 3). I recommend it highly as good way to engage your students practically in outdoor activities, and to meet students and staff from across the country.

The GA has many initiatives that support geographical education: it is difficult to pick out particular examples as they all do such important work. The GA and the RGS-IBG have had government funding to develop the Action Plan for Geography (APG). Its purpose is to raise the profile and quality of teaching in geography and to support schools where it has had a low profile. The GA's Quality Mark scheme has been taken up by a large number of schools and allows them to focus on developing the subject. This is summarised by a quote from one participant who said '...Within my department, the SGQM was both a fantastic CPD and self evaluation process. As a team we were able to reflect on and evaluate our current practice...' Another new GA initiative is the Primary Geography Champions scheme. Around the country, Geography Champions have been recruited to work with teachers in the region to develop geography in their schools. You can find out more of what they do on the website and I'm sure your local Geography Champion would appreciate contact with you on their Ning (*http://geographychampions.ning.com*).

Finally, we are entering a very interesting and important time for geography in schools. The new primary curriculum is planned to come into effect in September 2011 and current versions of it show that we will need to be very clear how the significance of geography is made visible to both children and teachers. In addition, the new key stage 3 curriculum has been in schools for just over year and there is a need to consider how this has impacted on secondary school geography. Whatever form future examinations and diplomas may take, we have to ensure a place for geography, by ensuring that school students have access to high-quality, stimulating and enjoyable geography teaching. All of these factors, put together, may well mean that future geography in schools will look very different from the subject we see today. It is vital for teachers to be at the centre in making decisions about a future geography and for the GA to be focused on doing all that it can to support you.

I have chosen the title 'Geography: the Big Picture' as my Conference theme to continue highlighting the manifesto throughout 2010. This year's Conference will be held at the University of Derby between 8 and 10 April. I do hope to meet many of you at this event to share our enthusiasm for the subject, and to hear your ideas on how the Association can further extend its support to you in school. | **TG**

Figure 2: The new-look GA website.

Figure 3: John Halocha with some of the students at Juniper Hall Worldwise Challenge weekend. **Photo:** Richard Gill.

John Halcoha is President of the Geographical Association (2009–10) and a Reader in Geography Education at Bishop Grosseteste University College, Lincoln.

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Adam Nichols

Obituary: Michael McPartland 1942–2009

As PGCE tutor at Durham University for much of his working life, Mike touched the lives of approaching 800 trainee geography teachers who, today, are inspiring young learners to see the world through a geographer's eyes. The affection and admiration felt for this most human of geographers by past students and school partners was evident from the abundance of goodwill messages he received during his fight with cancer. He and his family, to whom he was devoted, were deeply moved by them.

With degrees from Sheffield, London and, later, Durham too, Mike was first and foremost a natural teacher. His career began in the 1960s in Dudley before he moved on to two challenging schools in North London. He then spent six years teaching at the Memorial University, St John's, Newfoundland. In 1977 he set up home with wife and family in Durham upon his appointment to the university. He became Senior Lecturer in 2001, partly in recognition of his role in developing the MA with QTS, an innovation subsequently offered by many other HEI ITE providers. His contribution to the department was immense, bringing sensitivity, rational thought and wisdom to the most tricky of situations and offering constructive, acceptable solutions to them. One of the rooms where he taught for so long has now been dedicated in his memory.

It is the warmth of his personality, the intense interest in, and empathy for, everyone, his care for their well-being and his infectious sense of humour for which he will be best remembered by all who met him. A firm believer in the power of narrative, he could spin an engaging yarn from anything. But he was also deeply inquisitive, reflective and spiritual. Thanks to a voracious appetite for books of all kinds, Mike could engage intelligently in conversation on an astonishing range of topics. By the same token he would draw the best out of others – he could always find positive things to say about them.

Mancunian by birth, a talented footballer in his youth and a passionate Manchester United fan, he claimed that his greatest footballing moment was shaking George Best's hand. Mention the Beautiful Game in the Theatre of Dreams and Mike's train of thought would be deflected. He cared equally passionately for landscapes, the social and economic processes at work in them, and the spiritually uplifting qualities they have. In many ways he was a cultural geographer long before the term was coined. He loved country walks both short and long, notably El Camino de Santiago de Compostela and the West Highland Way, both undertaken in his all-too-short retirement.

Mike was a GA member and for many years ran the Durham Branch, which hosted a local round of the Worldwise Quiz. It was apposite, too, that his contribution to the *Theory into Practice* series should have been entitled *Moral Dilemmas*, for Mike was a fine geographer with a moral compass. He had an unerring knack of 'doing the right thing'.

He once told one of his four children that life was for making memories together. If so, his was a life fulfilled. The geographical community abounds with rich, fond and unforgettable memories made together with him. | **TG**

My Places

Lucy Verasamy

In this occasional series Lucy Verasamy looks back at places which have shaped her life.

Which place has special childhood memories?

The counties of Norfolk and Suffolk, where I grew up: the villages, the countryside and the coastline. Some of my earliest memories are of the beaches on the Norfolk coast.

Thornham beach, Norfolk. **Photo:** Alan Parkinson.

In which place do you feel most at home?

At the moment it's Battersea. I've lived in South London for a number of years. But going back to Norfolk to visit family always feels familiar. Every time I return to England after spending time away it feels like I'm coming home.

In which place have you felt ill at ease/uncomfortable?

In recent years, it's the United States. The questioning and strictness on entering the country and crossing borders is relentless, but has become necessary. Sometimes there seems to be a heavy-handed attitude and it's not the best way to start a holiday.

Also, a few years ago I was travelling along the Pacific Coast of Mexico towards California by bus. Every few miles, the local police would stop and board the bus, question the tourists and search their luggage.

After the terrorist attacks in London in 2005, I felt uncomfortable taking the tube and bus. It was a horrible time. For a while, I avoided both if possible, and I think many people felt the same. I read that bike sales soared in the days after.

Which place for you has the tingle factor?

I don't think I can narrow it down to one place. Acapulco, Mexico stands out. It was cool and retro: like going back in time – all very 1960s and a bit like being in a film. I went to Cuba a couple of years ago, and it was a great adventure. I've recently returned from a ski trip in the French Alps and the scenery was so striking. The snow capped mountains looked amazing against crystal clear blue sky.

Which place gives you most hope about the future?

The Royal Geographical Society and their Ambassador scheme for schools. Visiting schools and speaking to pupils is vital.

Which place would you like to revisit?

The Alps in the summer months maybe. And the Caribbean: I went to Barbados in 2007 and it rained every day! There's not much to do when you go on a beach holiday and it rains, other than reading and card games.

Which book/poem/song conveys to you a strong sense of place?

This might sound strange, as I'm not religious, but singing hymns in school and, more recently, weddings, often convey a strong sense of the English countryside and setting. This is a significant place for me – it's the only place I have ever lived. Also, poems by Wordsworth and Blake and the song LDN by Lily Allen.

My trip to California. **Photo:** Lucy Verasamy

Which town or city have you most enjoyed being in?

I can't narrow this down to just one place! I love London and the diversity it offers. I enjoy Edinburgh too – it's a great city and so grand. I like the contrast between the architecture and scenery: the castle, Arthur's Seat and the rolling hills of Fife.

Paris is really pretty: I went last summer and thought the bike hire scheme was a brilliant idea. Biarritz is another favourite place – fantastic beaches and cracking thunderstorms in late summer. Out of Europe, I have really enjoyed holidays in San Diego and Vancouver – both have a little bit of everything to offer: a downtown, lush green parks and sandy beaches. | **TG**

Lucy Verasamy is a weather presenter for Sky News, and also provides bulletins for Five News and Sky Sports. She completed a degree in geography and earth sciences at Brunel University in 2001, where one of her tutors was Iain Stewart. She also had the misfortune to be taught A-level Geography by Alan Parkinson, the GA's Secondary Curriculum Development Leader!

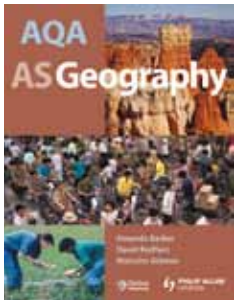
Geography resource reviews

Teachers who would like to review resources, and then keep them, are invited to e-mail Dorcas Turner at dturner@geography.org.uk

BOOKS

AQA AS Geography

Amanda Barker, David Redfern and Malcolm Skinner
Deddington: Philip Allen Updates, 2008
353pp plus CD, 19x24 cm
Pb: £19.99
ISBN 978-0-340-94611-4



The changing A-level specifications have led to the appearance of a variety of new materials, covering new ideas and elements. *AQA AS Geography* has been written to meet the requirements of one new examination syllabus and does this very well. It contains plenty of up-to-date material and is organised into relevant chapter headings. I was impressed not only by the layout of the text, but also by the quality of the photographs and the accuracy of the diagrams, which are very easy to interpret. The introduction provides an overview of command words such as 'analyse' and 'evaluate', which many students initially find difficult to understand. Each chapter includes assessment exercises which mirror the type of questions set at examination level. This will undoubtedly be useful to teachers for setting assessments in class.

The book also contains a separate unit on geographical skills, divided into sections such as 'cartographic' and 'statistical'. These sections will be particularly helpful to those who have not encountered such skills at GCSE.

Schools and students will find this resource very useful, and, in my opinion, it represents excellent value for money.

Nick Goacher, St. Joseph's College, Stoke on Trent

Poems for the Geography Classroom

Mark Cowan
Blackburn: Educational Printing Services, 2008
132pp plus CD, 14.5x21.5cm
Pb: £9.99
ISBN 978-1-905637-64-5

This is a great little book, full of poems designed for use in geography lessons with pupils aged 9 to 13. The poems are easy to read and very accessible, for example, 'To experience a hurricane must be a savage blow. A gusty, forceful, fearsome tale of worry and of woe.' They cover a variety of contemporary topics – 'human processes', including urban sprawl, shopping and tourism; 'the natural world' including earthquakes, rivers and deserts; 'mapping the earth' with countries and capitals; and 'our changing environment' with poems on topics including global warming and flooding. One of the real strengths of this resource is the accompanying CD, which contains all of the poems, enabling easy printing and projecting. It also offers ideas for using the poems in the classroom.

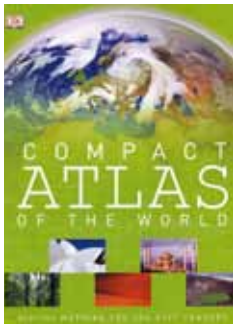
Poems can be a great tool for motivating students, though many of the suggested teaching ideas have been seen before. There could be a danger of the poems oversimplifying and trivialising important and complex geographical topics (for example, 'AIDS is acquired. No-one's immune. A deadly disease. Is it coming here soon?'), so teachers would need to use them with care in the classroom.

The book is very reasonably priced, and would be a fantastic resource to use as a starter or plenary, to inspire, engage and hook students into topics.

Richard Bustin, Bancroft's School, Woodford Green

Compact Atlas of the World (4th Edition)

London: Dorling Kindersley, 2009
192pp, 21.5x27.5cm
Pb: £9.99
ISBN 978-1-4053-2903-3



This atlas manages to pack a lot into its relatively compact format. As one might expect from this publisher, the maps are clear and easy to read. It is not aimed particularly at the British market (there is just one double page spread on the UK), so could be sold anywhere in the world.

Many atlases at this level neglect certain regions of the world, but this one has impressive coverage of island nations, including those in the Pacific (which often seems to lose out through being shown on Atlantic-centred maps) and in the Indian Ocean. They will be very helpful for teaching about these regions, and will enable students to really get to grips with aspects such as the location and extent of the Seychelles or Kiribati. The Caribbean is also well represented, with each country labelled, and detailed maps of the larger nations.

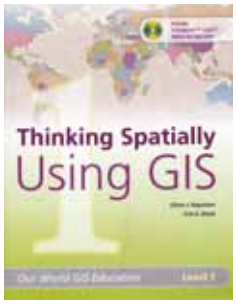
The major continents are all very well served. The atlas provides greater coverage of the Arctic than is usual – for instance there is a detailed map of the North Atlantic between latitudes 60° and 80° north, which provides detailed coverage of Iceland and, in particular, Greenland, a region that increasingly features in geography schemes of work.

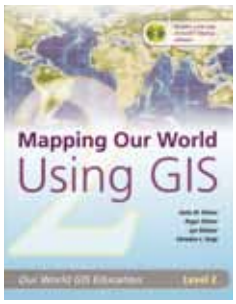
The publisher claims the atlas is aimed at the 'young geographer' but it lacks the detailed thematic maps (such as transport, climate, conservation and industry) contained in many school atlases. There is also an absence of development data. In spite of these omissions, it would certainly be useful to students aged 11–18. I would like to keep a set in my teaching room to use in any secondary geography lesson, alongside supplementary materials. This atlas would particularly appeal to anyone who likes the equal coverage which is given to all regions of the world.

Mike Jones, Alleyn's School, Dulwich

Our World GIS Education series

Level 1: Thinking Spatially Using GIS
ISBN 978-1-58948-202-9
Level 2: Mapping Our World Using GIS
ISBN 978-1-58948-203-6
Level 3: Analyzing Our World Using GIS
ISBN 978-1-58948-204-3
Level 4: Making Spatial Decisions Using GIS
ISBN 978-1-58948-183-1
Eileen J. Napoleon, Erin A. Brook, Anita Palmer, Roger Palmer, Lyn Malone, Christine L. Voigt, Kathryn Keranen and Robert Kolvoord
Redlands, CA: ESRI Press, 2008
138-280pp plus DVDs, 21x28cm
Pb: £42.00–£61.50





The *Our World GIS Education* series is a collection of four teacher texts. All of the texts have student worksheets supplied on the accompanying disc, and some have associated student workbooks. Each book comes with the necessary ESRI GIS software which supports the exercises and projects. The series has an excellent companion website, which contains web links for further information for the exercises. In general, the books and supporting materials represent very good value and offer a 'one-stop shop' for GIS lessons.

The software comes with step-by-step guidance on system requirements and loading, which a complete GIS novice could follow. The Level 1 book would be suitable for students at the end of KS2/beginning KS3, Level 2 for KS3/4, Level 3 for AS/A2 and Level 4 for undergraduates. The modules are stand-alone subjects (for example, tectonics, climate and ecosystems, mapping the world) but progression in complexity of the GIS tasks is required. The books and worksheets set out a list of questions to be answered; these are either a test using the GIS itself, or an evaluation of the information generated. All of the modules start with clear objectives and outcomes, offer links to other subject areas (although this is based on the US curriculum), and have suggested extension activities. The earlier books also contain the expected answers to the exercises – these could easily be used for assessments.

Level 1 would be an excellent starting point for using GIS in the classroom, as it is essentially off-the-peg material – planned, resourced, easy to follow and enjoyable for students. Levels 2 and 3 engage students by using an enquiry approach to understand specific global events and patterns – these do require prior knowledge of GIS. Level 4 uses local decision-making studies, which would prepare students for becoming a GIS professional. The downside of these activities is that they are all based in the USA.

Although these resources are not designed with the key stage 3 geography curriculum, or a GCSE syllabus, in mind, as a secondary teacher needing to meet the GIS requirement, I would recommend these books as a very easy starting point, which you could get to grips with in just a couple of hours.

Vicky Juett, Coombe Dean School, Plymouth

OTHER RESOURCES

ecoearth

Chester: ecoglobe Ltd
£35.00
www.ecoglobelimited.com/www.ecoearth.me.uk

The *ecoearth* is an original, compact globe which differs from more conventional globes in several ways. The surface depicts a cloud-free satellite view of the Earth's surface, taken from the NASA Blue Series, and lacks any other features such as lines of latitude and longitude. The globe comes with a transparent plastic shell, which can be clipped on relatively easily, to show the atmosphere.

Further secrets are exposed by removing the globe from its moorings and pulling the two halves apart. This reveals a cross-section through the Earth, complete with convection currents and a pop-out core. While this provides great opportunities for investigating the composition of the Earth in a very visual way, the structure presented is too complicated for younger minds, and lacks sufficient detail for older students.

ecoearth comes with a leaflet suggesting a variety of teaching ideas, many of which cannot be demonstrated using a conventional globe. One example is the way in which degrees of latitude and longitude are derived from lines which emanate from the centre of the Earth.

Overall, I found *ecoearth* a useful addition to the classroom armoury and at £35 it represents good value for those seeking to build their resources. I'd be even keener on a larger model. Perhaps future versions could have extra 'skins' showing more geographical information, such as the distribution of major biomes and predicted future rises in sea level?

Ewan Laurie, King's College School, Wimbledon

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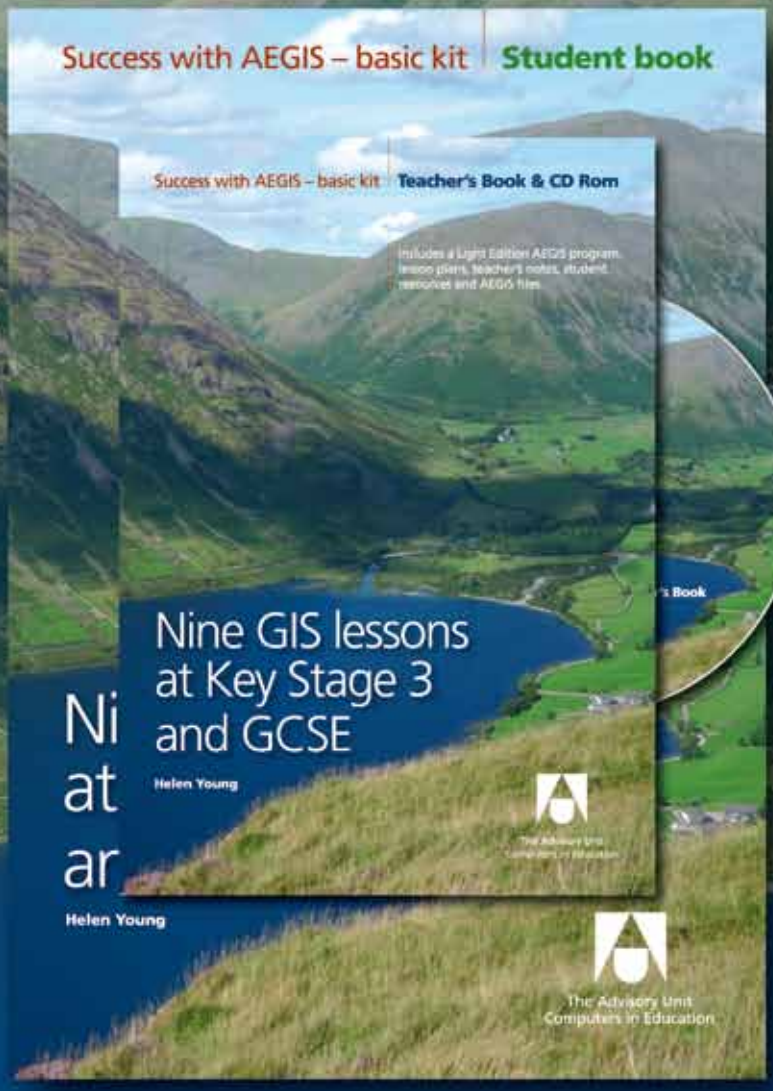

The Teacher's Book and CD-ROM contains a Light Edition AEGIS program, full teacher guidance and support materials with AEGIS files for nine key topics at KS3 and GCSE.

The Student Book has the background content and a step-by-step AEGIS guide for each of the nine lessons.

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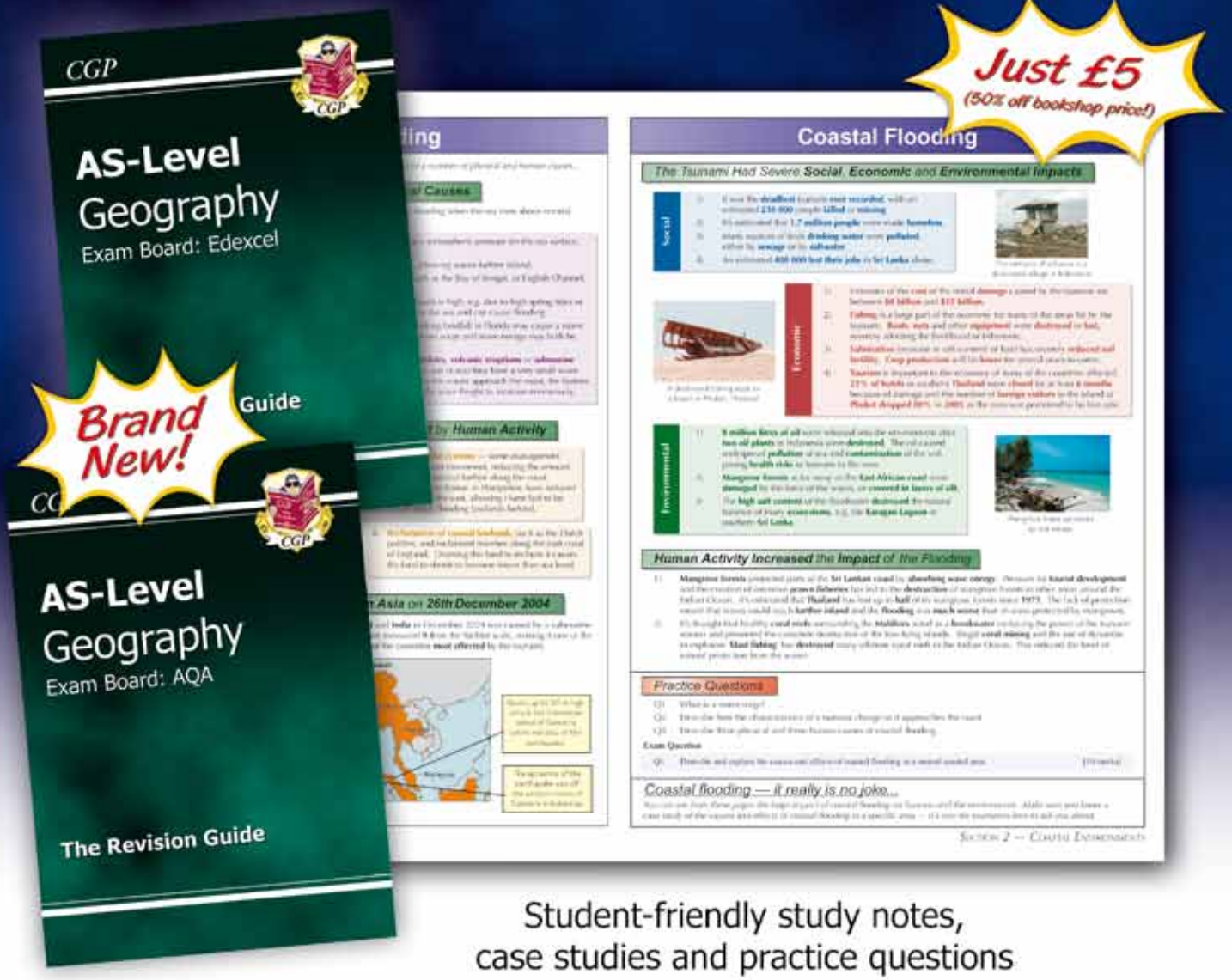

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Dr Clare Brooks (c.brooks@ioe.ac.uk)

Who are we?

The UK's largest team of geography educators, playing a prominent role leading research and teaching in this specialist field.

What do we do?

Teaching programmes include:

- PGCE - the largest and highest rated PGCE course in England
- MA - an established Masters programme in Geography Education, unique in identity and with an outstanding track record
- MPhil/PhD - the largest collection of Geography Education PhDs in the country with a wealth of experience in supervising higher research degrees

Research interests of the team include:

- Geography teachers' knowledge development
- Geography education in the 21st Century
- New pedagogies and new technologies (such as GIS)

Where are we going?

Working with partners, nationally and internationally, we are contributing to the developing field of geography education research, as a platform for the continued contribution geography can make to education in all its forms.