



GEOGRAPHY MATTERS

Post-16 and HE Phase Committee
Spring 2022

Welcome to Geography Matters 2022! In this edition we look back and look forward.

Iain Palôt bids us farewell after many years as a stalwart of the Post-16/HE Phase Committee and the GA. Iain has been consistently welcoming and supportive of new colleagues, on this committee, and in the geography community at large. He has never shied from building networks to bring people together to advance the cause of geography, whether it be students, teachers, academics or politicians. We will miss his insatiable energy for exploring ways to raise the profile of geography at post-16 and beyond, and celebrate all it has to offer. Thank you Iain! We're so pleased you will continue to be a conference-goer, and we will support Laura-Jayne and Ellie as they pick up your very significant mantle in the coming weeks.

We also look forwards in this edition of GM as we share ideas and good practice in teaching A level Geography. Ellie Barker encourages us to read and listen to some inspirational writers. We are encouraged by the positive enthusiasm of students from Prendergast School and are happy to support National Fieldwork Week. Servel Miller and Naomi Andersson share helpful guidance on virtual reality fieldwork and critical thinking, and Bob Digby brings us up to date with new titles in the Top Spec Geography series. Finally, Rich Waller offers an authoritative perspective on the energy transition and the important role geographers can play. Many thanks to all our contributors!

Gill Miller, Editor.

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Chair's Notes

Iain Palôt

For the very last time I sit down in the twilight period between Christmas and the New Year to pen my thoughts and observations on matters post-16 and HE. What a strange year it has been for all of us in the post-16/18 sector, teaching remotely, no exams, no face-to-face meetings, but Spring is coming and there are new shoots emerging as we learn to live in a COVID-19 world.

Despite many challenges, the committee has continued with its decolonisation work and responded to DfE consultations. To support the National Fieldwork programme lead by Paula Richardson, we planned some A level fieldwork for teachers in conjunction with FSC as a strategic partner, but sadly this has been postponed.

Inevitably though, this piece is one for looking back, remembering those members of the committee who contributed so much and whose efforts should not be forgotten. Over the years we have been so well supported by people like George Metcalf, the NATFHE rep and the committee Treasurer in the days when we had a delegated budget. One meeting a year was always at the Victory Club at Marble Arch as he was able to stay at a reduced rate having made the journey down from Dunfermline. Other members of our illustrious team have included Brian Harris from Thames Valley, Alan Marriott, Andrew Powell from Kingston, Tim Foster from FSC Blencathra, Antony Allchin, Mick Dawson, Dave Turton, Julia Jones, Helen Hore, Simon Oakes, Bob Digby, and others too numerous to mention. Secretaries, Treasurers, Saturday fieldwork organisers, Travel and Tourism specialists, Geography Matters Editors [Dave T had a couple of blokes out at "the airfield" who printed it very cheaply, and we gave away huge numbers of copies at conference]. Those were the days!

I have been chairman for long enough and could not have done the job without the support of my wife and the committee members, particularly Antony and then Helen, to whom I owe a huge debt of gratitude. To Gill for taking on the editing of GM in the face of a number of difficulties and her own personal workload. And to all the committee members that I have not mentioned – thank you for your support and contributions to the work we have undertaken.

I am now what Catherine Owen reminded me of as we gossiped at the back of a conference session, an OLD, some would say very old, WHITE MAN - and the time is right for change. The committee will be co-chaired by Laura-Jayne Ward and Ellie Barker and I wish them all the success for the future. I am confident that they will do a great job in the tradition of the P16/HE PC. They are looking for someone to fill the gap left by my leaving, to add new skills and greater diversity to the committee. I am only sorry that I will not have the opportunity to work with Serval Miller from Chester whom I am certain will add greatly to the deliberations of the committee.

Thank you all for your friendship, help and support over the past 40+ years of my GA membership. I shall miss being involved and hope to see some of you at conference this and in future years.

What I'm reading and who I'm speaking to

Ellie Barker, Prendergast School



How to Save our Planet, by Mark Maslin



SCAN ME

This small book is full of punch and is a 'must-read' for all geography teachers. I am almost about to buy a full class set too! Every sentence is carefully crafted with referenced facts and figures to show the depth of the climate crisis but also manageable and achievable solutions. The book explores future scenarios of a 'nightmare 2100' with no action versus an alternative future: a clever way to consider human action. Mark is a powerful communicator through the book as well as in person. In this accompanying live interview, I ask Mark about the actions individuals, companies and governments can take. We also discuss whether adaptation or mitigation is the best for climate action.

Finntopia, by Danny Dorling and Annika Koljonen



SCAN ME

This beautifully written book is full of geographical data supporting findings – just the best type of book! Danny and Annika explore what makes Finland so successful in the world rankings. Finland is near the top for air quality, education, equity, happiness and the list goes on. Danny and Annika quickly establish it is not about the natural location nor climate, and throughout the book they explore why Finland is one of the most equal societies. In my chat with Danny, I ask him why Finland is so equal: Does equality equate to happiness and what issues still exist in Finland? This is a top recommendation for students also studying A level politics and sociology.

Origins, by Lewis Dartnell



SCAN ME

There isn't a chapter (or even subsection) of Origins which you cannot link to your Geography lessons. Lewis takes us through the ultimate journey of our past to tell us how and where we came from. His explanations are crystal clear, from the Milankovitch cycles to globalisation. Moreover, the hard work has been done for teachers, as on Lewis's website there is a full curriculum link document which shows how to incorporate sections of the book into geography lessons <http://lewisdartnell.com/en-gb/origins-teachers-resources/>. In my live interview with Lewis, we spoke about tectonics, climate change, our metallic world and globalisation. A wide-ranging and in-depth conversation which felt just like a scratch on the surface of his wonderful book.

Student voices celebrate geography

Lyra, Year 12, Prendergast School

I would love to study 'Geography with Study Abroad in a Modern Language' at Bristol University as I feel communication is extremely important in our increasingly connected world and I would like to develop an international career. One of my favourite topics in geography is hazards because the interconnectedness gives a scientific understanding of how natural hazards develop whilst determining their economic, social and environmental impacts. I was also fascinated by Ilan Kelman's perspective of how vulnerability can be determined by societal constructs, such as gender and other demographic factors. My NEA explored the extent to which low-traffic neighbourhoods are responsible for creating sustainable environments that positively impact the local population. I was particularly interested in whether the perceived environmental impacts outweighed the resulting conflict.

Zerda shared her aspirations with us last year, and now she is a first year Geography student at Kings College London

First year geography at Kings College London has been really fascinating. During the first term, the compulsory modules included a mixture of physical and human geography, and the topics were similar to those I studied at A level such as hazards and changing places. I felt some advantage in already knowing something about the topics as I started university. In the second term my passion for the study of how humans interact and mould our world led me to select mainly human geography modules. I was introduced to new topics including 'Geographical foundations of the modern world' which is challenging but interesting as it explores the major processes that shaped our world, such as colonialism and capitalism. I am really enjoying university because despite the pandemic, I have been able to collect data for research and learn more advanced GIS skills in person, whilst staying safe!



We read about Ellie in 2020 as she prepared to go to university. Here she is in her second year at Edinburgh studying Geography and Politics.

I originally applied to study Geography at UofE, but in my first year I really enjoyed my politics elective course, 'Politics in a changing world', so I applied to the joint honours degree from second year onwards.

My academic interests lie in the intersection between geography and politics, and therefore I have chosen to study second year courses such as 'Economic and political geography' and 'International co-operation in Europe and beyond', which incorporate aspects of international relations, geopolitics and global political economy.

The flexibility of Scotland's university system means that I can take many elective courses beyond my main degree subject where I'm learning completely new and exciting ideas and concepts. This includes courses in 'African politics', 'International development', 'Political philosophy' and 'Comparative politics'. I'm also enjoying the way that my courses are run this year, with tutorials in person, so I can talk through and scrutinise lecture content and the key readings in an open group discussion, while being able to watch online lectures at whatever time suits my schedule.

Here we're following Hannah's journey through her degree as second year Geography student at the University of Manchester



I'm now a second year student just heading into my second semester. Last semester I took a climate change module and a sociology module on sustainable consumption, which really resonated with my love for the sociological side of geography. I'm now taking 'Moral geographies' (super interesting and has added a total other dimension to my geographical perspective) and 'Social and cultural geography' (with themes of place, identity, sexuality, race and decolonial geographies). I'm still loving studying and living in Manchester – probably even more so than last year. Second year really is the time when you settle in, and it also helps that geography is such a social course here. Next year I'll be living in Amsterdam for a year on my Study Abroad and I can't wait, especially since the Go Abroad exchange programme was one of the reasons why I chose Manchester in the first place. I'd fully recommend Manny to anyone interested in geography.



A personal reflection of COP26, the UN Climate Change conference in Glasgow, 2021

Hannah, year 12 Geography student, Prendergast School

I am a generally optimistic individual, but as a young person I believe that to sugarcoat international climate talks, the way the media often does, would suggest that those in leadership have this existential crisis under control. I had no hopes from the conference itself, because there were five reasons why it was always going to – and did – fail.

Firstly, the lack of ambition. Many of the goals are based around "net zero by 2050" (which is far too late), and offsetting current carbon emissions, which justifies business-as-usual pollution rather than ending it altogether.

Secondly, the lack of representation. Black, indigenous communities and women across the world are on the front line, first and disproportionately affected by the climate crisis. Yet they were underrepresented and excluded from decision-making at COP26. Without listening to these communities, the climate crisis cannot be fully understood or tackled.

A third reason for failure was greenwashing by big polluters. COP26 was largely about the image of climate action portrayed to the world. In fact it was "partnered" with global firms such as Google which, according to a 2015 study, accounts for as much CO₂ as global aviation. At least 500 fossil fuel lobbyists, representing over 100 fossil fuel companies, were present to exert their significant influence over COP26.

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I believe the problem is systemic. The climate crisis is endlessly complex and inextricably linked to capitalism, colonialism, extractivism, wealth distribution, racism, and misogyny. The history of violence against oppressed groups needs to be acknowledged in order to create a new world system, but many of those who attended COP26 were more inclined to protect the existing system, from which they benefit and profit, rather than building something new.

One final factor in failure was the broken promises. Many of the promises in the Sustainable Development Goals made in Paris 2015 are not on track six years later. So why should any promises made at COP26 such as “ending deforestation” have any real meaning? After agreeing to stop funding new overseas fossil fuel projects with public money by the end of 2022, the UK government is still planning to license new oil and gas fields. Many governments have financial motivations to sustain such links. You do not have to look very far beneath the surface or have “extreme leftwing environmentalist views” to see officials moving between government and fossil fuel lobbying posts, and politicians offering promises and no action.

My hope for the future came not from the conference itself but from the beautiful climate and social justice activism organised around it, including a march of 100,000 people. I have been a climate activist for a year, attending as many Extinction Rebellion events as I can. One day the government won't be able to ignore the people. But post COP26, I feel more driven than ever before to take initiative. In Prendergast School, our Climate Action Group has, in its messy way, soared with purpose and direction this year. Sixth formers have led sub-groups of younger students in various projects such as re-branding (designing a new logo and name for) the club with the aim of attracting more members. Soon we will be running climate change workshops in a local primary school and I will be advertising the global 'Fridays For Future' student strike. It is empowering to feel part of the solution rather than the problem. I dare anyone reading this to step into the slightly uncomfortable realm of activism rather than waiting for the government to save us, because they won't. The stakes are high, but I really have hope. Another world is possible if we all come together.

Who are the Post-16 / HE Phase Committee?

Laura-Jayne Ward	<i>Whitley Academy</i>	<i>Co- Chair</i>
Eleanor Barker	<i>Prendergast School</i>	<i>Co-Chair</i>
Naomi Andersson	<i>Ludlow Sixth Form College</i>	<i>Secretary</i>
Hafsa Garcia	<i>Portsmouth College</i>	
Gill Miller	<i>University of Chester</i>	<i>Geography Matters Editor</i>
Servel Miller	<i>University of Chester</i>	
Richard Waller	<i>University of Keele</i>	

Many of our meetings are online these days. If you are interested in joining us via zoom, then you are always welcome. Contact Laura-Jayne laurajward@me.com or Ellie eleanormarybarker@gmail.com

Top Spec Geography – the latest publications

Bob Digby

The GA will shortly publish three more titles in its student-facing 'Top Spec Geography' series. Edited by Bob Digby and Sue Warn, the series aims to bring together research expertise in HE with classroom expertise from experienced teachers in schools. Each book is written by a partnership between a specialist academic in their field, partnered with a geography teacher whose job is to 'translate' academic research into accessible material for students.

The target audience is post-16 geography students following a variety of post-16 courses, whose students may want to read beyond their course textbooks – perhaps as part of a stretch and challenge programme, or preparation for HE interviews, or texts to act as a bridging link between A level and first year at university. The books can also supplement research investigations such as the NEA or EPQ. Each book can be purchased singly, but can also be purchased in 'sets of six' at discounted prices. Each book complements endorsed textbooks; 'Top Spec Geography' is not a competitor for mainstream texts.

The format of each book

Each book consists of 5-7 chapters, with illustrations and data complementing text. Text includes background theory, and key information boxes to help untangle some of the more complex concepts. There are activities for use in groups and as guides for individual study; some activities encourage discussion, while others develop student understanding of the issues. Ideas for further research encourage independent learning, together with glossaries of key words and terms. Each book is accompanied by a suite of online resources, written to extend and complement the topic, and ensure that research is kept up-to-date.

Tectonic Hazards (Second edition)

The original author, Martin Degg (Head of Department of Geography and International Development, University of Chester), has undertaken a complete re-write of the first edition with Sue Warn. The first edition followed a decade of major disasters; the second decade of the 21st century has proved less spectacular, but significant for hazard study in terms of concepts used in teaching about hazards and disasters.



Emergent challenges in Disaster Risk Reduction (**DRR**) form the key themes in the new edition:

- **global demographic and urban shifts** including the growth of 'megacities' and the growing proportion of urban dwellers living in shanty conditions
- **the influence of poverty and gender** as determinants of risk. In areas worst affected by the 2004 tsunami, 75-80% of the dead were female, whilst Haiti's 2010 earthquake (Magnitude 7.0) released 1000 times less energy than the 2011 Tohoku event (Magnitude 9.0) but killed 10 times more people
- **the globalisation of disaster risk.** The 2004 tsunami was the worst natural disaster to affect Sweden since the global flu pandemic of 1918-20, while the ash cloud from the short-lived 2010 Eyjafjallajökull eruption disrupted air travel at a cost of US\$5 billion

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- the emergence of the **Complex Humanitarian Emergency** (e.g. Haiti, 2010) and **Natech disaster** (e.g. the 2011 Fukushima nuclear meltdown)
- the importance of science communication to help people understand risk and live with uncertainty, e.g. the L'Aquila earthquake in 2009.

The chapter outlines are:

- **Chapter 1: From hazard to disaster** - terminology; hazard profiles; disaster databases; using models to explore causality; paradigms; risk perception thresholds; risk reduction/the disaster management cycle.
- **Chapter 2: Tectonic processes and landforms** - Plate tectonics theory; mechanisms of plate movement (push, drag, pull); relationship to pattern of hazards and tectonic landforms; multi-hazard environments; geo-tourism.
- **Chapters 3: (Earthquakes), 4: (Volcanoes) and 5: (Tsunami)** - explore the hazards and risks associated with tectonic hazards.
- **Chapter 6: Future challenges** - explores global demographic challenges and urban shifts; development, modernisation and the globalisation of disaster risk; Complex Humanitarian Emergencies and Natech disasters; governance and science communication; and the UN Sendai Framework for DRR.

New case studies threaded through these chapters include:

- earthquakes: Puebla, Haiti, L'Aquila, Bam, Kashmir, Mt Merapi and Gorkha
- volcanic eruptions: Eyjafjallajökull, White Island eruption, Vesuvius Emergency Plan
- tsunami: Indian Ocean tsunami and the Natech Disaster at Tohoku.

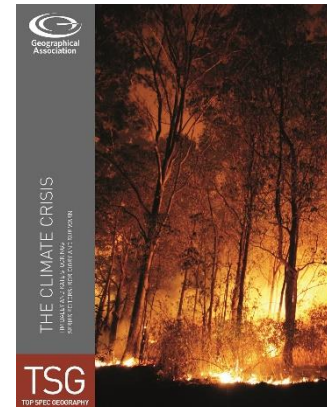
The Climate Crisis

This new title has been written by Tim Daley, Associate Professor of Physical Geography in the School of Geography, Earth and Environmental Science, University of Plymouth, and Kate Stockings, Head of Geography at Hampstead School. The authors wanted to write something completely different from the mainstream A level 'climate change' market and focus on 'crisis'. They wanted to take students beyond the headlines of the mainstream media, and instead consider current research coming through from academia. Three key ideas drive this book:

- Climate change – and the pace at which change is occurring – has become unstoppable.
- The key priority now is not to debate whether climate change exists, but how to slow it, and adapt to its impacts.
- The concept of climate change is now accepted globally and requires urgent action.

The book:

- reviews current understanding of climate processes and drivers of change
- provides a review of natural and anthropogenic (human) processes
- discusses new-to-science understanding of natural oscillations



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- examines the importance of feedbacks in the climate system
- explores a range of impacts of climate change and how these create risk to humans
- examines how human society has dealt with the crisis and attempts to get itself out of the crisis.

The chapter outlines are:

- **Chapter 1: An introduction to the climate crisis**
- **Chapter 2: Climate change processes**
- **Chapter 3: What are the impacts of the climate crisis?**
- **Chapter 4: Climate change and the water cycle**
- **Chapter 5: What has been done?**
- **Chapter 6: What can be done?**

The COVID-19 Pandemic

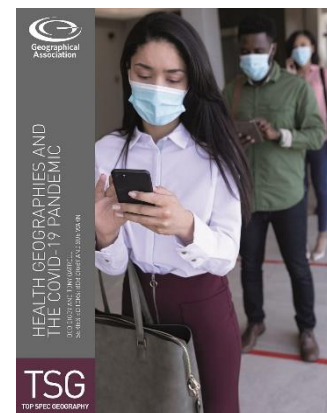
This new title has been written by Tony Gatrell, Emeritus Professor, University of Lancaster, working with Bob Digby. The authors recognised that the COVID-19 pandemic had enormous geographical implications and, in spite of the problems inherent in writing a book whilst the pandemic was still at large, that its geographical messages were worthy of study by post-16 students. The authors wanted to explore:

- the 'where' of the virus – using international comparisons, incidence of the disease at different spatial scales, and its impacts
- the 'how' – exploring the spread of the virus over time and its spatial diffusion
- the 'why' – linking the disease, its spread and its impacts to physical and, particularly, human environmental changes.

The chapter outlines are:

- **Chapter 1: The story begins** – origins; global governance; environmental (land use) change
- **Chapter 2: Spread and burden** – spatial diffusion through networks; impacts in Brazil and India
- **Chapter 3: COVID in the UK** – extent and spread; regional variation; inequalities; impacts on environment; economy; mental health and health care
- **Chapter 4: Local studies in the UK** – north and south; the geographies of lockdown
- **Chapter 5: Case studies across the globe** – different strategies adopted by New Zealand and Sweden
- **Chapter 6: Geographies of vaccination** – the geopolitics of vaccination, and how vaccinations reflect inequalities at different spatial scales
- **Chapter 7: Planning an independent investigation into COVID-19** – linked to A level and similar specifications.

Throughout the development of the 'Top Spec Geography' series, the books were never intended to link to particular specifications or courses. The new books are true to the 'Top Spec Geography' tradition of providing geographically stimulating texts underpinned by broader thinking than exam courses and their endorsed books can provide. We hope you'll enjoy them!



GA National Fieldwork Week, beginning Monday 6 June 2022

Paula Richardson

There doesn't really need to be much discussion about the importance of fieldwork in geography since these arguments are already well rehearsed by everyone concerned with the learning and teaching of the subject. However, the events of the past year have had a significant effect on schools' ability to organise fieldwork. There is also a loss of confidence around taking pupils out, the practicalities of transport, time to organise visits as well as choosing appropriate activities. The outdoor education sector has been particularly hard hit. Many organisations have tried to offer help and support whilst teaching has been online, but fieldwork is a difficult area to promote well in these circumstances.

Early career teachers, particularly those new to the profession, will have had little or no opportunity to integrate fieldwork into their teaching and may have less idea of how to go about both organising and facilitating this.

In tandem with our strategic partners (Discover the World Education; Environment Agency; Field Studies Council; Ordnance Survey), the GA aims to support and inspire teachers to return to, or rekindle, the benefits of outdoor education for all students with a **National Fieldwork Week**, to be held during the summer term in the week beginning Monday 6 June 2022. The week is designed to provide a focal point to encourage teachers to take students outside, whether in the school grounds, the local area or further afield.

A simple, common theme of **'Change'** has been chosen as this allows flexibility in deciding what to investigate to best advantage. By now most areas will have experienced significant changes, many because of the pandemic, so this will be an opportunity to come together as a subject community to look at these in relation to our own areas and share the outcomes, both in journal articles and through social media as well as locally.



The poster is a vertical green rectangle with a white circular logo on the right side. The logo contains the text 'National Fieldwork Week' and a stylized globe. The main text on the poster reads: 'National Fieldwork Week', 'Join us in embracing the joy, value and importance of geography fieldwork during National Fieldwork Week in June', 'Wherever you can go and whatever you choose to do, you will find support, activity ideas, resources and much more to inspire and support you and your students in making the most of your geography outdoors', 'See the GA website, journals, e-newsletters and Primary Updates for further information', and 'www.geography.org.uk'. At the bottom right, there is a white circular logo with a globe and the text 'Geographical Association'. The poster is surrounded by four small images: a river flowing through a green landscape, a street scene with a signpost, a beach with waves, and a forest with tall trees.

What to expect in the coming months:

- The GA is providing a series of resources and journal articles over the current academic year as well as information and activities on a dedicated section on the GA website.
- The GA Annual Conference 2022 at the University of Surrey will include useful fieldwork sessions and non-specialist teachers will be particularly welcome.
- The GA's strategic partners will be supporting conference sessions with information and activities.
- There will be significant social media coverage as time goes on.
- There will also be the opportunity to download a certificate of participation both for the school and the students who take part.



Organising the fieldwork

Not everyone will be able to take whole class groups out at a given time so participation at other times is also encouraged. The activities suggested on the various websites provide ideas using a variety of timings, including a double lesson, morning, afternoon and day long slots. The emphasis should be on a critical look at 'change' in a variety of ways which could be environmental, human or physical or a mixture of all three. There is likely to be a wealth of first-hand evidence from families, local businesses, shops and students themselves. Everyone was encouraged to stay at home in the early stages of the pandemic and take exercise in their local areas but what kind of impact did that have on places?

Schools can showcase their findings by presenting a display in the school, local community hall or church hall. This not only has the benefit of linking both school and community but shows that the school is interested and caring about changes which are happening in every part of our lives.

How you can support National Fieldwork Week

Each group has its own network of people, and the word needs to be spread round as many as possible! It is hoped that hundreds of schools will take part, not just GA members. Every school needs to know about the project and be encouraged to visit the dedicated pages on the GA website which will be available from the end of February. PGCE teaching practice students are well placed to carry out fieldwork investigations as they will be on their final teaching practice in June.

There is a short PowerPoint presentation available on the NFW website pages which you are free to use as CPD or to pass onto schools.

The National Fieldwork Week is a great way to help the GA to be seen and heard in school communities as well as celebrate the vitality of geography. Let's all support it and enjoy outdoor learning in as many ways as possible!

NEA tips and hacks

Naomi Andersson, Ludlow Sixth Form College

Starting to teach the NEA at A level can be a daunting prospect, especially if you, like me, are a department of one. Here are some of my tips and hacks for making life easier for you and your students in preparation for the NEA.

Let go – Yes, I know we teachers like to have a handle on all things, but truly, the most rewarding part of teaching NEA is marking a cohort of totally different topics and investigations that are all so distinctly different from each other. You won't regret it.

Stick to what the students are good at – In our first session preparing for NEA I get students to do a skills audit, a tick box exercise that helps them identify what they do and don't enjoy, and what they excel at in terms of fieldwork techniques. I follow this with an 'elimination of topics' task. All topics and subtopics from the range of study are listed and students create a short list of 'least worst' (hopefully favourite) topics that would be a) accessible and b) interesting to them.

A good question – A good conclusion comes from answering a good and appropriate question and/or sub-questions. After years of teaching and marking these, it's surprising how often a student completely forgets to explain what they are investigating or never actually answers their question in their conclusion. Good reports come from fairly simple questions. 'Measuring extent' is perhaps the most popular title but this can be more challenging than it appears. I try not to interfere in student thinking at this stage, although intervention is occasionally required when students overcomplicate things. To avoid this, in the early review stage supporting the whole group, questions and sub-questions are carefully discussed and considered as part of the proposal process.

Wider reading – During preparation lessons for the NEA I facilitate students to look at GA magazines, books, revision guides, resources from lessons, and challenge them to find something, however loosely, linked to their potential topic. There is a common early misconception among students that they need a parallel and perfectly matching secondary dataset to match their primary data collection. Bust that myth early on. Anything that supports or argues with their primary data findings is fair game and gives them something to analyse and critique.

Quality over quantity – From the very first lesson I stress that "the more you write, the more I have to mark". I'd much rather read a concise, short NEA than a long rambling and repetitive one which essentially describes findings rather than analyses them. This has to be repeated frequently as there are always students who give regular progress reports of how many thousand words they have written. The lack of upper word count limit is not a challenge. Students must refer to the mark scheme and recognise that there are no marks for descriptions, and plenty of marks for analysis and interpretation.

Sampling rigour – One thing I noticed this year is that some students have missed the mathematical definition of 'random'. I recommend some formal teaching about sampling strategies before embarking on NEA planning, and stress the importance of explaining what is the right strategy for each piece of data collection.

Depth over breadth – A detailed interview on a topic with one relative or community member is much more insightful than asking 500 people a questionnaire on Facebook. It's also quicker, easier to process and still enables demonstration of a range of skills such as coding (highlighting positive or negative language or mentions of particular factors) which can then lead to the creation of charts, graphical display, proportional symbols etc. Remember too, that qualitative data does not have to be converted into graphical form. It's the *use* of that evidence which is important, and interviews can be summarised in a variety of ways.

Critical evaluation – Students should remember that critical evaluation has two parts – reflection of the methods used to collect and represent evidence, and a critique of findings and the extent to which they match theory or expectations. A common misconception is this section ends up being wholly negative. It is always easier to throw shade at your work! However, I challenge my students to tell the examiner what is good about it, where it meets the demands of rigour, sampling, validity, frequency and timing, what has worked well in each section. This doubles as a final check for consistency and completeness.

Credit is gained for a solid report not a perfect result – Students need to have this clear from the start, particularly stronger students. I share the mark scheme quite early on to show students that the credit comes from producing a methodical, logical line of questioning, evidence, and analysis in a concise report and not from a complicated, obscure study with limited depth and global range. Keep it simple.

Organisation and timings - We start our NEA process after the AS exam window in June. Students have a few prep lessons and then I organise two field visits, one urban and one coastal, to explore possibilities for enquiry topics. Any other data collection is up to individuals. Letters home request parental support and supervision for safety, but not to help with the rationale for data collection. Students have always responded well to this and families enjoy supporting their young people.

Staged deadlines – After years of cajoling stragglers, I now set my NEA deadline before those in the Art, English and History departments. Finished NEAs are due in before October half term. This allows students the opportunity to focus on their A levels and UCAS applications. During lockdown some NEAs were finished by July. Occasionally life gets in the way and one or two might need until Christmas but generally an early deadline makes things easier all round.

Checklists – During the write up phase students often forget to maintain the methodical approach. Checklists help to remind students to cover crucial elements within methodology, analysis and critical evaluation.

MS Word mastery – A short lesson in how to use “manage sources” and “citations” on MS Word saves hours of misery towards the submission date. Early in the A level course I show students how to save their wider reading titles directly into a word template. This saves students a lot of time later. It's also a useful HE skill to pass on for the future.

Stay local – Some of the best titles of recent years have been based on tiny villages and hamlets, *How globalised is Yarpole?* (population 556) was a particular favourite, but also *Perceptions of crime in Cleve Hill* was another super study involving a distanced interview with a Community Support Officer. *How safe is Tenbury?* featured a shoebox with personal safety survey sheets in the local Tesco. Students are ingenious and continue to surprise me with their creative ways of collecting data. They combine this with virtual fieldwork using an array of GIS and data modelling tools at their fingertips - CDRC Maps, Parallel, ArcGIS online, Survey123, Datashine, Google Earth Pro historical aerials etc.

Reflections on Critical Thinking CPD

Naomi Andersson, Ludlow Sixth Form College



In February 2021 I signed up for a free series of CPD sessions in critical thinking, *Connecting Classrooms through Global Learning*, supported by the British Council and UKAid which I had read about in GA magazine. Hosted by GA Consultant Ben Ballin, a mixed group of teachers, from primary to sixth form, met over 4 sessions. Each session included an example resource and technique which we examined from the point of view of students and then ourselves as teachers.

I found the sessions incredibly valuable for my own practice, particularly seeing Ben's techniques for making us think. We used breakout rooms on Zoom for small group discussion and the parallels between teaching using critical thinking in primary through to sixth form really stood out. Every technique was applicable at all levels. Interestingly the group observed that pupils often lose critical thinking skills between primary and secondary schools and their innate curiosity in the early key stages appears to become less evident at secondary level.

I trialed several of the techniques that pushed me out of my usual teaching styles. My Deputy Head observed my students in action, and I gained valuable observations and feedback from students and my colleague, with input to further improve my teaching using critical thinking techniques. The outcomes in my classroom have led to more engaged students, less work from me and more work from them! My questioning style has improved along with my range of activities for learning.

I need to develop critical thinking strategies further by giving students more time to consolidate and take notes in the plenary part of the session, as an activity often overshadows the 'topic to be learned'. For methodical A level students, they sometimes lack the notes needed to revisit in their revision time. However, time spent developing critical thinking skills pays dividends in the quality of students' responses to exam questions. My task now is to incorporate these techniques where appropriate into all my teaching resources - an ongoing 'to-do' list!

Explore the benefits of virtual field courses

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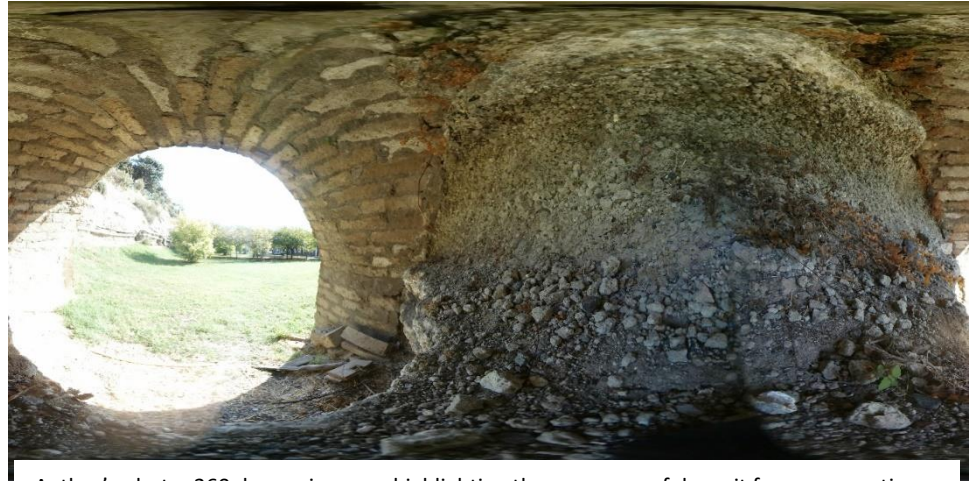
Field courses have always been an integral part of the geography curriculum in schools, and they are often the best experiences which bring the subject to life, and which pupils always remember.

New technologies now enable fieldwork to be enhanced by virtual activities. The restrictions placed by the COVID-19 pandemic, combined with increase pressures on school's financial and human resources, have put pressures on field courses in many schools. While these may ease as we learn to manage and live with COVID-19, some resource constraints may persist and hinder the delivery of field-based courses. Virtual field courses may be one solution to addressing this and can be used as stand-alone experiences and or as support for existing field visits.

What are virtual field courses?

Virtual field courses entail the use of digital tools and resources to enable participants to remotely explore and engage with physical and human environments, events and processes without physically being there. Virtual field courses take many forms. At one end of the spectrum, they may simply be the use of freely-available videos, audio and photographs that are compiled to help students become familiar with different environments, such as glacial deposit sites in North-Wales at a variety of scales. At the other end, they may be associated with data collection and analytical activities, for example mapping drumlins identified on aerial photos or Google Earth at regional scale, or pebble analysis at very detailed, specific sites based on high resolution photographs.

From the photograph here, students can explore the image to map the sediments, draw stratigraphy logs and explore the impact of the eruption on the built environment.



Author's photo: 360 degree imagery highlighting the sequence of deposit from an erupting volcano in Naples.

Photographs can be geotagged and a Google Earth tour

created and shared with students. This then enables students to gain a better spatial awareness of an area. Google Street View can also be used by students to explore the local areas and analyse how the natural environment may have impacted on the built environment.

Where a field-course needs to be bespoke for a particular site, teachers may choose to go into the field themselves or get a colleague to visit the various selected sites in advance and pre-record a tour for students to use in class. In other cases, teachers could task students to engage virtually with local residents, councillors or activists, perhaps via Zoom, to explore local issues, for example the

impact of tourism on the local environment. In the past, I have led virtual field courses that enable students to engage with other students from around the world to discuss issues such as sustainability and climate change. This is particularly helpful when exploring human geography topics, and where a regional, national or international perspective can provide more meaningful insights for students. Teachers may pair students with those from a school overseas, to share stories and imageries of how a particular hazards such as floods impact on their community.

The GA and its International Special Interest Group will help you connect with schools in other parts of the world. Many students will have some experience of travel, in the UK or elsewhere. They love to share their own images and videos which can provide excellent stories and imagery. It reminds them that geography is all around us – we just need to look and recognise it.

Virtual Reality (VR)

At the more extreme end of the virtual field course spectrum, is Virtual Reality (VR). Virtual and Mix reality have the added benefit of emerging students in environments and cultures which would otherwise would be almost impossible for them to experience, such as in Sub-Saharan Africa. This allows students to feel they are actually walking around the area (albeit virtually), taking their own time to explore the environment or talk with residents (Avatar) in real-time.

The disadvantage is that it could be expensive to develop virtual tours. Some students may not be able to use VR, due to medical conditions. Where VR is a preferred mode of delivering a virtual field-course, an investment in 360 degree cameras and VR headsets, and VR-tour software will be a minimum requirement. Imagery such as that listed above can be collected by tutors and used to develop virtual tours using software such as ‘Thinglink’ (<https://www.thinglink.com/Thinglink>).

Tutors may go further than just a tour and build a simulation exercise to develop student problem-solving skills. One example I have used is to combine imageries and tours with a social media platform such as Yammer for private chat, to create a simulated tour of a volcano. The simulation exercise enabled students to start identifying volcanic evidence from different geographical areas around a volcano and then respond to, and develop, an evacuation strategy based on the existing volcano and then plan a city strategy to reduce the impact of future eruptions.

It is great if teachers and schools have the resources to actually go and collect imagery in person. However, that is not always possible. Using imagery from the wide range of online sources is also acceptable, but do ensure that sources of the imageries are acknowledged and check to ensure there are no copyright restrictions before using. Beyond that there are freely available resources (see links below), that you may wish to start with.

Virtual fieldwork offers significant students to enhance student learning and I would encourage teachers and schools to give a try. Good luck!

Virtual fieldtrips –

<https://virtualfieldtrips.org/video-library/videos-by-curriculum-area/geography-videos/>
<https://ditchthattextbook.com/20-virtual-field-trip-ideas-and-activities-for-your-classroom/>
<https://www.nationalgeographic.org/society/immersive-experiences/>

Energy transitions

Dr Richard Waller, University of Keele

The COP26 summit held last November in Glasgow provided one of the most significant and widely anticipated events of 2021 with a central ambition of securing global net zero by the middle of the next century, to 'keep 1.5°C alive', and thereby to avoid the most devastating impacts of future climate change.

With the energy sector being responsible for an estimated 73.2% of our total carbon emissions in 2016¹, 'the climate problem is mostly an energy problem' (Mackay, 2008). Consequently, one of the key aspirations of the summit was to secure global agreement on the phasing out of coal that constitutes the most carbon intensive fossil fuel currently used in energy production. Whilst last minute objections led to a watering down of a draft agreement, the signed agreement to accelerate 'the phase down of unabated coal power' and to end 'inefficient fossil fuel subsidies' remains the first time a COP summit has reached an agreement on the use of coal².

Ongoing tragic events in Ukraine at the time of writing have helped to shine a spotlight on Europe's continued dependency on imported gas from Russia and the associated challenges posed by energy (in)security. Whilst the UK is not directly dependent on significant quantities of Russian gas, the wider impacts of the conflict on worldwide energy markets look set to exacerbate the growing cost of living crisis with Brent crude trading at well over \$100 a barrel and wholesale gas costing more than 10 times what it did this time last year.

All of this highlights the urgent need to transition away from fossil fuel energy to renewable energy sources, with electricity generation being one sector in which the UK has made significant positive progress. As recently as 2008, coal-fired power stations still contributed over a third of our electricity capacity with wind contributing less than 5%³. Fast forward to February 2022 and the situation has been reversed with almost 40% of our electricity being generated by wind in comparison to 2.8% for coal⁴. This rapid growth in renewables coupled with a rapid decline in coal use has seen the average carbon intensity of the grid fall from 495g to 126g CO₂/kWh over the same period. It's worth noting however that we still remain reliant on significant amounts of gas both for our electricity production as well as our domestic heating.

This recent growth of renewables is set to accelerate with the first phase of what will become the world's largest offshore windfarm located on Dogger Bank in the North Sea coming on stream in summer 2023⁵. The project features the largest wind turbines manufactured in the world to date, with blade diameters of 220m and peak power outputs of 14MW, with a single rotation being capable of powering an average home for 2 days. This serves to illustrate the remarkable scalability of these technologies such that when complete, the windfarm's peak generation capacity of 3.6GW will exceed the planned capacity of the Hinckley Point C new nuclear power station. Longer term,

¹ <https://ourworldindata.org/emissions-by-sector>

² <https://ukcop26.org/wp-content/uploads/2021/11/COP26-Presidency-Outcomes-The-Climate-Pact.pdf>

³ <https://interactive.carbonbrief.org/how-uk-transformed-electricity-supply-decade/>

⁴ <https://www.nationalgrideso.com/electricity-explained/electricity-and-me/great-britains-monthly-electricity-stats>

⁵ <https://doggerbank.com>

this expansion of offshore wind capacity is set to continue apace with the government's 'ten point plan for a green industrial revolution' envisaging a quadrupling of offshore wind production to a level with the potential to meet our entire electrical demand with the wind resource is high.

Dramatically expanding the supply of low carbon electricity coupled with an increasing electrification of all sectors of the economy is core to the rapid decarbonization pathway recommended by the Committee for Climate Change in their most recent Carbon Budget⁶. This would see a dramatic increase in electricity use for transport, heating and industrial processes that would allow us to transition away from the use of oil and gas in the same way that we have done for coal. And with wind and solar providing what are already the cheapest means of power production, this provides the prospect of cheaper energy supplies too.

Such a transition is however not without its challenges. First and foremost, in relying increasingly on intermittent energy sources, there will need to be a need to match demand to supply rather than supply to demand as has been the case in the fossil fuel era. The use of demand side management and time of use tariffs that encourage the use of energy when it is in plentiful supply can help to smooth out the spikes in demand that bedevil our current system. In addition, the increased use of a diverse range of energy storage solutions capable of balancing the grid by storing excess energy during times of surplus to compensate for the times when demand exceeds supply will help to ensure we don't waste the precious energy we generate. This is becoming increasingly problematic with the recent expansion in wind farms leading to a concomitant increase in the number of times when these assets have to be curtailed to avoid overloading the grid. In addition to providing an all-time high in wind farm production, 2020 also sadly saw a doubling in curtailment that cost over £250 million to enact and resulted in the loss of 3.8 TWh of energy production – a figure high enough to power every home in Wales.⁷

There are also fundamental questions concerning social equity and the mechanisms required to ensure that all members of society have fair and equal access to the benefits these transitions can bring. This need for a 'just transition' was an important element of the Paris agreement signed in 2015 at COP21 that perhaps hasn't received the attention it deserves. The challenge is well illustrated in relation to the rapid uptake in battery electric vehicles (BEVs), which accounted for almost 20% of new vehicle registrations in the UK in February 2022. As fuel prices look set to reach record levels, the dramatically reduced running costs these vehicles offer are becoming increasingly stark. However, with the purchase cost of both new and second-hand vehicles commanding a substantial premium over combustion engine equivalents and access to the cheapest charging being restricted to those with off-street parking, current access to BEVs remains limited to those with high incomes and as such is highly geographically variable around the UK.

As with so many 'Grand Challenges', geographers have a golden opportunity to play a central role in delivering the deep, rapid and just energy transition central to reaching net zero. As a subject that has focused on interactions between humans and their natural environment since its inception, our discipline already encapsulates the core knowledge and skills required to be 'carbon literate'. In addition, our unique focus on geospatial data analysis combined with an understanding of human

⁶ <https://www.theccc.org.uk/publication/sixth-carbon-budget/>

⁷ <https://reports.electricinsights.co.uk/q4-2020/record-wind-output-and-curtailment/>

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behaviours will be key to deploying the charging infrastructure required to make the full transition to BEVs. It's essential therefore that curricula look forwards to this low carbon future rather than acting as rear view mirrors. If ever there was a time to demonstrate that geography matters, the time is now.

Cited sources

MacKay, D., 2008. *Sustainable Energy-without the hot air*. UIT Cambridge Ltd

Geography Matters 2022 attributions

Royalty free vector - <https://www.dreamstime.com/read-newspaper-icon-logo-read-newspaper-icon-logo-white-background-image137904119>

Critical thinking diagram - https://commons.wikimedia.org/wiki/File:Critical_Thinking_Skills_Diagram.svg