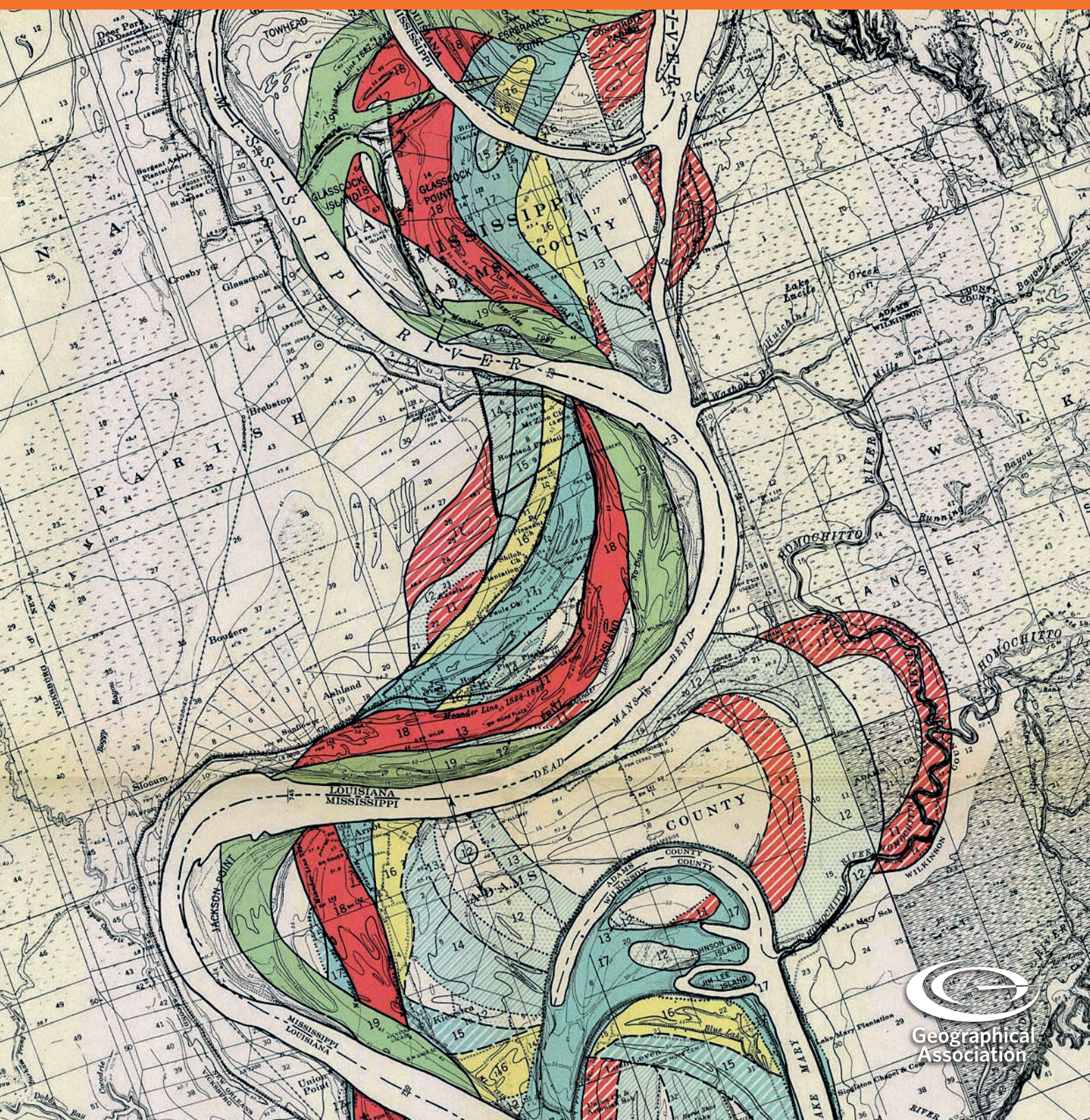


PRIMARY

GEOGRAPHY

Focus on fluid geography

Number 115 | Autumn 2024



Welcome to *Primary Geography*, the Geographical Association's journal for all Early Years and Primary teachers.

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Editorial

Simon Collis



Guest editor, Simon Collis.

While preparing this issue I happened to re-read *Furari* (Taniguchi, 2017), which tells the story of an unnamed man in Edo-period Japan. The man, loosely based on the 18th century cartographer Inō Tadataka, spends his retirement pacing the streets of Edo (now Tokyo) trying to measure the distance between different landmarks. He tries to maintain a uniform pace in order to make these distances as accurate as possible. At the same time, the man allows himself to be distracted by what he experiences along the way, admiring fireflies and appreciating poetry (Figure 1).

The unnamed man poses a challenge to the reader that echoes through much geographical research and geographical study in schools; how do we balance the need to measure and classify with the need to experience and appreciate? For teachers, this tension can be even more apparent – to balance the needs of a national or school curriculum with the needs of the class, to follow the plan of a lesson with the curiosities or misconceptions presented during the lesson. These tensions can oftentimes feel diametrically opposed, but the character in *Furari* offers an alternative. When presented with an intriguing avenue of enquiry, he does not hesitate to pursue it. In the classroom, this demands of teachers a nimbleness to dance between the planned and the unplanned.

The definition of fluidity – to flow easily – is encapsulated within the focus of this issue. Fluid geography starts by exploring the role that water plays in our landscape: Linda Speight answers pupils' questions about rivers and flooding and James Bowen shows how fieldwork can enhance a river study. Guy Shrubsole offers an edited extract from his book examining temperate rainforest



Figure 1: Taniguchi's unnamed man admires fireflies and appreciates poetry. © "FURARI" © PAPIER/ JIRO TANIGUCHI via BCF Tokyo.

habitats in Britain, and our interview with Elijah Richardson shows us how to protect the Great Barrier Reef in Australia.

Seeing fluidity as gracefully moving from one state to another misses an almost contradictory idea embedded within it. Fluid geography is also about acknowledging change, sometimes acknowledging unsettledness or instability. Helen Clarke and Sharon Witt search for ephemeral geographies in England's chalk streams, which flit in and out of being with the seasons. Gordon MacLellan looks for the poetry in our fluid relationship with our landscape. Kit Marie Rackley and Alice Hoy explore how we can create safe and supportive spaces for LGBTQIA+ identities and how we can adapt our approach to curriculum making to be more inclusive. Meghan Tipping explores Victorian cemeteries and how these sites can be used to examine concepts of life and death, how they can be havens for vibrant ecosystems while memorialising people who have died.

Taniguchi's protagonist embraces unplanned opportunities for the enriching or affirming, which presents teachers with

a challenge to hone our professional eye for the rich and fruitful diversion; to be able to connect the abstract concepts and challenges that geographical study presents us with to the lived experiences and interests of the pupils in front of us.

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S. Collis

Web Resources

Download ideas for using the front cover of this issue in your classroom:
<https://portal.geography.org.uk/journal/index/pg>

Simon Collis is Assistant Head teacher at Emmaus Catholic and C of E Primary School in Sheffield. He is also a member of the *Primary Geography* Editorial Board.

Ask the expert

Y5 children at Hallam Primary School ask Dr Linda Speight

For our introduction to the world of fluid geographies, the year five pupils at Hallam Primary School posed questions to Dr Linda Speight. Linda specialises in hydrology, which is the study of the flow of water through the landscape. Linda also loves rivers; watching them, canoeing on them, swimming in them and trying to understand them.

Record Breaking Rivers

Which is the longest river in the UK? The River Severn is 354km (220 miles) long. It starts in the mountains of mid Wales and then flows through Shrewsbury, Worcester and Gloucester before meeting the sea under the impressive Severn bridges. It is five miles longer than the UK's second longest river, the Thames (Figure 1).

I know the River Nile is the longest river in the world, but which river carries the most water?

According to the Guinness Book of Records, the Nile is the longest river in the world at 6695 km (4160 miles) but it's a matter of some debate. Depending where you start and end, some geographers argue that the Amazon is 6750km (4195 miles) long, meaning it would just sneak the crown. By the time the Amazon reaches the sea, it is so big that it has multiple mouths and it is unclear where the river actually ends and the sea begins.



Figure 1: Linda ready to go paddle boarding on the Thames (the UK's second longest river). Photo © Linda Speight.

What is not debated is that the Amazon carries the most water. On average 120,000 cubic metres (about 20 swimming pools worth) flow out of its mouth every second. That's around 20% of all the water that discharges into oceans around the world. The Nile at 1584 cubic metres a second is a mere baby.

How wide is the widest river?

If you stand by the London Eye and look across the River Thames to Big Ben, the river is around 250m wide but this is nothing compared to the Amazon – the world's widest river. It is hard to find an exact figure for its width, as the river is always

changing, but it can be up to 11 km (7 miles) wide in the dry season and even wider during the rainy season. The mouth of the Amazon has been measured on satellite images to be around 380 km or 235 miles wide.

How long does it take a river to change its course?

Natural river channels are constantly changing. Depending on the river size, flow rate and geology some rivers might change course over years, others over centuries. Events such as floods, earthquakes and landslides, or human activities like dam building, can cause rivers to change course very quickly, sometimes in just a few hours.

The River Mississippi in America (Figure 2) is an example of a river that is constantly moving. Fast water flowing around the outside of bends erodes the bank while slower water deposits sediment on the inside of the bend. Eventually this process increases the size of the bend so much that the river decides to go straight across the bend rather than round it. The bend dries up and forms an ox-bow lake and the river has a new course. If you look at satellite images of the river you can trace the movement of the river over time. In more recent years humans have built levees (embankments) to stop the river moving and to protect roads and towns.

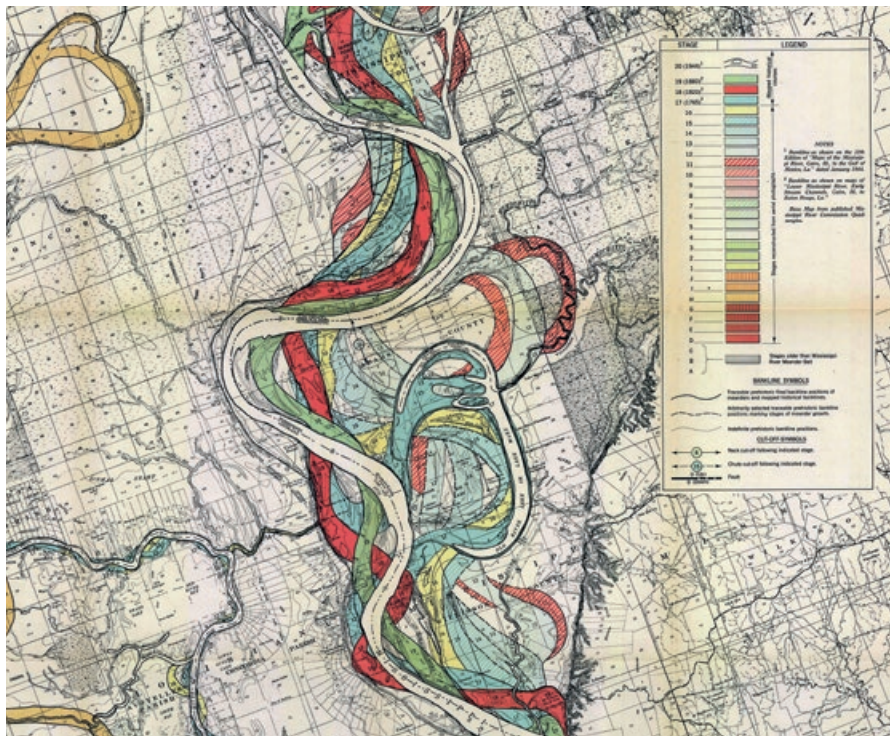


Figure 2: The Mississippi River. Source: <https://earthobservatory.nasa.gov/images/6887/mississippi-meanders>. Courtesy of US Army Corps of Engineers.

Why doesn't the Amazon have any bridges across it?

The lack of bridges is another great fact about the Amazon. Given that we've just learnt that the Amazon is the largest river in the world it should be no surprise that building a bridge there would be difficult. Wide marshes along the river banks, soft soils, eroding river banks and water level changes in the wet season would all make it challenging, and challenging builds are expensive. Given that there are very few people living in the region and few major roads, there is no real need to invest in bridge building. The river itself is used for transport and in the towns and cities along the river people are used to crossing the river by boat and ferry.

What happens when there is too much water?

Why are there lots of fields full of water at the moment?

When it rains, water usually soaks into the ground but sometimes it can't do this. Either because the ground is already full of water so there is no more space for more (when people say the ground is

saturated this is what they mean), or because it is raining so hard that there is more water falling from the sky than can squeeze through the holes in the surface of the soil to get into the ground.

This year has been very wet. There were lots of big storms over December and January, and for southern England, February 2024 was the wettest since records began. With no gaps between storms for the ground to dry out and the water to soak away, every time it rains we have seen low-lying ground quickly becoming saturated and large puddles forming in the fields. The one near my house was so big that it flowed onto the road and they had to put up traffic lights to help the cars get by.

Why do rivers flood, if the water is being emptied out into the seas and oceans?

To answer that, we need to think about the size and shape of river channels. Rivers are formed by the water that flows down them and their size is determined by how much water is usually in them. As a general rule in hydrology, we say that river

channels are big enough to hold the 1 in 2 year flood, that is the largest amount of water we might see once every two years. Anything more than this will overflow the banks and spread into the floodplain where it can continue to flow towards the sea.

If you make a straight channel with a gentle slope (for example, a piece of guttering raised up on some bricks at one end) and pour water in at the top, the water will flow down the channel and out of the bottom at the same rate you pour it in. You will need a lot of water to make it come out of the sides. But if you put some obstructions in the channel to make it narrow in some places like a bridge, or add a bend which the water has to flow around or a side channel with extra water coming in, you will see it is now much harder for the water to flow easily out of the bottom of the channel and you can pour less water in before you get a flood. This is what happens in a river. Since rivers are not the same all the way along their length, the places that flooding starts to occur are usually where there are blockages or changes in the channel shape and the water cannot flow as fast as it needs to towards the sea.

Why do people build their homes in places that get floods?

Throughout history people have chosen to live near rivers. Humans need water to drink, to keep clean, to grow food, and to make energy. In times gone by when travel was difficult, it was easier to live next to water than to move the water to you so many settlements developed near rivers. Waterways were also important for transporting goods and when travel by roads became more common, crossing points became strategically important; think of the number of places that reference river crossings in their names (for example Oxford, Stockbridge). Water also has a

positive effect on people so we like to live near water (Figure 3). The most beautiful place I have lived was in a house right next to the River Tay in Scotland.

The problem is that as the population increases there is less and less space for houses in the places we would like to live. Flat ground in the floodplain provides an easy place to build. Planning rules in the UK should mean that floodplain land is only used when there is nowhere else to build and houses that are built there should be safe during a flood with living areas raised above the water level.

What can people do to stop their homes being flooded?

If you live in a location that floods frequently, there are lots of innovative products available that you can install in your home. Flood barriers stop water entering through doors or windows and you can put special valves on your pipes and toilets to stop water coming through them the wrong way.

While for the biggest floods it is hard to stop the water, there are still things you can do to help reduce damage. You should sign up to receive flood warnings (see web resources), which will give you time to get ready, and make a flood plan so you know what to do when you get the flood warning. This could be

things like moving your valuable items upstairs, packing a bag with essentials in case you have to leave the house and checking if your friends and relatives are ready too. You could also think about how your house is designed, hard floors are easier to clean after flooding than carpets and raised plug sockets are safer than ones near the floor (water and electricity is never a good mix!).

Keeping our rivers clean

What sorts of things do people do that pollute rivers?

Without careful management most human activities pollute rivers. The biggest problems come from:

- Agricultural runoff, including fertilisers and animal waste. Along the River Wye chicken farms are thought to be causing poor water quality.
- Deforestation, as trees play a valuable role in stopping soil erosion. When they are removed, more soil is washed into rivers, reducing water quality.
- Heavy industries like factories and mines, which can release metals and chemicals into rivers.
- Sewage, which is a big story in the news at the minute.

When untreated sewage is released into rivers it contains human waste and other toxins which are harmful to the environment.

- Urban runoff, as water flowing into rivers from roads and cities often contains rubbish, oil and other pollutants.
- Population growth around the world, which is making many of these problems worse.

How can we make our UK rivers cleaner?

There is currently lots of pressure on water companies to spend more money to make our rivers cleaner but you can do a lot too. Don't put anything down the sink or toilet that might block the pipes, for example cooking oil and baby wipes should always go in the bin. This will mean more space for water to travel down the pipes to be cleaned at the sewage works without overflowing. You could also think about using environmentally-friendly shampoo and washing-up liquid to reduce the number of chemicals getting into rivers. Rivers are important spaces for wildlife so when you are out for a walk or a picnic near water, make sure to take all your rubbish home. You could also get your school or family involved in collecting data on water quality and help scientists understand the problems more. Organisations like FreshWater Watch are encouraging people to monitor and protect their local rivers and lakes.



Figure 3: The River Thames near Marlow where there are lots of big riverside houses. © Linda Speight.



Web Resources

FreshWater Watch:
<https://www.freshwaterwatch.org/>
Sign up for flood warnings:
<https://www.gov.uk/sign-up-for-flood-warnings>

Dr Linda Speight is Lecturer in physical geography specialising in flood forecasting and warning in the School of Geography and the Environment, University of Oxford.

Exploring the journey of a river: River Dane case study

James P. Bowen

In this article, James shows how pupils at Baldwins Gate CE (VC) Primary School, Newcastle-under-Lyme, Staffordshire, undertake practical fieldwork as part of a unit on rivers, developing their subject knowledge, skills and understanding.

The importance of fieldwork

An Ofsted review of geography in 23 ‘outstanding’ primary schools found that geographical skills were not well-taught and that, while pupils visited different places, fieldwork was often weak in key stage 2 (Freeland, 2021). A more recent Ofsted subject report has yet again highlighted the limited teaching of geographical skills and the lack of a distinction between fieldwork, field trips and visits with fieldwork, ‘seen as an activity to be done rather than as an opportunity to teach a body of procedural knowledge or to teach pupils how geographers approach their work’ (Ofsted, 2023).

This article shows how fieldwork can provide a real-world context, bringing together substantive knowledge about rivers (*knowing that*) and disciplinary knowledge about fieldwork techniques and skills (*knowing how*), so that pupils can learn how to think geographically. By undertaking a river study, pupils can be taught both disciplinary and substantive knowledge about rivers in accordance with the Geographical Association’s *A Framework for the School Geography Curriculum* (see web resources). In doing so, pupils develop a deeper understanding of key geographical concepts such as place, river systems and environment.

The River Dane

In the autumn term, year 4 pupils study a unit of work on mountains and rivers and participate in a river study day to explore the upper course of the River Dane. The source of the river is on Axe Edge Moor, a moorland south-west of Buxton in the Peak District. The Dane flows through Cheshire before joining the River Weaver at Northwich, then the River Mersey before flowing into the Irish Sea.

This field trip is intended to develop pupils’ geographical skills by requiring them to carry out practical fieldwork. As Mackintosh (2005, p. 321) has pointed out, ‘it is of paramount importance to give children experience of rivers’ so that they can observe river processes (such as how water flows downhill) and to help them visualise rivers.

Introducing fieldwork

Pre-teaching is necessary to provide pupils with the disciplinary and substantive knowledge about rivers in the UK and globally. Pupils consult current and historic Ordnance Survey (OS) maps and aerial images from Digimap for Schools (see web resources) to locate the River Dane and its course. Key geographical vocabulary used to describe the physical features of a river is introduced and defined. To help pupils identify the physical features of a river when in the field and to ensure they use the correct vocabulary, they draw and label a journey of a river from source to sea.

Fieldwork is then introduced in relatively simple terms as ‘when you go outside the classroom and find things out for yourself’. The river study builds on pupils’ previous experience of fieldwork, which includes exploring the school grounds, the village of Baldwins Gate, Beeston Castle and the landscape of the Staffordshire Roaches, thereby allowing for skills progression. Physical features are defined as ‘anything that has formed naturally’, such as coasts, mountains or rivers. It is unrealistic for primary-age pupils to ‘think like experts’ because of their lack of background knowledge – but pre-teaching addresses this knowledge gap (Christodoulou, 2014). Pupils learn how to relate their knowledge of geographical concepts about river processes and appropriate vocabulary to the River Dane. Through practical fieldwork they learn to think through the discipline of geography.

Paired, group and whole-class discussion is used to generate potential enquiry questions. An enquiry question for the class is agreed, such as: how do river features change downstream? Thus, when pupils undertake fieldwork they have a specific geographical question to investigate. It also allows them to consider what data to collect and how to go about gathering it. For example,

an enquiry question might require river measurements such as channel depth and width, the speed of water flow or the size and smoothness of pebbles. By doing this, pupils will actively observe, measure, record and present geographical data.

Undertaking fieldwork

Pupils visit four sites: the source of the River Dane on Axe Edge Moor, the disused Danebower Quarries, Gradbach Mill and Danebridge. At each site, they observe the physical features of the river and gather data. Small groups of pupils also enter the river under close adult supervision to take other measurements. For instance, they measure the width of the river using a tape measure and the depth at 1m intervals using a measuring stick. This enables them to complete a cross-section of the river channel. They also float objects down the river and use a stopwatch to time how long the objects take to travel 10m, so they can calculate the river’s flow rate. Findings are recorded on activity sheets and the data is analysed back at school (Figure 1). Pupils draw a field sketch of each site and label it using geographical terminology (Figure 2).

Consideration needs to be given as to how to assess pupils during fieldwork, especially those with special educational needs and disabilities (SEND).

Stanley Head
Outdoor Education Centre

RIVER DANE STUDY
Site 3 Width 10 metres

Depth Survey
Measure the depth of the river with your metre rule in ten different locations. Use the chart below to record your findings.

Depth	1	2	3	4	5	6	7	8	9	10
0cm										
2cm										
4cm										
6cm										
8cm										
10cm										
12cm										
14cm										
16cm										
18cm										
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32cm										
34cm										
36cm										
38cm										
40cm										
42cm										
44cm										
46cm										
48cm										
50cm										

River Speed
To calculate river speed we will time a piece of fruit floating down the river on ten occasions. Record your findings below.

22.2 20.6 23.5 22.8 21.3

To calculate the mean (average) time add all of the times together then divide by ten. Answer 22.2

Site Observations
Circle all of the words which apply to your section of the river.

Fast Slow Rough Smooth Rocky Sandy

Erosion Study
Select five random stones from the bed of the river and measure them on their longest edge. Draw a diagram in the box next to the measurement to show the shape.

1	2	3	4	5

Figure 1: One pupil’s completed rivers activity sheet. Source: Baldwins Gate CE (VC) Primary School.

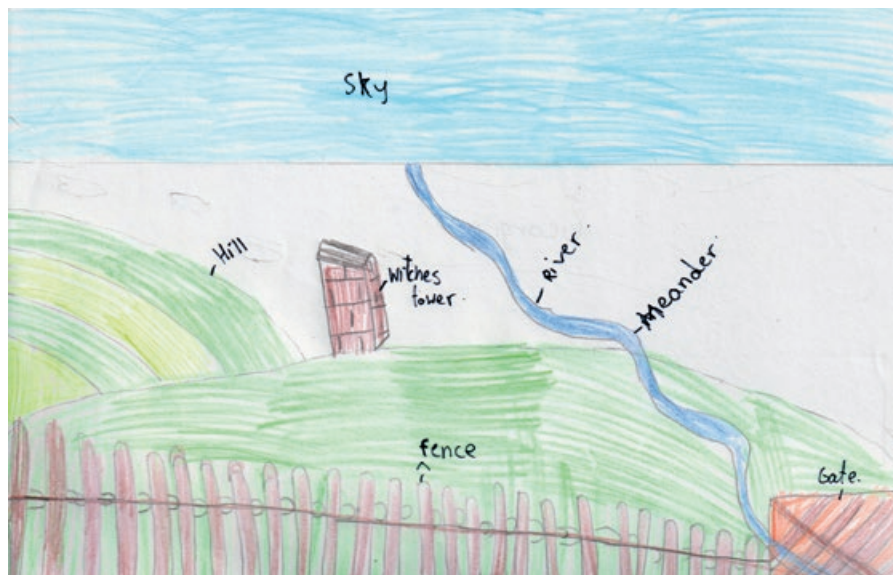


Figure 2: One pupil's completed field sketch. Source: Baldwins Gate CE (VC) Primary School.

Writing up fieldwork

Back in the classroom the pupils produce a fieldwork report (Figure 3). In it they review the enquiry question, note any findings from their exploration of the four sites and describe what they observed at each place. To provide challenge, further questions are posed such as: What do you think was the most interesting feature of the river and why? What surprised you most about the river? How did fieldwork help you understand the geographical features of a river? Here, pupil observations can be linked to relevant environmental issues including climate change and flooding, which provides extra impetus for further discussion.

Embedding fieldwork in the curriculum

A river study offers an opportunity for primary pupils to undertake a range of fieldwork activities which are fun and that they will remember for the rest of their lives. Kinder (2018, p. 189) has

remarked, 'memorable episodes such as reaching the top of a hill or paddling in water can aid long-term memory retention'. It develops pupil understanding by providing real-world contexts within which to make connections so they learn how geographers apply knowledge. It leads to a deeper, more contextualised level of understanding. It is essential that disciplinary and substantive knowledge is pre-taught to make the most of the time in the field; and thorough planning and risk assessment are a crucial prerequisite.

Unless pupils go on a river study or similar field trip, they are unlikely to undertake fieldwork beyond the school grounds or their immediate locality. This raises a broader point about how primary schools should go about teaching geography. Given the current emphasis placed on fieldwork, when devising a geography curriculum schools and teachers need to firmly embed fieldwork and the teaching of geographical skills so that National Curriculum requirements for geography are fulfilled.

Acknowledgements

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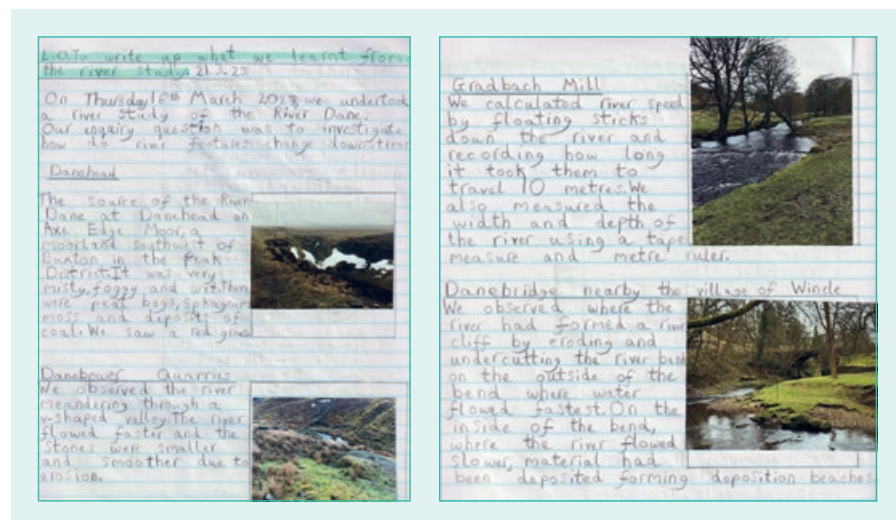


Figure 3: Extracts from one pupil's fieldwork report on the River Dane. Source: Baldwins Gate CE (VC) Primary School.



Web Resources

Digimap for Schools: <https://digimapforschools.edina.ac.uk/>
GA Framework: <https://geography.org.uk/wp-content/uploads/2023/07/GA-Curriculum-Framework-2022-WEB-final.pdf>

James P. Bowen is a Class Teacher at Baldwins Gate CE (VC) Primary School, Newcastle-under-Lyme, Staffordshire. He completed the Postgraduate Certificate in Education course with Qualified Teacher Status in 2021–22 with Keele and North Staffordshire Teacher Education, specialising in the teaching of the humanities.

Learning about the fluidity of risk

Sophie Brack

In this article Sophie discusses how she involved pupils in identifying and analysing the risks they may encounter when planning and conducting fieldwork.

Involving pupils in risk assessments enables us, as teachers, to assess what pupils know about an area. It can also change their perceptions of safety from being something the teacher is entirely responsible for to realising that, ultimately, they are responsible for keeping themselves safe (Owens, 2017). Feeling inspired by discussions with Paula Owens about the positive impact of encouraging pupils to complete their own risk assessments before conducting fieldwork, I set about planning a lesson that would develop year 6 pupils thinking about risk.

Originally, the aim was to encourage pupils to think deeply about the risks at the location they would be visiting. However, over time, this organically developed into pupils thinking deeply about the risks associated with different locations as well as about risk being fluid with different (changeable) factors, such as considering the route to the fieldwork location, the timing of the journey and how weather conditions impact risk.

Preparations

It is important that we visit a fieldwork site and walk any intended routes before taking our pupils, because this will inform our own risk assessments. Any risk assessments completed by pupils will be in addition to those used by the adults who plan and conduct the trip. The pupils, for obvious reasons, are not able to visit the site prior to the fieldwork, but you can bring the outside into the classroom through maps, photographs and discussions that encourage your pupils to have a greater regard for their own safety, thus improving their behaviour. It also aids their understanding of how maps are a representation that can help us to visualise a place (Owens, 2017).

Developing thinking about location

Choosing an area in the immediate vicinity of the school means that for many pupils, the fieldwork location will be familiar. In this case, we chose to carry out the fieldwork at 'The Quadrant', a shopping

parade about 1.3km from school. Using Digimap for Schools, we looked at the area between our school and The Quadrant (Figure 1). Pupils enjoyed spotting and talking about the key human and physical features they recognised on screen. The next step was to get the pupils to delve deeper and begin to locate those geographical features they may not normally notice, such as pedestrian crossings, driveways, crossroads and T-junctions, and look at how these features intersect with pedestrian pathways.

Some of these features were spotted on satellite images of the area (using Google Maps), OS maps on Digimap for Schools and through discussions of different map symbols and what they represented.

Planning the route

Pupils were then asked: 'If you were the teacher and planning to take a class of 30 to The Quadrant, which route would you take?'. This led pupils to look more closely at the local area and consider the implications of the different routes from school. Which route would be the shortest/ longest in terms of distance? Pupils used the measuring tool on Digimap to check the precise distance in kilometres and considered further questions, including: Which route would have a footpath? Which route would have a greater volume of traffic? Which route would involve more road crossings? Was there a route that would limit the amount of road crossings? After having these discussions, pupils were asked to plan three potential routes to The Quadrant. They annotated these

routes with the key features they would encounter on each route and the distance (Figure 2).

Thinking about risk

Next, we asked: out of the three routes planned, which would be the preferred one and why? This enabled the pupils to connect their thinking about the geographical features they would encounter with the risks on each route. They shared their routes in groups of six and discussed which would be the safest. The debates encouraged pupils to justify their decisions in terms of risk before they completed the risk assessments for their routes. Pupils' initial justifications included:

'I would choose route C because the distance is the least longest route. Also, there is the least amount of crossings which makes it the safest way to go.'

Does risk change?

Discussions then progressed to considering if risk would change for any reason other than the route taken. Pupils realised that the timing of the trip would be important because the volume of traffic would vary at different times of day. This meant that it would be safer to walk to The Quadrant after the parents had finished the school drop-off in the morning because the roads would be quieter, making them safer to cross in large groups. Avoiding lunchtime would also be important, as the pupils conjectured The Quadrant itself would be busier over lunchtime because people



Figure 1: This map of our local area was used during the class and fieldwork. © Crown copyright and database rights 2024 Geographical Association under licence to OS.

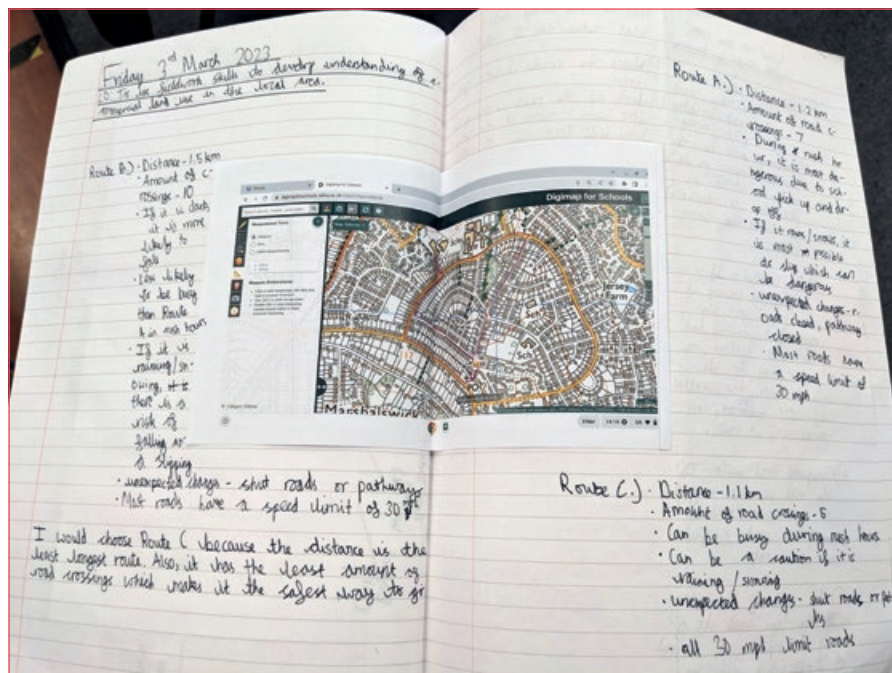


Figure 2: Example of planned routes between the school and The Quadrant.

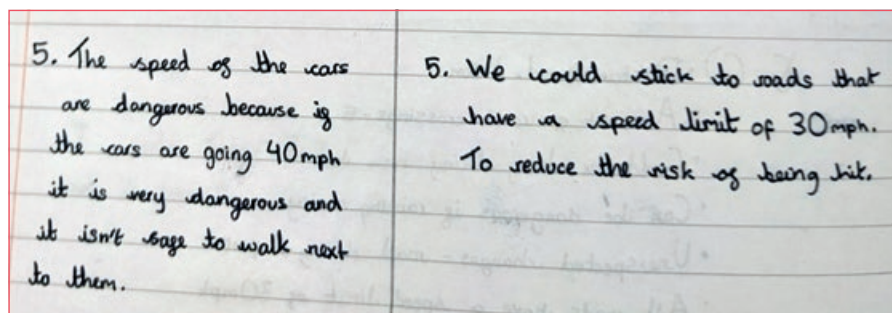


Figure 3: Example of detailed risk assessment for the selected route from school to The Quadrant.

would be visiting on their lunch breaks to buy food. Another consideration was the weather conditions; pupils considered the increased risk of slips and falls if the weather was wet or cold and snowy. They unanimously decided that a sunny day would be the most desirable weather conditions, though perhaps not always realistic. Even though it was February, this led them to consider how to prepare for different weather conditions – coats for the rain and cold, or hats, water and sun cream in the summer heat. Perhaps hot and sunny weather would not be the best conditions in terms of risk after all!

What is the risk? What action can I take?

Finally, pupils were asked to consolidate their thinking about risk associated with the field trip into a table, thinking not only about the risk itself, but also of any action they could take to help lessen that risk (Figure 3). They put forward lots of ideas around how to lessen the risks, but the most common centred on listening to and following instructions from the teacher. Other ideas included ensuring they were dressed for the weather conditions and selecting the shortest route with

the safest places to cross the road at a time of day when they expected less traffic. Interestingly, some pupils began to consider unexpected things they might encounter on the walk, such as temporary roadworks and how they would respond to these.

The day of the fieldwork

The day of the field trip arrived and it had to be rescheduled. An unexpected flurry of snow overnight led to treacherous conditions on the footpaths in the local area. One pupil was overheard saying as they arrived in the morning:

'I would rearrange the field trip because of the weather. The ice and snow means we are at risk of tripping and falling. It would be safer to wait for the snow to melt.'

This comment indicated that the pupils were completely invested in the logistics and safety of the fieldwork. Not only did they show a greater understanding of the need for rearranging, but they also became advocates for doing so. The risk had changed due to the weather conditions and action had to be taken to ensure safety.

Strategies for developing pupil understanding of risk in the field

- Walk the route to and from and visit the fieldwork site before completing your own risk assessment and prior to carrying out discussions and work on safety with pupils.
- Study a range of maps, including aerial images and OS maps, of the location for the fieldwork and look at the physical and human geographical features of the area.
- If fieldwork is in the local area, pupils can also consider the route taken to the fieldwork location as well as safety at the location itself.
- Pose a range of questions considering the impact these human and physical features have on expected risks.
- Annotate a map of the site highlighting specific features and the associated risks (e.g. crossing roads, bodies of open water, other users of the space).
- Develop thinking to consider if these risks could change for any reason, such as for weather conditions and the timing of fieldwork.
- Ask pupils to think about the risks they have identified and suggest actions they could take to help mitigate the risk. Collate these ideas in a table.

Reflections

Discussing and thinking about how risk is fluid, how it is constantly changing because of a multitude of factors, such as time, the presence of different features, the location and different weather conditions, had a positive impact on the pupils' engagement with the fieldwork and their locality. Arguably, this approach improved the pupils' behaviour on the day we carried out our fieldwork because they took ownership of how their actions could impact the risks to themselves and the group. In our case, both the understanding and thinking around safety and risk developed, with pupils taking their responsibilities seriously, thus providing an excellent foundation for the knowledge and skills they will need when planning fieldwork in secondary school.

Reference

Owens, P. (2017) 'Whose place is it anyway?' in Pickering, S. (ed) *Teaching Outdoors Creatively*. London: Routledge, pp. 42–58.



Web Resources

Digimap for Schools:
<https://digimapforschools.edina.ac.uk/>

Sophie Brack is class teacher and maths lead at Wheatfields Junior School, St Albans.

The Lost Rainforests of Britain

Guy Shrubsole

In this edited extract from his book, Guy describes the importance of British temperate rainforests and outlines how teachers can consider including rainforests in their units of study.

I didn't really believe that Britain was a rainforest nation until I moved to Devon. Visiting woods around the edge of Dartmoor, in lost valleys and steep-sided gorges I found places exuberant with life. I spotted branches dripping with mosses, festooned with lichens, liverworts and polypody ferns; plants growing on other plants.

Few people realise that Britain harbours fragments of a globally rare habitat: temperate rainforest. Rainforests aren't just confined to hot, tropical countries; they also exist in temperate climates. A temperate rainforest is a wood where it's wet and mild enough for plants to grow on other plants. Temperate rainforest is rarer than the tropical variety, covering just 1% of the world's surface.

The temperate rainforest 'biome', or set of ecosystems, is strung around the globe, in areas where oceanic currents bring warm winds and torrential downpours. Temperate rainforests exist along the Pacific north west coast of the USA and Canada, on the southern edge of Chile, in Japan and Korea, across Tasmania,

Australia, and New Zealand, and along the western seaboard of Europe – particularly the Atlantic fringes of the British Isles. In fact, Britain has some of the best climatic conditions for temperate rainforest in Europe.

During my research, I came across an astonishing map created by ecologist Christopher Ellis showing the 'bioclimatic zone' suitable for temperate rainforest in Britain – that is, the areas where it's warm and damp enough for such a habitat to thrive. This area covers approximately 4.5ha (11 million acres) of Britain (Figure 1), a staggering 20% of the country. The *entire* woodland cover of Britain today is just 13%, and much of that is regimented plantations of conifer, planted for timber. Over the millennia, we've destroyed our rainforests, so that now only tiny fragments and relics remain (Figure 2).

Experiencing a British rainforest

My first and abiding memory of visiting one of Britain's rainforests is how lush and green it all was. All woods are green in summer, of course: but our rainforests are green all year round due to the plethora of mosses and lichens clinging to their branches. Even when the leaves have fallen from the trees, they glow with verdant luminosity. I remember the earthy smell of fungus and leaf mould, the distant roar of a river in spate, the drip-drip of falling rain. A visit to a rainforest feels to me like going

into a cathedral. Sunlight streams through the stained-glass windows of translucent leaves, picking out the arches of tree trunks with their haloes of moss. They are places that at once teem with life, and yet have a sepulchral stillness to them.

What really marks out a temperate rainforest is not the dominant species of tree, but rather the other plants growing on them. Epiphytes – plants that grow on other plants – are a key indicator of rainforest. Epiphytic plants are not parasites; they simply use the trees as scaffolding, and soak up nutrients from the rain and dampness surrounding them. In Britain, the most common epiphytes are lichens, bryophytes – a grouping that includes both mosses and liverworts – and ferns. The more lichens, mosses and ferns you can see growing on the branches or trunks of trees, the more likely it is that you're standing in a rainforest, as Figures 3 and 4 demonstrate.

Britain's rainforests are truly the pinnacle of our country's woodlands. Not only are they extraordinary places to experience, they are also treasure-troves of biodiversity: home to globally significant populations of rare species of lichens and mosses, birds and mammals. And the carbon that our rainforest trees are busily soaking up – not just in their trunks but also via the epiphytic plants that festoon their branches – make them some of our best allies in the fight against the climate crisis.

Ghost woods

'Today's European rainforests are mere fragments,' writes ecologist Dominick DellaSala: 'A reminder of a bygone age when rainforests flourished, they are barely hanging on as contemporary rainforest relicts' (2011, p. 154). The ecologist Ian Rotherham (2013) has coined the term 'ghost woods' to describe landscapes emptied of trees.

In some parts of the country, the spectral presence of these ghost woods are still discernible by 'indicator species' of certain plants, such as bluebells and bracken. There's an old saying amongst hill farmers – 'under bracken, there's gold' – which speaks to the richer, deeper soils that lie beneath bracken stands and may be a remnant of former forest floors. Wood pasture can be another good indicator. This savannah-like landscape, where occasional lone trees survive amidst grasslands grazed by sheep and cattle, can point to what was once denser woodland.

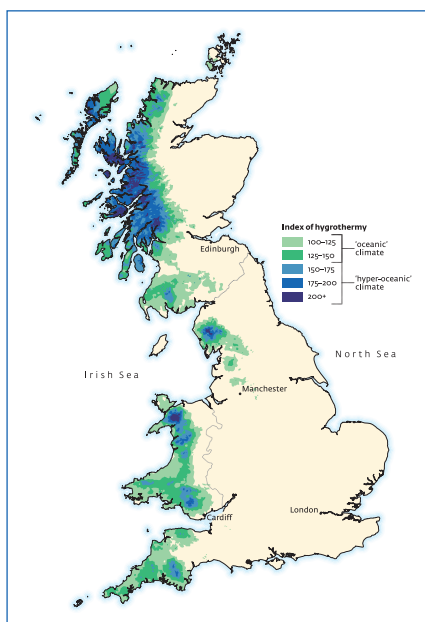


Figure 1: Britain's temperate rainforest zone. Source: Shrubsole (2022).

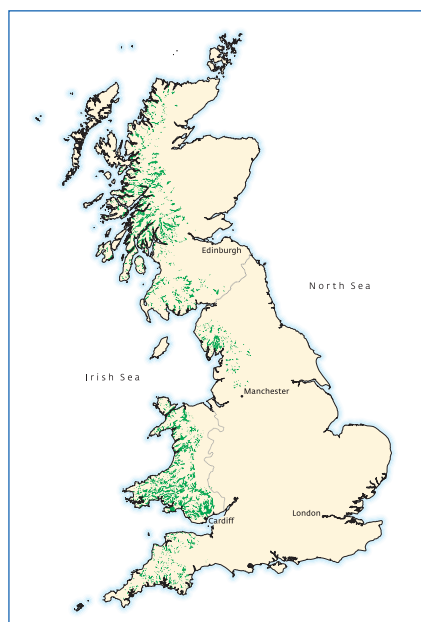


Figure 2: Britain's rainforest fragments Source: Shrubsole (2022).



Figure 3: Oak tree, Dart Valley, Devon. Source: Shrubsole (2022).

It's even possible to make out the ghosts of lost woods in old names and on maps.

But Rotherham's search for ghost woods isn't intended merely to mourn what's departed, rather to resurrect what survives. As Rotherham writes (2013, p. 1), 'The ghosts are there in moors, heaths and grasslands, from extensive grazed "woods" to tiny pockets of roadside verge. You only have to look'.

Wistman's Wood: a roadmap for recovery?

Wistman's Wood in the Dartmoor National Park has frequently been described as 'primeval throwback', left over from the last Ice Age; still surviving, but lacking vitality. In truth, Wistman's Wood is not a moribund relic at all – it is a living, growing, regenerating rainforest. The wood is a National Nature Reserve, listed on the UK government's website. The entry casually records, 'the woodland area doubling in size in the last 100 years' (Natural England, 2024). Yet no explanation is given for this astonishing fact.

In 1980, Molly Spooner, her husband Malcolm, and Michael Proctor compared dozens of old photos of Wistman's Wood taken in the late 19th century with images from 100 years later (Proctor *et al.*, 1908). The differences are startling. Pictures side-by-side show trees, once dwarfed and shrunken in Victorian times, now tall and luxuriant with new growth. A panorama of the whole wood from the early 1900s shows yet more starkly what has happened since: Wistman's Wood has run wild, spreading down towards the River Dart and clambering up the hillside towards the summit.

Why had Wistman's Wood put on such vigorous growth? One factor may have been a changing climate. Between the late medieval period and mid-19th century, Europe was in the grip of the 'Little Ice Age' – a period of regional cooling. Yet, there was also another culprit, with a decidedly sheepish appearance. Sheep, with their sharp front teeth, will readily devour saplings and prevent the regeneration of a wood. Cattle will also happily browse the low-hanging branches of trees. A reduction



Figure 4: Wistman's Wood on Dartmoor. © Tom Williams. Source: Shrubsole (2022).

in the number of livestock grazing in and around Wistman's Wood during the 19th and early 20th centuries could well account for the wood's remarkable resurrection.

Sheep are also the prime suspects for why the wood has ceased regenerating in recent decades. A study by Mountford *et al.* (2001) revisiting earlier findings found that, after 1965, young saplings 'had almost broken free of check by browsing, but they have since been eaten back due to increased grazing'. Despite having made a remarkable recovery, Wistman's Wood is now back in the intensive care ward.

Despite this, our rainforests are not irrevocably lost. Fragments survive and, in some places of Britain, rainforests still thrive. Far from being dying relics from some bygone era, our rainforests are living ecosystems – growing, regenerating and spreading, whenever they are given half a chance.

Bringing British rainforests into your classroom

There are lots of opportunities to bring temperate rainforests into your school's units of study. As Simon Collis suggests here, these include:

- **Compare temperate with tropical rainforests:** what do the two ecosystems have in common? How are they different? Can you identify a plant or animal that temperate and tropical rainforests support that is adapted for the environment in a similar way? For example, compare a bromeliad in a tropical rainforest with a polypody fern in a temperate rainforest.
- **Research epiphytes:** how do epiphytes get the water and nutrients that they need?
- **Identify interdependence in the rainforest:** how does the jay help to preserve the rainforest? Pupils create a food web to identify how different species of plants and animals are interdependent on one another.
- **Identifying common threats:** how are tropical and temperate rainforests under threat? Ask pupils to create a plan to help preserve either type of rainforest.

Educating the next generation is a vital part of safeguarding these valuable ecosystems before they are irrevocably lost forever.

Guy Shrubsole is an environmental campaigner and the author of *The Lost Rainforests of Britain*, *Who Owns England?* and *The Lie of the Land*.

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Web Resources

Lost Rainforests of Britain:
<https://lostrainforestsofbritain.org/>

THE PRIMARY GEOGRAPHY

Interview

Elijah Richardson

We were delighted to have the opportunity to talk to 11-year-old Elijah, the youngest ever CoralWatch Ambassador and Tangaroa Blue Ambassador, about his experiences and work to help to monitor and protect the health of coral reefs around the world through education and outreach.

What sparked your interest in the Great Barrier Reef and marine life?

I live at the southern end of the Great Barrier Reef in Australia and the fact that it's such a biodiverse place really sparked my interest. It's so incredible what you can see... loads of coral and amazing marine life. It's pretty much a never-ending garden under the ocean with mesmerizing creatures living in it. When I was younger, I did a community snorkel with an organization called CoralWatch and I think that was a big part of what sparked my interest because it showed me more of the marine life that is out there and more of the marine life that needs protecting. The CoralWatch Ambassadors that I met that day were really knowledgeable and enthusiastic about ocean life. That day was memorable to me because I had never seen so much marine life before. After that I wanted to learn more so that I could help that marine life.

Have you got a favourite encounter with the Reef or the ocean?

I must say that is one of the hardest questions I've actually ever been asked. There's lots of different ones! Heron Island is one of my favourite places to go – it's a coral cay that's part of the Southern Great Barrier Reef in Queensland, Australia. One of my favourite encounters was when I was snorkelling within an arm's reach of a lemon shark. Lemon sharks get their name because of the colour of their skin, which helps them blend into their sandy tropical habitat. Overfishing is the primary threat to lemon sharks, which is a shame because sharks are a key species to keeping



Elijah with a strawberry hermit crab on Lady Elliott Island. Photo © Kerry Richardson.

the ocean ecosystem in balance. I can understand why people are scared of them but you just need to have an experience with them and then you learn their true beauty and pretty much most of them are gentle giants. I am super excited that we are going to Heron Island again in 2024 because I will get to experience swimming with turtles, sharks and eagle rays again. Another favourite encounter that I had was that we went to Lady Elliott Island once and, boy, that was a real big trip because there was so much life, birds were everywhere, you couldn't look one way without seeing a bird. I also saw my first ever manta ray there while I was snorkelling on the reef. This was so special because you don't get to see manta rays very often and I feel very lucky that I did because I know some people don't ever get to see them.

Tell me about your role as CoralWatch Ambassador.

As a CoralWatch Ambassador I try to educate people to understand the importance of the reef, why they should protect it and what they can do to help. We also do monitoring with the CoralWatch health charts and then we put the data that we collect into a database. You monitor the coral's health with the CoralWatch health chart by matching colours of the coral with the colours on the chart. You record the lightest and darkest colours of the coral (not including the tips because that's new growth) and the type of coral. This can help scientists get an overall understanding of the health of reefs all around the world. This data is available on the CoralWatch website for anyone to see (see web resources).

As an Ambassador, I've also gone to talk to different groups and different schools to share their work. In my presentations I talk about the CoralWatch organisation and what they do, what coral is, the threats to the reef and I also give tips on how people can help the reef from home (even if you don't live anywhere near a reef). I tell people what I have done and continue to do to help the reef, in the hope that it inspires others to do the same. I really just want to inspire as many people as I can.

Where have you visited as a result of being a CoralWatch Ambassador?

I've been to Heron Island twice, once to do the CoralWatch Ambassador workshop for 4 days and another time to help as an ambassador at a Queensland University Alumni event on Heron Island. I've also been to Lady Elliott Island and Stradbroke Island. I helped tidy and clean up the research station, I gave a presentation, I helped on the CoralWatch stall and gave a reef walk tour to the Chancellor of the University. I've also been to Brisbane and Gladstone World Science Festivals as an Ambassador on the CoralWatch stall talking to the public about coral, ocean life, marine debris and ways that we can all help protect the environment.



The joy of personal encounters with wildlife.



Monitoring the health of the reef.

Many of our readers are teachers halfway across the world. What do you think they could be saying or doing in their classrooms to bring the Great Barrier Reef to life?

Teach the kids what the Great Barrier Reef is, how and why they should help. Tell them that they could even do just one thing and that could make a difference. For example, use less plastic, don't throw your rubbish on the floor, or go and do a beach clean. I teach people that small changes can have big benefits. If people don't know about it, how are they going to know to protect it? Watch documentaries, read books, show them pictures, teach them the connections between different animals, play games that teach them about the Great Barrier Reef and maybe do some art like make a diorama.

How can children get involved in protecting the Great Barrier Reef?

First you have to teach what the Great Barrier Reef is and why it's important because people don't usually want to protect what they don't understand.



Spreading the word. All photos © Kerry Richardson.

Get kids to understand that we are all capable of helping. Even small ways count! On the CoralWatch website there is a list of things we can all do to Save Reefs from Home. This also shows that you don't even need to live near the Great Barrier Reef to help and make a difference.

What role does the ocean or nature play in your wellbeing?

I always have a good time near the ocean or playing in nature, it makes me feel relaxed, a way to zone out and go into my own little world with the creatures that I find. For me, it makes me feel happy and grounded like I can zone out of any worries I have.

What would you like to achieve next/is your ambition for the future?

That's quite a tricky question. Obviously I'd like to continue to educate people and one way I'm trying to consider doing that is trying to make documentaries about the reef so people can see the reef and I can teach people why it's important, how it's being affected and how people can help. But no matter what, I'm going to carry on educating people, in particular kids because kids are the future. It's going to be us kids that grow up and then we can make the choices. That's why I think we need to teach the next generation the right things and then can help this planet be a better place.



Web Resources

CoralWatch: <https://coralwatch.org>
 CoralWatch Interactive Maps of Coral Health: <https://coralwatch.org/maps/>
 CoralWatch Threats and Solutions (wherever you live) to the Great Barrier Reef https://coralwatch.org/wp-content/uploads/2023/11/2019_double-sided-factsheet-10-biggest-solutions-and-GBR.pdf
 CoralWatch What you can do to save the reefs from home <https://coralwatch.org/ambassadors/save-reefs-from-home/>

Every day, climate change and environmental pressures take a toll on irreplaceable coral ecosystems like The Great Barrier Reef, one of just seven Natural Wonders of the World. Established in 2002, CoralWatch is a citizen science program based at The University of Queensland. Ambassadors and volunteers work to monitor and protect the health of coral reefs around the world through education and outreach.

How can schools become more sustainable?

Alison Lasenby

After outlining why schools are a key target for decarbonisation, Alison provides ideas for how primary geography teachers can take climate action with their pupils.

The need for climate action is becoming more urgent, and schools have a pivotal role to play in it. Schools across the UK produce an estimated 10.2 million tonnes of carbon dioxide every year (Count Your Carbon, 2024), which is equivalent to 36% of all public sector emissions. This presents a huge opportunity for schools to reduce the impact of their carbon emissions. As schools are sites where positive environmental behaviours and attitudes can be shaped, and with 42% of UK households having school-aged children, there are also significant opportunities to influence the wider community (ONS, 2022).

Working towards 'zero carbon'

Teachers can help to foster environmental consciousness among pupils and, in doing so, drive their school on its journey to 'zero carbon'. Geography teachers are especially well placed to educate pupils on climate change and sustainability. The interdisciplinary nature of such work enables teachers to build a solid foundation from which pupils can begin to understand the various causes and impacts of, and potential solutions to, climate change. Studying geography fosters a global perspective as pupils investigate Earth's processes and human-environment interactions and geography-focused fieldwork allows pupils to observe environmental changes first-hand.

Decarbonising UK schools is not the sole responsibility of teachers and school leaders: doing so requires a co-ordinated approach and significant support as well as funding from government for teachers. For instance, the 'Let's Go Zero' campaign – launched in response to the pupil climate strikes – aims to demonstrate to the UK government that there is a growing demand for action and that it must support schools to be more sustainable.

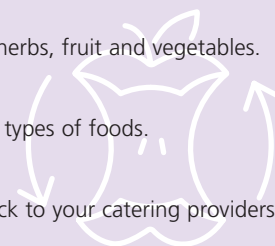
Waste

- Introduce waste reduction programmes in your classrooms.
- Choose a recycling monitor to make sure waste is placed in the correct bins.
- Use scrap paper or digital resources where possible.
- Devise a strategy for banning single-use plastics from your classroom.
- Involve pupils in a waste audit.
- Weigh food waste from the school canteen and challenge pupils to throw away less.
- Install compost bins in the playground and dining areas.
- Run an 'Eco-refill' shop and consider ways to advertise it.
- Set up a uniform swap shop.



Food

- Set up a school garden and involve pupils in growing herbs, fruit and vegetables.
- Encourage pupils to grow seedlings in window boxes.
- Educate pupils about the carbon footprint of different types of foods.
- Introduce a meat-free day in the school canteen.
- Collect pupils' views on school meals and feed this back to your catering providers.
- Compost all food waste.



Curriculum

- Integrate sustainability across all subject areas.
- Incorporate real-world examples, case studies and hands-on activities to bring sustainability to life for pupils.
- Explore sustainability from multiple perspectives, linking concepts across different subject areas.



Energy

- Run a 'Switch it off' campaign.
- Check the meter readings at the beginning and end of the campaign and record how much energy you have saved.
- Create an Energy Taskforce involving pupils and teachers (and possibly other) school staff.
- Ask pupils to check that electrical equipment and lights are switched off at the end of every day.
- Hold 'no-' or 'low-' electricity days.
- Conduct a pupil-led audit to track the school's energy use.
- Install LED lighting and motion sensors.
- Introduce a classroom temperature policy of 19 degrees.
- Introduce department printing limits.
- Use your school's meter readings and energy data as part of your lessons.
- Switch to a renewable energy tariff.



Practical advice and resources

Here is a series of ideas, practical strategies and resources for primary geography teachers who want to encourage pupils to take climate action in their schools. It is a mix of easy actions and activities and behaviour change initiatives that teachers can employ quickly, alongside longer-term changes that require more effort and more input from school leaders and other teachers.

It can become part of your remit as a geography teacher to use your voice to advocate for certain policies and share tips with colleagues across all subject areas.

As decarbonising the UK school estate will need everyone from pupils to teachers and from businesses to government to take action, making your school more sustainable requires a whole-school effort.

The actions are split into eight pillars, making it easy for teachers to select specific areas of interest, or areas the

school is focused on improving. Resources and links to organisations offering support can be found on the Let's Go Zero website (see web resources).

Inspiring impacts

These activities allow teachers to adopt a key role to play in making their schools more sustainable and bringing down carbon emissions. As well as fostering the critical thinking and problem-solving skills that pupils need to tackle the climate crisis and raising awareness of its multi-dimensional nature, teachers can empower pupils to take action themselves. By introducing initiatives in the classroom and across the school teachers can instil positive environmental behaviours in pupils. Empowering them to act on sustainability can have a knock-on effect, with pupils taking the behaviours home to their families.

Besides modelling and encouraging positive sustainable behaviour changes among pupils, teachers can inspire them to act by advocating for school-wide policy change. Being inquisitive about your school's decision-making can help to bring about significant change. Exploit their 'pester power' – the more pupils there are pushing for school-wide sustainability the more effective it will be. Setting up an Eco-group or Energy Taskforce places pupils at the centre of the action and works to keep everyone across the school accountable.

Promoting your sustainability work is also incredibly important. Celebrate achievements no matter their size or extent, and make sure all departments know about it. Share news of your actions with the wider community via newsletters, social media, or the school website. Every small step is part of a larger, collective impact – never underestimate an individual's power to make a difference.

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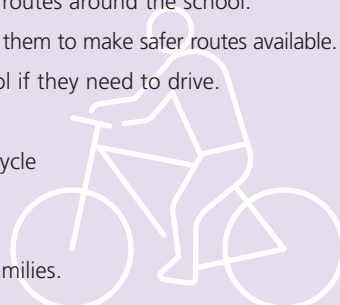
Web Resources

Count Your Carbon: <https://www.countyourcarbon.org/home/>
Let's Go Zero: <https://letsgozero.org/>

Having previously worked in education, Alison now works on the Let's Go Zero campaign.

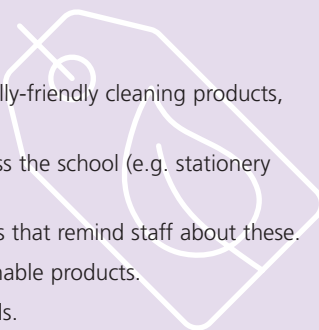
Transport

- Promote active travel schemes, e.g. biking, walking, scooting.
- Advocate for safe and accessible walking and bike routes around the school.
- Contact the local authority (pupils could write) asking them to make safer routes available.
- Encourage staff to cycle to work or create a carpool if they need to drive.
- Run inter-class active travel competitions.
- Reward the class with the most pupils who walk, cycle or scoot to school with extra playtime.
- Increase bike storage on the school site.
- Run bike safety and maintenance workshops for families.
- Switch to electric buses.
- Introduce a 'park and stride' scheme around the school.



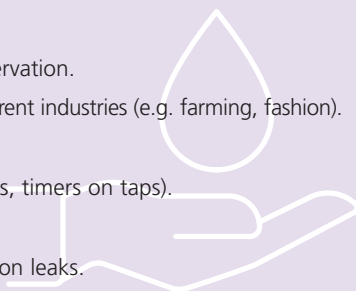
Procurement

- Advocate for sustainable procurement policies.
- Put the policies into practice, e.g. buy environmentally-friendly cleaning products, minimise single-use plastic, support fair trade.
- Encourage the reuse and recycling of materials across the school (e.g. stationery supplies, canteen crockery and cutlery).
- Enlist the help of your Eco-team in producing posters that remind staff about these.
- Correspond with school suppliers about their sustainable products.
- Promote informed consumer behaviour among pupils.



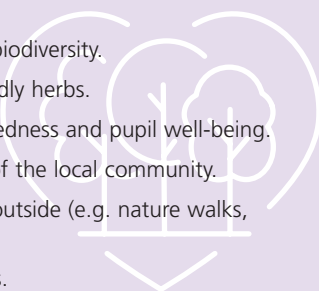
Water

- Raise awareness about the need for water conservation.
- Investigate the impact on water supplies from different industries (e.g. farming, fashion).
- Conduct a water audit around your school.
- Install water-saving devices (e.g. low-flow faucets, timers on taps).
- Harvest rainwater using water butts.
- Appoint a water monitor to look for and report on leaks.



Nature

- Set up a gardening club.
- Rewild unused spaces on your grounds to increase biodiversity.
- Plant wildflowers, native species and pollinator-friendly herbs.
- Create a sensory garden to improve nature-connectedness and pupil well-being.
- Organise a tree planting day and involve members of the local community.
- Generate curriculum opportunities for pupils to go outside (e.g. nature walks, habitat monitoring, wildlife observation).
- Install bug hotels, bird houses and hedgehog homes.
- Plant hedgerows around the school site to increase biodiversity.



Walking with chalk stream magic

Helen Clarke and Sharon Witt

Helen and Sharon explain how their 'Whispers of Chalk Stream' project has helped them to think with a chalk stream about ephemeral and fleeting geographical learning possibilities.

Special places

Bishop's Sutton in Hampshire is a special place (see web panel). Springs rising in a water meadow form the headwaters of the River Arle (Figure 1), which flows as a beautiful, intermittent winterbourne to the mighty River Itchen and 40km (25 miles) downstream it joins the Solent from Southampton Water. This chalk stream gives life, whispers stories and builds relationships as it threads through this 'upstream' village. We believe that chalk streams conjure magic, which enchants our thinking. We have much to learn if we are willing to listen to the whispers of the Arle.

Precious biomes

There are only 210 chalk streams across the world, with 160 of those in England. These biomes are special, precious, scarce (Stubbington *et al.*, 2022) and worthy of geographical study as part of a water or rivers themed unit of study. The cool, well-oxygenated and nutrient-rich waters support an exceptionally high number of species (Figure 2), and these globally-rare habitats are often likened to 'England's rainforest'. We are, of course, entangled in these rich, watery stories.

Dynamic ephemeral spaces

Winterbourne streams (Figure 3) are dynamic and constantly shifting places (HIWWT – see web panel). Like many landscape terms, the name 'winterbourne' gives clues to the feature's origin and behaviour. 'Bourne' comes from the Anglo-Saxon word for a stream flowing from a spring. While 'Winterbourne' – derived from Old English – denotes a winter stream that may run dry during the summer months. Winterbournes generally occur in areas of chalk geology. When it rains the porous chalk holds water as an aquifer (underground well), releasing it as a steady flow through the year. However, during dry periods the water table may fall below the level of the stream bed, causing it to dry out for several months in late summer.



Figure 1: Walking-with chalk stream magic: the River Arle in Hampshire. Photo © Sharon Witt.



Figure 2: Chalk streams: precious biomes. Photo © Sharon Witt.



Figure 3: Winterbournes are dynamic ephemeral spaces. Photo © Sharon Witt.

River health: global stories

Water quality and river well-being are national and global issues of current public concern. The Rivers Trust's *State of Rivers Report* identifies that not a single waterway in England and Northern Ireland is 'in good overall health' (see web panel). The health, and thus ability, of chalk streams to flourish is threatened by a wide range of human activities, which implicate us all and call for thoughtful reflection and urgent action.

Learning with chalk streams

In our walking and learnings with chalk streams, our relationship to place is shaped by local stories borne out of embodied

and sensory encounters (Somerville, 2010). In this type of geographical field-visiting we are 'joining with and moving with the fluxes and flows of the world' (Ingold, 2010, p. 97). In these environments field-visiting practices are open to spontaneity, improvisation and different ways of knowing. *Learning with the world*, rather than *learning about the world* (Clarke and Witt, 2023) as a place-learner entanglement has pedagogical significance. For us, walking with chalk streams has raised interesting thinking and set in motion thoughts about key concepts, including:

- time: from millions of years to moments
- fleetingness: happenings out of the corner of your eye (hiddenness)
- wakefulness: a spellbound attunement with the world.

Learning with scores

'Scores are open-ended instructions or propositions that ignite the potential for future action' (Springgay – see web panel). Geographical scores recognise that places are dynamic and mediate learning encounters for pupils. Scores require specific planning – always with space for openness to real-time events as they happen – and in recognition of fleeting moments as the world calls us to action. The following scores are organised in this way:

- geographical knowledge – the curricular concepts and terms
- potential (ephemeral) invitations and affordances – through which pupils might come to know the world in multiple ways
- response-ableness – through which pupils might come into relation with the world
- our reflections – on geographical knowing as deep understanding.

We offer these scores and their reflections as provocations that you can adapt to your own context and landscape. How will these thoughts help you explore your fieldwork places?

It is not always easy to form new relationships with places. Our local winterbourne challenged our notions of time, dynamic processes, fleeting encounters and wakefulness. We found abundance and restrictions. We were spellbound by beauty and shocked by harshness.

Chalk score 1: Being with watery worlds

Water behaves in multiple ways. These are often evident only for a fleeting moment depending on the local conditions. Water pools, swirls, bubbles, runs, evaporates, flows, erodes, transports, deposits, sustains ...

Affordance

Catching a fleeting moment: 'There is always something happening in a puddle.'



Ephemeral invitations

What's happening here now?
How have you met water today?
Where does water collect in the locality?
Notice water worlds, e.g. puddles.
Looking up: Can you see atmospheric rivers in the sky? What are clouds doing today? What shapes are in the clouds?
Looking down: What do 'puddle worlds' hold?
– see web resources
Looking along: How is chalk stream flowing today?
What's happening under the surface?

Response-ableness: attending, drawing, dialoguing, wondering, imagining

Reflections: Walking with chalk stream prompted us to reflect on the dynamic winterbourne landscape, where the ebb and flow of the headwaters, variations in slow and fast flow, migrations of aquatic and terrestrial beings bring the unpredictability of life into focus. Complex concepts such as time and change are sometimes visible only for a moment. We should pay attention to these happenings and grasp them as pedagogical possibilities.

Chalk score 2: Mark making with water

Water flow is complex. As it moves water changes speed and direction. Surface patterns reveal movement and processes.

Affordance

Stuart McLellan's hydroglyphs (see web panel) showing transient water patterns and processes.



Ephemeral invitations

Sitting with stream, attune to the energies of water's flow and notice...
What's happening here now?
What are the water patterns telling us – in their ripples, currents and eddies?
What does the movement of a leaf or stick, carried by the water, reveal about flow?
What interactions are there between water and rock, soil, channel, weed, and obstacles?
How does the stream respond to unpredictable and volatile weather events – what is it like after a sudden rainstorm?

Response-ableness: following, making marks, connecting surface patterns with water happenings

Reflections: Drawing with chalk stream prompted us to appreciate how small patterns on the chalk stream reveal complex flows and processes in the water. For example, the water level revealed water table, the weed level affects flow patterns, the stream works with gradient and sediment. Close observation, selective in focus, is a powerful way of coming to know.

Chalk score 3: Window through time

Water carries history, legacies, and inheritances of human activity. Human activity affects waterways through pollution, abstraction, diversion of channels and flow.

Affordance

River monitoring – time reveals legacies



Ephemeral invitations

What's happening here now?
What are the gifts of the chalk aquifer?
What am I curious about?
What's under the surface?
What's really going on?
What's gone on in the past?
What's just coming to the surface?
How am I implicated?
How healthy is our river?
What can I do?
How can we enquire beyond headlines?
In what ways are we part of the story?
How might we change the story?
What will be our legacy?

Response-ableness: critical thinking, dialoguing, map making, surveying, enquiring, asking questions, writing poetry, journaling, engaging in community artwork

Reflections: Thinking with chalk stream prompted us to reflect on learnings and knowings about time. The gin-clear waters hide difficulties, some of them historical legacies, often hidden in plain sight. We need to be wakeful to the river within us, our entanglement with waterways and future flourishing for all

We noticed stability and also experienced change.

Planning fieldwork is not always straightforward. How can you plan rigidly when the world is full of transient and fleeting moments? How do you leave space for spontaneity and improvisation? Pause, be still, tune in, watch out, be patient, be gentle, focus, be curious, glance from the corner of your eye... the world is trying to catch your attention.

References

- Clarke, H. and Witt, S. (2022) 'Field-visiting: paying attention to a more-than-human world' in Biddulph, M., Catling, S., Hammond, L. and McKendrick, J. (eds) *Children, Education, and Geography: Rethinking intersections*. Routledge: Abingdon, chapter 14.
- Ingold, T. (2010) 'The textility of making', *Cambridge Journal of Economics*, 34, pp. 91–102.
- Stubbington, R., Gething, K.J. and Sykes, T. (2022) 'Chalk streams: why "England's rainforests" are so rare and precious', *The Conversation*, 2 January.



Web Resources

- Ruth Broadbent's Puddle Worlds: <https://ruthbroadbent.com/portfolio/puddle-world/>
- Canva – Sophie Brack – books on the teaching of rivers and the water cycle: <https://www.canva.com/design/DAFsuE6Pyy4Iavy9MoyxmEgB1Ib5v1yZEg/edit>
- HIWWT 'Watercress and winterbournes': <https://www.hiwwt.org.uk/watercress-and-winterbournes>
- Stuart McLellan's Hydroglyphs: https://stumclellan.substack.com/?utm_source=substack&utm_medium=web&utm_campaign=substack_profile
- Rivers Trust – State of Our Rivers Report: <https://theriverstrust.org/rivers-report-2024>
- Springgary on Scores: <https://www.biennaleofsydney.art/wp-content/uploads/2021/11/StephanieSpringgary.pdf>
- Bishop's Sutton PC 'Whispers of Chalk Stream': <https://www.bishopssuttonhants.org.uk/copy-of-introduction-1>
- Whispers of Chalk Stream blog posts: <https://attention2place.blogspot.com/>

Dr Helen Clarke and Dr Sharon Witt have many years' experience as primary teachers and university lecturers, and currently work as an independent scholars, researchers and consultants @Attention2Place.

Changing landscapes, changing attitudes

Gordon MacLellan

Here, Gordon describes how he used maps in the form of talk, poetry and music with KS2 pupils in Buxton's woodlands to explore people's fluid relationships with places.

Changing maps

How do we chart the changing patterns of our relationships with landscapes? We might write a history, create a chart or draw a map. We might see a map as a 'story' with its patterns holding a treasury of tales. When we look at maps of the same place at different times, we can trace the fortunes of villages or farms or towns, or follow the ups and downs of different trading routes, or the fates of estates. Maps hold stories of people and places and describe how we live in those spaces.

But maps are more than this. They are commentaries on how we look at and think about the world around us. The maps we use reflect the information we need to know about a place. They may be geographically precise – showing details such as roads, contours or geologies, or they may be vernacular – more personal and less precise.

On older maps the fine detail will have charted a community's sense of belonging: names of fields, tracks, individual trees, wells and ponds – which are now lost. Looking at maps produced over time can remind us of our changing relationships with landscapes. In theory, what we see on maps is what we need to know at the time the map was drawn up. When we start thinking about how we relate to a landscape emotionally, the idea of a 'map' can evolve into other things.

Our connections to places

A lot of my work as a storyteller deals with the sense of how people perceive the places around them. My role is often to help people explore a sense of connection to the places where they live, work and play. In our explorations we might use stories, sculpture, a lantern parade or some other celebration, and, with my background as an ecologist, the precisions of science. Often, the maps we create during these sessions are emotional ones that describe the fluidity of people and places through poems, stories and processions. They may be charts drawn on paper, but they are just as likely to be spoken, or sung, or danced.

Encountering Buxton's local woodlands

Over the last couple of years, I have worked on projects about the woodlands of my home town of Buxton in Derbyshire. Managed by the Buxton Civic Association (see web panel), these woodlands are both

an amazing asset for the town and an invaluable resource for recreation as well as wildlife. They are mapped, of course. There are management maps, recreational maps, wildlife distribution maps, and much more – all of which lay out different understandings of the woodlands.

Working with mostly key stage 2 pupils, however, revealed a world of difference between adults' and children's understanding of the woodlands around them. The pupils talked, drew pictures (Figure 1) and some made lists (see Figure 2). However, we wanted to look at other ways of encountering local woodlands. The pupils talked to local residents, asking where they go in the woods, why they go and what they notice about this environment. The results were interesting and suggested a much greater use of the woodlands than we had realised, but residents' comments were, on the whole, rather predictable.

This was a powerful reminder that pupils should be allowed to see the world in their own way and that we as teachers should remember to listen to them.



Figure 1: The pupils' pictures revealed their personal understanding of the woodlands around them.

'Building dens.'

'Building dens that didn't get destroyed.'

'Finding swings (usually made by older children).'

'Having picnics.'

'Trees to climb.'

'Slides (mud, sand or ice).'

'Strange.../spooky.../sinister places.'

'Hiding in.'

'Riding my bike really fast.'

'Watching rabbits.'

'Sometimes seeing foxes and hearing owls.'

'Making dams in streams.'

'Not being found.'

'Places grown-ups didn't know about.'

Figure 2: This list of KS2 pupils' use of local woodlands in Buxton indicates the variety they associate with these places.

For this project, pupils were not encouraged to draw maps as lines on paper, instead their maps were stories told by people of the places they knew well. My work with local schools was exciting. It revealed geographies that we adults can easily miss. Pupils suggested assessing the local woodlands in terms of, for example, whether the holes in tree trunks are the ideal size for a child to squeeze into, and which slopes beneath beech trees would be make a swing hung from their branches especially terrifying to use.

We explored the fluidity of the relationships that grow and shift between people and places. The activities set out to encourage pupil conversation: to promote discussion that has, perhaps inevitably, led to more heated debates about how some people feel woodlands should be used (including just walking, no cycling, no dens, dogs always on leads, no dogs at all). The sessions also challenged the pupils to reflect on how their feelings about places had changed, especially over the last few years: initially when our movements were restricted through COVID-19 lockdowns and, more recently, with fuel costs rising, people are now using their immediate environments more and paying more attention to the resources around them.

In Buxton, these relationships are changing again as residents realise that they have amazing, free, exciting and beautiful resources within an easy walking distance. The changes in attitudes here are about not taking our landscape for granted, appreciating what it offers and then having in-depth discussions about the appropriate and not-so-appropriate use of places.

There were gentler emotional responses throughout when pupils collected comments from visitors to the woodlands in response to questions such as: what do these woods mean to you? We also reversed the questions and invited people to consider what the woodlands might have thought of them. What would the trees say? Buxton's woodlands (like so many others) have been infected by Ash dieback and we see old, often landmark, trees, dying or being felled before their branches begin to drop onto paths. For most people, the understanding that woodlands are vulnerable to subtler dangers than forest fires and full-scale assault with chainsaws, is new and this promotes other changes. As pupils came to understand, our landscapes are not safe and there are dangers that we cannot legislate against, or buy our way out of with a fundraising campaign. As landscapes change so people's knowledge of just how much they value the places they walk, live and play also alters.

Pupil outputs

The visitor comments gathered by pupils became lines in their poems, visitors' doodles became the leaves on robes and patterns in lantern crowns. Our woodland thoughts led to the creation of two poems (Figures 3 and 4). Not quite a conversation, but an exchange, perhaps, between visitors and woodland: an exchange that became the soundtrack for two 4m-tall puppets, filmed dancing through a beech glade to the sound of a solitary saxophone.

These poems, this music and verbal drawings of special trees are maps. They offer little in the way of precise geographies, but they tell stories of adventures and change – and love.

We are the trees
Who shed slim grey
dresses
For coats of green and
brown and lichen,
Who comb the air,
Who dance in the wind,
Who grow hope from
seedlings.
...
We are the trees
Who dread the wind.
We are the trees,
Where the spores settle,
Where the fungus
spreads,
Where the fingers wither,
Where the bark splits,
Where branches break.
We are the trees
holding onto hope
In seeds and seedlings,
In long breaths held and
Hearts clenched against
the dread.
We are the trees who
grow the keys of hope.

Figure 3: Extract from 'We are the trees'.

We are the people
Who made the swings
Who built tree houses
Who fought with sticks
Who made the bows
Who fired the arrows
Who fought the dragons
Who camped in the
shade
And toasted
marshmallows on an
ash-wood fire.

....
We are the people
Who walked
Who wondered
Who laughed
Who talked
Who held hands
Who strolled
Who held their hearts
and loves and hopes
under Ash trees.

Figure 4: Extract from the poem: 'We are the people'.

Web Resources

Download Mouse's journey activity:
<https://portal.geography.org.uk/journal/index/pg>
Buxton Civic Association woodlands:
<https://buxtoncivicasociation.org.uk/woodlands/>
Creeping Toad:
<https://creepingtoad.com/>
Creeping Toad blog:
<https://creepingtoad.com/blog/>

Better known as Creeping Toad (email: creepingtoad@btinternet.com), Gordon MacLellan is a self-employed storyteller, author and artist who uses creativity to encourage people to explore their relationships with the world. Based in Buxton, Derbyshire, Gordon works both in the UK and overseas, and has lived and worked in Malawi.

‘Look at that!’ Using pupil-led photography to document change

Y3/4 pupils at Emmaus Catholic and C of E Primary with Simon Collis

Simon took his Y3/4 class for a fieldtrip visit to identify the changes currently taking place in Sheffield city centre, using photography to document change on the journey there.

Sheffield city centre is currently undergoing a huge £470 million redevelopment called Heart of the City II (BBC News 2018). In the long term, this will lead to a significant change in land use and urban regeneration, but for the pupils' current lived experience, it means cranes tangling the skyline and the brisk tattoo

of pneumatic drills. This offers an excellent opportunity to talk about how land can be used differently over time and how buildings can change their purpose.

Before setting off on the 1 ½ mile journey to the city centre, we talked about different kinds of change: human or natural, long-term or short-term.



The house on the left has more of a modern style. They are joined together and there is a community centre.



A gardener has chosen the plants on the left but the right side has been left wild.



The clouds are moving fast, so they can change directions easily. When you move, the clouds move with you. The change is happening now.



We took this picture because this tree loses its leaves in winter and looks different throughout the year.



This is the library but it used to be a factory- you can tell by the big chimney. It's also used as a food bank and a café.



These flats [Park Hill Flats] have been remade. You used to be able to rent them but now you have to buy them.



You can see how the flats used to look in the background.



The building was made in 1997 but the Tesco came in 2023. I want to know what it was before.



We took a picture of this because the cranes are building something new in the city centre and it will look different in the future.



There is the huge crane in the background and the cabins in the middle. The buildings have been here for a long time but some things are different from the last time I came into town.



This building is still changing because they have kept the old front cover and smashed the back of the building to replace it with something new. They have given it a new sense of life.

The pupils shared our class iPad on the walk and chose what to photograph, discussing why they had decided on that composition. When we returned back to school, pupils had copies of the photographs and wrote captions to accompany them.

Foregrounding change

Without being explicitly asked when completing this activity, pupils identified change that reached back to make links and comparisons with the past, while also reaching forward into the future.

They also identified change within the moment – an experience of place that is fleeting or intangible. Foregrounding change within the landscape demanded that pupils explore not just the relationship between place and time, but also their relationship with their environment as active observers (Stratford *et al.*, 2020).

References

BBC News (2018) *Sheffield Heart Of The City II redevelopment plan unveiled*. Available at:

<https://www.bbc.co.uk/news/uk-england-south-yorkshire-43371915>
Stratford, E., Waitt, G. and Harada, T. (2020) Walking city streets: spatial qualities, spatial justice, and democratising impulses, *Transactions of the Institute of British Geographers*, 45, 1, pp. 123–38

Simon Collis is Assistant Head teacher at Emmaus Catholic and C of E Primary School in Sheffield. He is also a member of the *Primary Geography* Editorial Board.

Fluid identities: what do we mean by 'safe spaces'?

Kit Marie Rackley and Alice Hoy

How can we focus on the most fluid identities in a safe and geographical way? Here, Kit and Alice draw on the personal and local scales of a school community to provide examples of the ways we can explore LGBTQIA+ identities.

Nothing embraces and explores fluidity quite like geography. Tracking the fluidity of motions – the atmosphere, a river, of people. Discovering the fluidity of time – in rocks, on evolution, of seasons. The fluidity of geography is perhaps easier to see at grand scales, but may not be so obvious at the smallest – personal – scale. Fluidity in human geography is real and valid, be it how we change as individuals through time, how we move spatially, or how we (and others) perceive personal identities.

What do we mean by 'space'?

Space (see Glossary) is a fundamental concept in human geography and is one children may recognise without even realising. Spaces can evoke so many emotions and are integral in shaping a child; indeed, children themselves create spaces in which they feel happy, sad, angry, relaxed. Moreover, these spaces can range in scale from the desk they sit at to the classroom and widen further to encompass their school.

What makes a 'safe' space?

A 'safe space' can be thought of as one where you can exist without fear or prejudice. Yet this can mean different things to different people. As mentioned above, pupils may view school as safe, and creating such spaces within a learning environment is shown to have a positive impact on academic performance (Stonewall, 2017).

At the start of their secondary schooling, year 7 students were introduced to this concept of space, then they were asked to describe what space meant to them on a personal scale. Given the timing of this activity these students' responses were heavily influenced by their experiences at primary school, as the examples shown in Figure 1 indicate.

Figure 1 notes that LGBTQIA+ people might want to go to 'a kind and supportive place', which we will explore later in this

Glossary

Cisgender: a person whose gender identity corresponds with the sex registered for them at birth.

Hetero- or cis-normative: operating on the assumption that heterosexual and cisgender binary identities are the norm and privileging them over other forms of identity.

LGBTQIA+: stands for lesbian, gay, bisexual, trans, queer, intersex, asexual and + includes anything that does not fit the heteronormative binary.

Queer: an all-encompassing term used for (and often by) those who do not conform to specific labels regarding romantic or sexual orientation (Stonewall, 2023).

Space: a geographical concept that focuses on spatial patterns: flows (e.g. transport), inequalities (e.g. distribution of wealth), representations (e.g. maps) and digital (e.g. social networking) realms (Roberts, 2023, p. 82).

happy space - comfortable, makes you feel at home, has home comforts
very calm and kind people/respectful people.
Sad space - uncomfortable, rude people, loud, don't enjoy,
hard to concentrate and without personal items.
Safe spaces - calm, kind people, supportive people, relaxing,
quiet. Old people would want to be with their grandkids or kids.
challenge - people who are blind might want a guard
dog. LGBTQ people might want to go a kind/supportive place.

Figure 1: Y7 students' descriptions of what space meant to them on a personal scale were heavily influenced by their experiences at primary school.

A Safe Place is a place where you feel safe and away from harm. A safe place is a place
made to feel like you are protected from harm.

Figure 2: The Y7 students' responses also indicated the importance of safe spaces.

article. Stonewall's report (2017) states that 47% of students are bullied as a result of their identity. In Figure 2 the student states that 'a safe space is one where you are protected from harm'.

Often students find it easier to illustrate the ideas they want to communicate than describing them in words. The same task shown in Figure 2 was proposed as a homework task and the student used illustration to describe what a safe space meant to them as a LGBTQIA+ person. In Figure 3 you can see that having their identity recognised is important to this student through the representation of flags on their wall.

Thoughtfully and carefully creating a safe space for one group of pupils will almost certainly create a safe space for others. Research is emerging that there is

substantial overlap between autism and gender diversity, for instance, and is likely to be the case with other neurodivergent traits (Dattaro, 2020).



Figure 3: One Y7 student's illustrated response.

Enquiry-based approaches

Activities that link exploration of the personal scale (as seen above) to the local scale make for an inclusive and healthily curious curriculum. This in turn helps to consolidate a safe learning environment. Enquiry-based approaches are, arguably, best suited for this. You can tailor the following activities to suit your setting.

Exploring personal and lived experiences: 'Queering the Map'

'Queering the Map' is a unique and powerful website that allows anonymous LGBTQIA+ voices to lay bare their thoughts and feelings. With this in mind, the resource itself is not age-appropriate for primary pupils to access themselves, but provides a wealth of personal perspectives that you as teacher can select from and adapt as necessary.

In preparation, visit the 'Queering the Map' website and zoom into your school's catchment area. In urban areas there are more entries for you to choose from, whereas with rural areas you may need to expand the map beyond your local area. Select six or so short quotes or sentences from longer entries that you are comfortable using verbatim or adapt to make them age-appropriate. If you are not sure, select entries that focus on a sense of safety or belonging. Note what kind of geographical environment each entry was made in.

With pupils, explore what they think makes different spaces and places safer than others. For example:

- Why might green spaces be popular places to go and meet friends?
- What makes parks and open spaces more safe than built-up areas?
- If you could pick a place in our local area, such as [the environments on your list] that makes you feel happiest, which would it be and why?
- Which of these places do you think you are more likely to meet people like yourself?

KS1/2 geography	Activities/focus
Locational knowledge: name, locate and identify characteristics of the four countries and capital cities of the UK	Same-sex families, gender as a spectrum, family life, etc., can be explored using simplified data about London and another (chosen) area from the UK Census.
Place knowledge: geographical similarities and differences through studying the human geography of a small area of the UK	Adapt the enquiry examples above.
Geography skills and fieldwork: use fieldwork and observational skills to study... the key human features of the surrounding environments	Walk around the local area identifying any services/spaces that are useful for LGBTQIA+ groups or individuals (e.g. youth groups). Practise mapping skills using the UK Census map.

Figure 5: Aspects of KS1/2 National Curriculum geography that can be explored with regards to social interactions and family units.

While the above questions may not directly reference LGBTQIA+ identities, they do allow pupils to discuss what might make a 'safe space' in the local area. You could expand the discussion to exploring why people with certain identities feel particular spaces are safer for them more than others.

Exploring Census data

For the first time in its 200-year history, the 2021 UK Census included questions about sexual and gender identities. Not only is this vital for addressing representation gaps and allocating resources effectively, but it also gives validity and visibility to those groups on a national scale (Rackley, 2021).

Download an enquiry suitable for use with KS2 pupils (see web resources). Useful prior subject knowledge for your pupils would include LGBTQIA+ identities (PSHE), choropleth mapping (maths and geography) and what the UK Census is.

Making the classroom a safe space

All pupils need to be seen and represented in the classroom and creating a safe space will make sure they feel included. Often heteronormative language creates barriers within a classroom because pupils can feel misrepresented. Examples of changes from everyday to inclusive language usage within the classroom are shown in Figure 4. Language is really powerful and these small changes can make such a big difference. Exploring different family roles and genders can also make pupils feel seen. Importantly, teachers should be given tools to direct their pupils to employ inclusive language.

Everyday language	Inclusive language
boys/girls	class/pupils/team
Mother/Father	parents
guys	everyone/folks
husband/wife/boyfriend/girlfriend	partner

Figure 4: Replacing heteronormative language with inclusive language.

In the same vein, a discussion with secondary school students about their experiences of primary school revealed what considerations should be taken when planning any KS1 and KS2 syllabus.

- 'Do not assume students' or their families' gender or sexuality.'
- 'Give examples of different types of family structures.'
- 'Give people the space to be who they want to be.'
- 'Consequences for bullying in schools.'

Opportunities in KS1 and KS2 geography that can be explored with regards to social interactions and family units are shown in Figure 5.

Summary

By fostering environments where LGBTQIA+ pupils can thrive without fear or prejudice, teachers can play a crucial role in enhancing their academic success and well-being. Through ongoing efforts to create inclusive classrooms, teachers can contribute to a more equitable and supportive educational experience for all pupils.

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Web Resources

Download Census activity: <https://portal.geography.org.uk/journal/index/pg>

Queering the Map: <https://www.queeringthemap.com>

Kit Marie Rackley (she/they) is a freelance consultant to the Geographical Association and the National Association of School-Based Teacher Trainers. **Alice Hoy (she/her)** is a geography teacher in south London and has been working with the Geographical Association to strive towards a more inclusive curriculum.

Threshold concepts in primary geography

Ben Steel

Here, Ben explains how teachers can help pupils pass through 'threshold concepts' – ideas that completely change their outlook on the world.

The importance of concepts in geography has been widely documented. The aim of a geographical enquiry is that it enables conceptual understanding (Roberts, 2013). In essence, concepts are the abstract ideas that tie together all later knowledge and skills that pupils acquire in the subject. These concepts transcend units of work, and teachers might not even mention them to pupils during lessons. However, every enquiry is developing these concepts little by little over time (Burns, 2020). For the purpose of this article, I am referring to concepts not just as the 'big ideas' in geography, but also smaller, yet significant, nuggets of understanding, which may help a pupil journey into these wider landscapes of learning.

After teaching for a number of years and taking my school pupils on numerous trips to North Wales on fieldtrips, I remember buying a fieldwork guide to Cwm Idwal, a beautiful and classic glaciated corrie. It mentioned in the guide that the corrie lake itself was slowly but surely being filled in by outwash from streams and rockfall and someday in the distant future the corrie lake may be no more. I did not realise this, and found it difficult to come to terms that the landscape I had viewed as a permanent and fixed feature, in many years' time, may no longer be there. I was subconsciously aware of change but perhaps from a curriculum-shackled point of view in relation to my teaching. The pupils needed to understand the processes that created the glacial corrie (when the last ice age started approximately 100,000 years ago), which had focused my teaching and my understanding. But I had never applied this concept to what I regarded as permanent features. At that moment my thinking and understanding had moved through a doorway, I had travelled through the space of liminality (the space of learning) and would never think in the same way again. I was now in a new landscape of thinking and understanding. Change has happened but long-term change is continuing.

Our learning is mapped by barriers or thresholds – locked doorways – that prevent us from extending our understanding. Some concepts are very powerful (but, I would argue, could be quite simple) and understanding these new things can take us into a new landscape of learning.

What are threshold concepts?

Meyer and Land (2003) describe threshold concepts as portals that 'open up a new and previously inaccessible way of thinking about something'. These are the points at which pupils tend to become stuck, and if they remain stuck, will not be able to progress further in their understanding. The portals open up new ways of thinking about something. Identifying these concepts is an enormous help in planning a good curriculum, sound teaching, understanding learning and assessment (Figure 1).

Liminality

The word 'liminality' originates from ethnographical work by Turner (1969)

into social rituals and rites of passage, from the Latin *limen*, meaning boundary or threshold. The idea that a threshold concept is defined as a portal or doorway is perhaps oversimplistic: we cross it, and we immediately have new understanding and ways of thinking.

Alternatively, once a threshold concept is crossed there is a liminal transitional space or time in our learning within which our new understanding and changes in our thinking takes place. When a Year 6 pupil transitions to secondary school, they cross a threshold. In the first term of Year 7, they are in a liminal state where they are adjusting to new ways of thinking, learning, rules, routines and changing behaviours. New understanding takes time, can be challenging and may require reflection and rethinking of new and existing knowledge.

So, threshold concepts can be viewed as paths, tunnels or extended clearings through a forest or narrow valley (Figure 2). They meander in and out of the liminal space as the pupil questions and comes to grips with new understanding.

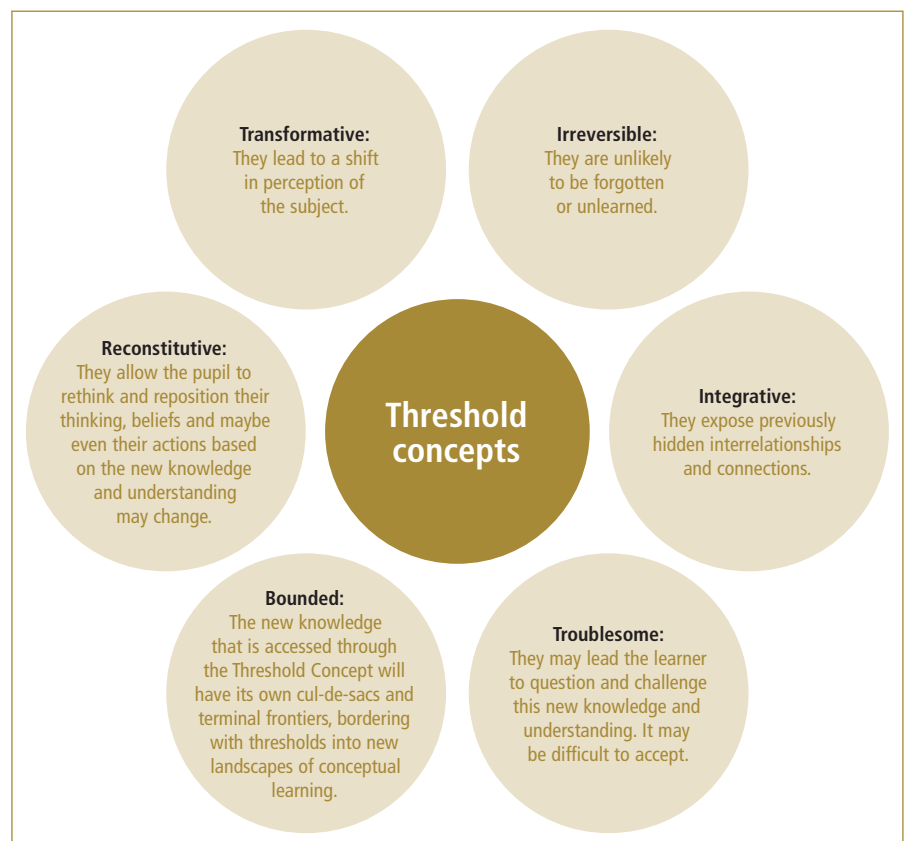


Figure 1: The six defining features of threshold concepts. Source: Meyer and Land (2005).

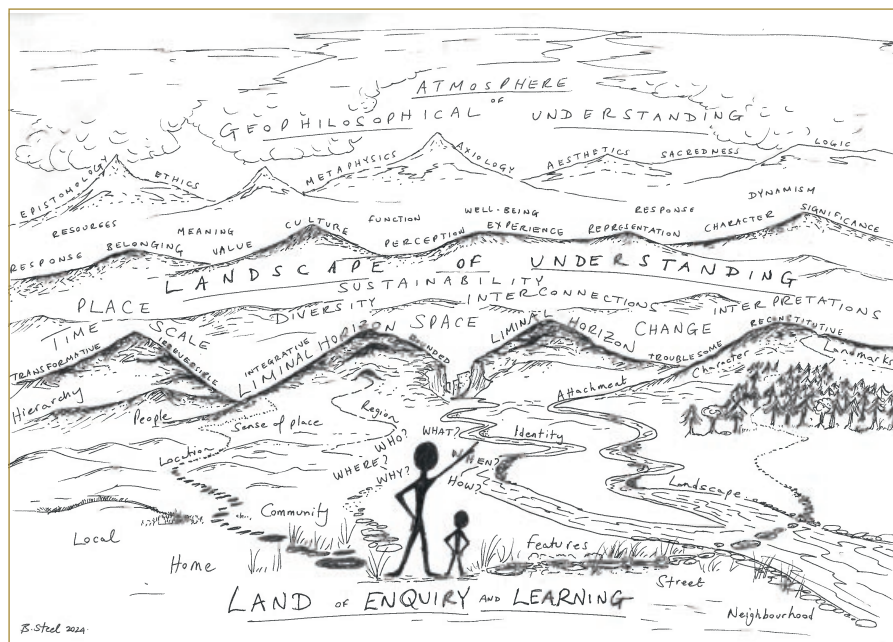


Figure 2: An illustrative picture demonstrating threshold concepts. After Cannell, 2023.

Cannell (2023) articulately discusses concepts in primary education and how building on concepts (e.g. of place) through multiple layers of understanding can help build a deeper understanding of the concept. This takes time and can involve questioning, challenging and revising knowledge. This is the liminal journey through the threshold.

Different people have different threshold concepts at different times

Threshold concepts are personal, context driven and age specific. We will all encounter individual threshold concepts at different times and through different learning experiences in our lives. Our liminal journeys will vary. As Cannell (2003) discusses, primary pupils have limited experience of the world in terms of the first-hand 'lived geographies' that they have accumulated from secondary sources. This is an amazing and powerful opportunity to fire up lightbulbs of learning and unlock geographical knowledge.

Applying threshold concepts to geography: settlement location and rivers

Rivers are more than just a blue line on a map. Many settlement sites originate on, take their names from, have developed, changed, are influenced by and continue to depend on their river. For example, Lancaster: Roman fort (*castrum*) on the River Lune (*Lon*). The River Lune 'mouths' into Morecambe Bay, it gave access to world trade (in sugar and, tragically, slaves), attracts waterside housing development, occasionally floods the city (in February 2020, for instance) and the downstream Lune receives the treated sewage of the city.

Transformative

Rivers are often one of the reasons why places are located where they are. Rivers are a water supply, crossing or defence point, a waterway, a route to the oceans and world, they add or detract value to property, are barriers and features of beauty and danger.

Irreversible

Place names have geographical and historical meaning. For example, Manchester: the Roman fort on the breast-shaped hill (*Mam*) (see also Cambridge and Doncaster).

Integrative

River-settlement relationships link physical, human and economic geographies, they are local features and have global links

Troublesome

River response in a place is a function of many intertwined human and physical factors, including what it is like and is happening many kilometres upstream in its catchment as well as antecedent conditions.

Bounded

Rivers are fluid, they can be straightened, dammed, canalised, sold, diverted, culverted, paved over into streets and diverted into aqueducts. Who owns and has rights to a river? Consider the River Nile, the Sudan and Egypt and the newly-completed Ethiopian Grand Renaissance Dam. Because waters flow, they are always different and, in that sense, one cannot step into the same river twice. When one puts one's feet into a river again one encounters different waters, different sediments, twigs, fish, insects, and so on (Klaver, 2018).

Reconstitutive

Should I reconsider my use of and disposal of water, how I value, respect and view the importance of this river and place?

Summary

Whether threshold concepts do exist in geography according to the six defining features is debatable. However, what is certain is that learning is a journey which involves negotiating barriers. Some independent travellers can overcome these obstacles on their own; however, many need a map, directions and good shoes. Therefore, the adventurous primary teacher has a crucial role to play in not just identifying and equipping pupils to cross these thresholds, but also to bravely direct their pupils towards them.

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Ben Steel is a Senior Lecturer in Education at Manchester Metropolitan University.

Investigating fluidity: life alongside death in Victorian cemeteries

Meghan Tipping

In this article, Meghan explores how outdoor education in a cemetery can allow teachers to approach the complexity of the cycle of life, death and regeneration.

From the 1970s many Victorian cemeteries across Britain began to experience neglect as local councils could no longer support their upkeep. Fortunately, community groups with the determination and passion for these sites have campaigned for their revival. This article shows how Victorian cemeteries have become places of fluidity: important both for their human heritage value and for the biodiversity they contain – and offer unique educational spaces for pupils to explore.

Victorian cemeteries provide ideal spaces for discussions around complex concepts such as life and death, remembrance and regeneration. They are great sites for geographical study linked to the natural environment or to the built heritage.

Sheffield General Cemetery

Sheffield General Cemetery (SGC website – see web resources), opened in 1836, was designed in a ‘gardenesque’ style with serpentine paths that enabled the living to accompany the dead to their last resting place. The Cemetery was popular both as a place of burial and a space to visit. The site is the final resting place of over 86,000 people, with burials taking place between 1836 and 1978, in two distinct areas: an Anglican area to the east and the original Nonconformist area to the west. However, following the Second World War, the site was neglected and a wild landscape took root.

In 1979, an Act of Parliament was passed to remove SGC’s consecrated status and transfer ownership of the land to Sheffield City Council. Because of the Act, 7800 headstones from the Anglican area were removed, with remains left undisturbed, to create a much-needed open green space on the edge of the city centre. Over the years, litter was removed, overgrown vegetation managed and the site made safe for public access. Large

sections of the Cemetery were fenced off with rough palings and allowed to thrive as undisturbed ecological habitats. This human intervention has helped distinguish the Cemetery as Grade II* on the National Register of Parks and Gardens (see web panel).

In SGC people’s heritage and nature intersect, offering pupils opportunities to explore different human aspects of the Cemetery including life and death in Sheffield in the 19th and 20th centuries, and its natural environment including the Porter Brook and the multitude of wildlife on site.

The resources designed for use by pupils in Sheffield General Cemetery (see web resources) are flexible and provide the teacher with the subject knowledge to prepare for a visit. Activities can be carried out with close supervision or as pupil-led investigations. Teachers can adapt the online resources to suit the stories and ecosystems found of your local cemetery.

A space for wildlife

SGC is both a refuge and a stepping stone for wildlife living close to the heart of the city (see science, SGC website). Depending on the time of year you visit the Cemetery, you will encounter different species: native bluebells and wild garlic in the woodland area in spring, butterflies (such as speckled wood and holly blue) in summer, fungi in autumn and birds such as robins and blue tits all year round; after dark foxes come out and myriad bats fly around catching insects.

Bats and other wildlife in the Cemetery

Three species of bat are regularly seen in the Cemetery: common pipistrelle, noctule and daubentons. All UK bats are nocturnal predators, feeding on midges, moths and other flying insects (see BCT in web resources). Bats are also a food source for other predators such as owls. Of the three, the common pipistrelle is the smallest bat and the noctule is the largest. Bats are vulnerable to the clearance of trees and woods, which reduces the suitability of the habitat.

Pupils can investigate the different types of animals, insects, birds and plants

that inhabit the Cemetery and consider the question: how are the lives of different species interconnected? How might we illustrate these links? They could create a food web in an open space in the Cemetery using photos or silhouettes of different animals, birds, insects, plants, and so on, linking them together using pieces of string. Discuss such questions as how does the food web operate? if one species disappears from the Cemetery, what affect would it have on other species?

Trees in the Cemetery

Using a map of the site and Cemetery tree spotter guides (additional images and criteria are provided to support teachers) provided, walk around the Cemetery. At each designated stop, ask pupils to identify a tree species. There are goat willow, ash, oak, yew, small-leaved lime, sycamore, holly and horse chestnut trees (Figure 1). Once pupils are familiar with identifying species of trees, they could carry out further investigations. For example, count how many of each type there are in the Cemetery and present their findings as a bar graph or pictogram. Alternatively, pupils could create their own map of the site and plot where specific trees are located. They should include a key with symbols indicating the different species. KS2 pupils could practise using 4- and 6-figure grid references to locate trees.

Ecosystems in the Cemetery

Pupils design and create their own cemetery park. Before they map out the design on paper, discuss such questions as: what would you need to include in your cemetery park to create an ideal ecosystem? What trees, flowers or fungi would you include? What type of creature would you want to create a home for? Which habitats are best for foxes/bats/birds? Think about the conditions you would need to create to make the best habitat for a particular creature.

A space for people

The educational resources provided for use within SGC encourage dialogue to support primary pupils in understanding complex ideas, including the tension

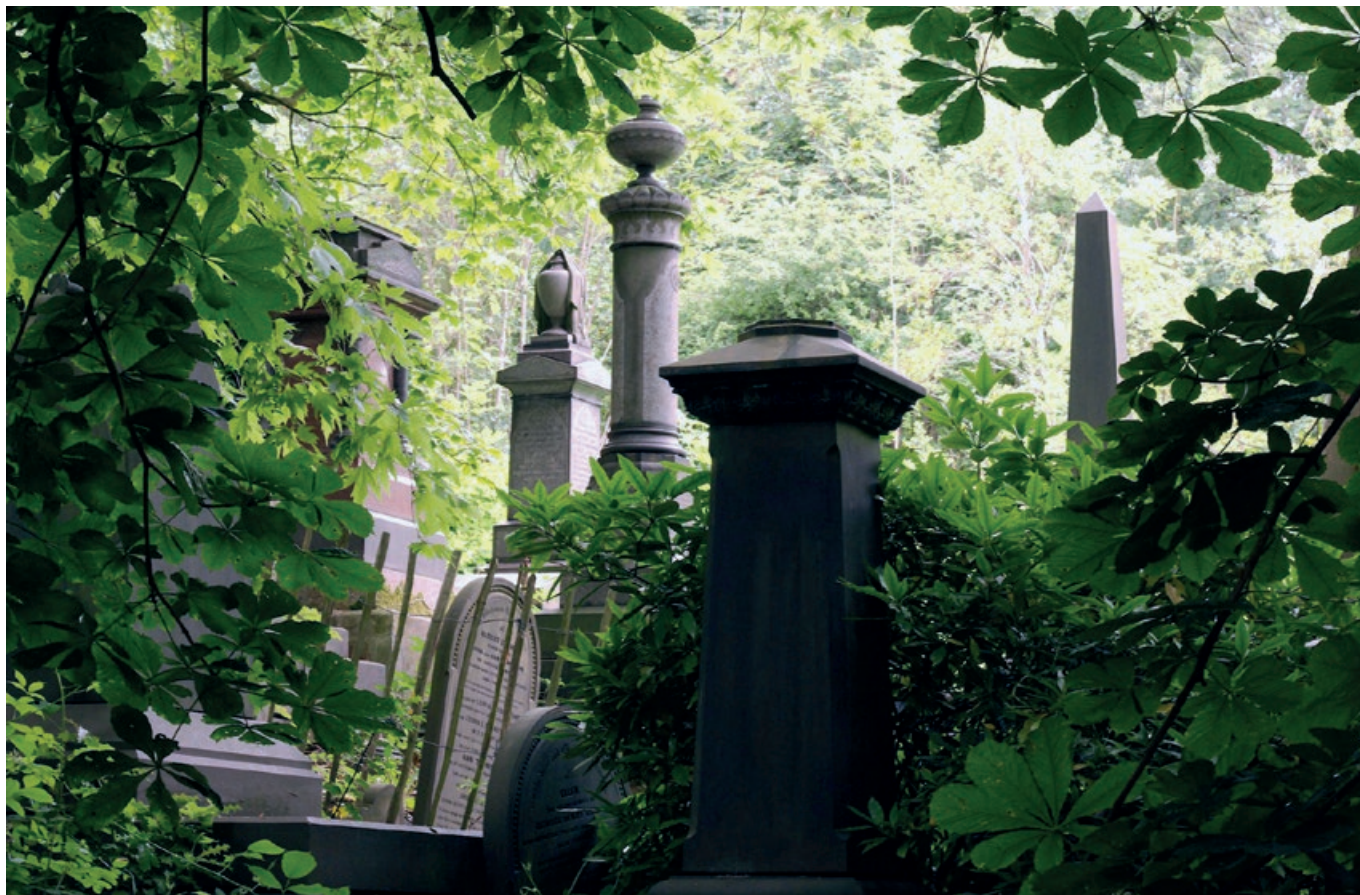


Figure 1: The Cemetery's trees can provide the focus for many different investigations. Photo CC-BY-2.0 Delaina Haslam.

between humans and nature, life and death. How often in the classroom can you talk about life and death? In the Cemetery (as the Burial Research Team at SGC has discovered) the headstones convey the stories of past generations to today's visitors and the setting effectively removes barriers to discussions relating to life and death. Where there is any confusion or uncertainty around what happens when we die, this can be dealt with sensitively through an enquiry investigation in the Cemetery.

Focusing on a key question can enable pupils to explore the concepts of death, fear and war thoughtfully. Within the Cemetery, there are opportunities to identify and investigate real-life stories from the First World War and the Great Sheffield Flood of 1864 – from what is inscribed on a single headstone to more in-depth archival research about the people buried there.

Can you ever be prepared for war?

Pupils explore the headstones of individuals who fought in or contributed to the First World War (see 'War Stories', SGC website). They then write a letter or a postcard from that person's perspective describing their experiences through their senses: what can they see? What can they hear? What can they feel? What can they smell? What can they taste? What information would they have wanted to share with people back home?

Could a great flood happen in Sheffield again?

Introduce the Great Sheffield Flood of 1864 (see geography, SGC website) and discuss the effects it had on the inhabitants. With your pupils, create a 'leaky dam'. First they should gather natural materials suitable for building a dam (e.g. sticks, leaves, dirt, small stones, moss). Then, inside a box or container, use these materials to divide the box into two sides: one side to be kept dry and the other side to hold the water back. Encourage pupils to think about layering the different materials to construct the dam. (Tip: press the dirt up against the sticks.) Test the dam by pouring water in one side. Do the natural materials hold back the water? If water escapes/seeps through, invite pupils to take a closer look, asking: where are the gaps? What could you do differently? How might you adapt your design to avoid another flood?

A space for educational opportunities

Sheffield's General Cemetery is an example of a fluid environment: the cemetery was originally laid out and used for burials, then deconsecrated and became an urban park, it was then partly neglected and a haven for wildlife, and finally, maintained by community groups and volunteers. The List of Registered Cemeteries by Historic

England (see web panel) is a great place to start exploring the possibilities of a cemetery near you. It is important to find out whether the cemetery you hope to visit is active or not. If the cemetery is still active, you will need to contact the offices to find out whether a school visit is suitable.



Web Resources

Bat Conservation Trust: <https://www.bats.org.uk/about-bats/what-are-bats/uk-bats>

Historic England – registered cemeteries list: <https://historicengland.org.uk/images-books/publications/list-of-registered-cemeteries/registered-cemeteries-list-jan18/>

Rooted in Talk: <https://rootedintalk.com/>

SGC education resources:

<https://gencem.org/education/>

SGC geography: <https://gencem.org/education/geography-resources/>

SGC science: <https://gencem.org/education/science-resources/>

At the time of writing, Meghan Tipping was the Activity and Engagement Officer at Sheffield General Cemetery, Sheffield City Council. Her website, 'Rooted in Talk' encourages projects with dialogue at their heart.

Geography for Everyone

Denise Freeman

As President of the Geographical Association 2023–24, Denise explains how the theme of her presidency – Geography for Everyone – evolved as it shaped the year and provided the focus for the GA's Annual Conference 2024.

Bonnet (2008) argued that the ambition of geography is 'absurdly vast'. For me, geography is 'wonderfully vast' – a notion that lies at the heart of the theme for my presidential year. It was a chance to *celebrate* the rich diversity of the discipline and to ask people to share their geographical passions. My theme – Geography for Everyone – had three parts to it:

- the boundless possibilities of geography
- personal geographies
- inclusive geographies.

The boundless possibilities of geography

Geography can be seen as a subject that takes on the world. Different specialisms sit beneath the umbrella of geographical study and many others have very strong connections with geography. Many people are, in my view, geographers, they just do not realise it. For example, I invited Joycelyn Longdon to give the public lecture at the 2024 Conference. Longdon is an astrophysicist who specialises in climate, the use of technology to monitor conservation and justice-led conservation. For me, her work informs many areas of geographical study, yet Longdon may not regard herself as a geographer.

A quick scan through recent issues of *Primary Geography* encapsulates this diversity perfectly: from kind geographies to using personal stories of place; from anti-racism to the use of images to connect with big ideas and geographical concepts. There is so much to capture the imaginations of the pupils we teach.

Personal geographies

We are all born geographers, exploring the space around us and attaching meaning to it. For Hammond *et al.* (2023, p. iii) 'the lives of children are inherently geographical'. This is exemplified by Mills *et al.* (2024) in their article on baby geographies. As babies and

toddlers our first explorations of the world shape our early geographical perspective and understanding. As teachers, we must offer opportunities for our pupils to explore and build up their personal geographies in order to learn about the world around them.

This idea is central to the second premise of my theme. As well as celebrating the rich diversity of our subject, I wanted to encourage people to consider the ways in which their lived experience has shaped their personal and professional journey. Bringing pupil geographies alive in the classroom is a passion of mine. I share Margaret Roberts' (2017) view that enabling pupils to make connections with everyday geographies opens the door to more powerful geographical learning.

Inclusive geographies

It is not uncommon to hear the claim that geography has something of an image problem (Garcia and Standish, 2020). This is something that so many educators from across the discipline are trying to address and are taking action to reshape school geography. The work of the GA's Decolonising Geography Group is just one example of this. Recent meetings of those who sit on the GA's Education Group have had a strong focus on inclusivity, with a desire to ensure we grow diverse volunteer groups. My hopes for the 2024 Conference were that it would include a range of geographical voices across all key stages.

Advocating for geography for everyone

My presidential year has been no exception for me to share my enthusiasm for pupils' geographies and my passion for school geography. I have looked for ways to include young people in my 'year of geography'. I headed out on a 'Presidential tour' visiting schools and universities and working with pupils and students across the UK. It was only with this tour underway that I realised how I was advocating for geography: a key strategic goal of the GA.

My tour had a strong focus on inclusion within geography and spans from EYFS to ITT. There is a strong emphasis upon growing young geographical leaders, with students from my school (Oaks Park High School, Redbridge) accompanying me and leading activities with me where possible. The students (years 9–13) have formed a 'geographical leadership team', which includes those from year groups who had missed out on fieldwork due to the COVID-

19 pandemic and, for those who needed it, additional support has been given through pupil premium funding. My travels have covered the West Country, Scotland and Liverpool. Closer to my school locality, we have worked with primary schools in Essex.

The tour has addressed two key areas of the recent Ofsted subject report for geography: fieldwork and geographical information systems (GIS). In each location, pupils have explored their surroundings through fieldwork and recorded their findings using ArcGIS *Survey 123* (Figure 1). Their engagement with the different landscapes visited has been recorded on a GIS map. Sharing the activity with host schools and institutions has also been a vehicle for advocating for geography.

Establishing links and connections with primary schools and primary geographers (children and adults) has been one of the most positive and rewarding aspects of my presidential year. Visiting High Ongar



Figure 1: Using Survey 123 to explore the grounds of High Ongar Primary School. Photo © Denise Freeman.



Figure 2: Year 12 students from local schools work collaboratively at the Climate Change Conference. Photo © Denise Freeman.

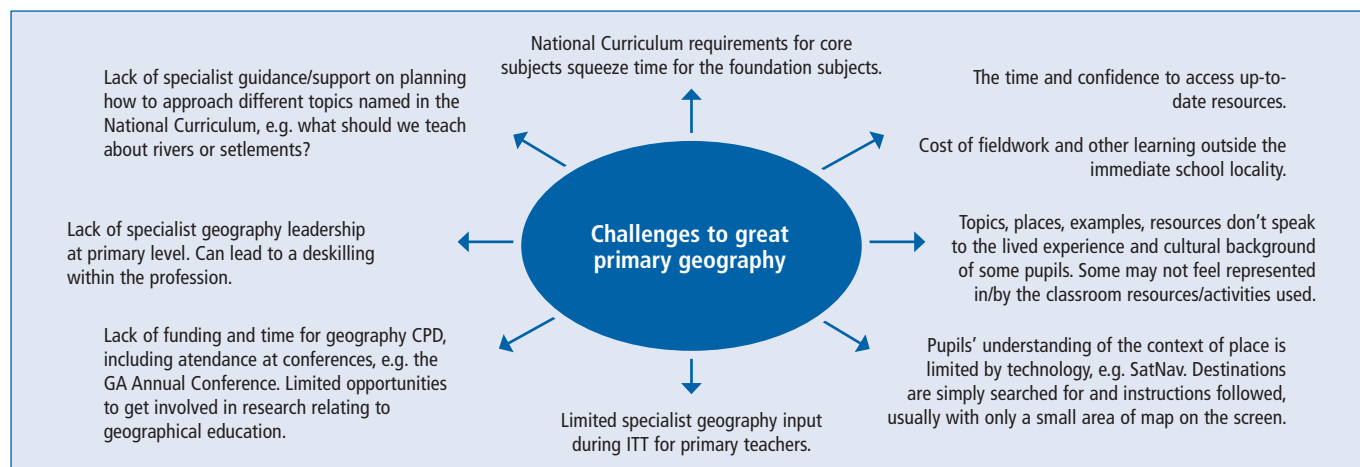


Figure 3: The challenges to high-quality primary geography raised by delegates at the Charney Manor Primary Geography Conference.

Primary School, Essex, with a group of geography student leaders from years 9, 10 and 13, was a wonderful experience.

In March Oaks Park High School hosted a Climate Change Conference for year 5 and 6 pupils from Downshall Primary School, Ilford, Essex. Again, collaboration was at the heart of the work; with representation from UCL and QMUL and support from our geography student leaders in years 10, 12 and 13. The primary pupils spent the afternoon exploring what a conference is, issues relating to climate change and hopeful ideas for action and change. Yet another success – as this comment from a Downshall PS pupil indicates:

‘I really enjoyed speaking to the older students and found it really beneficial because they asked us to explain our thinking as to why we thought certain continents were more responsible for climate change. They also tested our knowledge of climate change by giving us challenging questions to think more deeply about who is really affected by climate change.’ (Aiza, year 5 pupil)

During my tour, I discovered fertile grounds for fostering a passion for geography. I led an energetic day of continuing professional development (CPD) for subject leads who worked within a local academy trust. I plan to lead further geography fieldwork events with local schools. This work helps bring new geographical voices into the primary classroom and supports non-specialists to plan high-quality school geography. For me, geography has brought so many people together, it could be a future Conference theme.

What if geography is not for all?

There can be obstacles to providing high-quality geography for everyone in schools. I had the privilege to explore this topic with

primary geographers at the 2024 Charney Manor Conference. While conference delegates are strong advocates for their subject, they are also keenly aware of the challenges in geography that need to be overcome – some of which are outlined in Figure 3.

What I learned from my tour

This year has been a wonderful experience and a journey of personal and professional exploration, examples of which include:

- GA Annual Conference themes are not just for one year. We need to make connections between them. For example, collaboration has been at the heart of much of what I have been involved in and is also a past Conference theme.
- So much can be gained from the power of teacher collaboration and the work of volunteers, many of whom do so much for the GA and the wider geographical community.
- Similarly, there is potential for collaboration and learning between primary and secondary schools. As teachers, we need to harness this and take time to plan for it.
- The power of student leadership and autonomy because young people have much to offer and, while we know this, we often forget it. Giving young people the opportunity to lead on a project should not get lost because of the other pressures of everyday life in schools.
- We can learn from EYFS – this year I have gained much from exploring the work done with our youngest school geographers.
- I have become an advocate for using GIS in the classroom – something that everyone can (and we already) do – it is a case of time for planning and having the confidence to speak about GIS in the classroom.

- That we need time – this is nothing new.
- That I could take on the Presidential role and make success happen!

Thank you once again to everyone who has supported me this year and made Geography for Everyone such a great theme. I have made strong links with those in the primary geography community, which has been a real highlight of my year.

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Web Resources

ArcGIS Survey 123:
<https://survey123.arcgis.com/>

Denise Freeman is Quality of Teaching and Learning Co-ordinator at Oaks Park High School, Redbridge, and President of the Geographical Association, 2023–24.

Learning from PGQM Part 6: Developing your school's geography

Kate Glanville, Jen Lomas and Sharon Witt

In this, the sixth and final summary report from the PGQM research, Kate, Jen and Sharon make recommendations for the development of geography via reflection prompts for teachers.

This article responds to the finding in the Primary Geography Quality Mark (PGQM) research report (Catling *et al.*, 2022) by identifying key issues that have emerged of particular relevance to Headteachers and school leadership teams, geography subject leaders, primary geography teachers and pupils. It makes recommendations for school development of geography in

the curriculum via reflection prompts to support teachers as they consider their current and future provision (see web resources).

Background

The Geographical Association (GA) has a long history of supporting the classroom teacher in delivering high-quality

Issue	Prompts for primary geography SLs
Headteacher and Senior Leadership Team (SLT) backing is crucial to supporting the geography subject lead to enact plans and vision for primary geography curriculum within school	Does the Headteacher show an interest in your subject and support a broad and balanced curriculum? Is there a geography governor who shows an interest in your subject? Do you have regular review meetings with your Headteacher/SLT to update them on your action plan and vision for the future? Do you receive adequate time to develop primary geography? Do you have adequate funds to make changes to your curriculum? Do you have a wish list for your subject? Can you show that you spend your budget wisely? How can you keep the profile of geography high on your school's agenda? (For further details see Krause and Owens, 2023.)
Passionate and enthusiastic subject leadership and developing teacher expertise in geography is significant	Every primary teacher is a teacher of primary geography. What is your expertise? How do you keep yourself up-to-date with the latest subject developments? Do you have a clear vision for primary geography and a policy which is enacted in practice? How is expertise shared across the school? How are colleagues mentored and supported to further develop expertise? How do you monitor, audit and evaluate the geography provision across the school? Are you involved in building networks with other schools? Are you a member of the subject association (i.e. the GA) to gain advice, support and resources? Have you considered applying for the PGQM to audit your current provision and plan for the future? What is the story of geographical learning in your school? How do pupils experience continuity and progression between units of work and year groups? Can you build community links to support geographical learning? (For further detail see Glanville and Krause, 2023.)
Class teachers plan to build pupils' geographical knowledge and understanding.	What geographical topics are taught within a broad and balanced curriculum? How do you decide the sequence? How do teachers develop confidence in curriculum content for their year group? How is teacher knowledge and understanding developed? Do teachers use precise geographical terminology within their teaching? Are teachers encouraged to use their own personal everyday geographies within the curriculum? Do you use a range of enquiry skills and geographical concepts within your provision? How do teachers select their teaching approaches? How do you teach, practice and consolidate skills through a unit of study? Are there opportunities for enquiry skills and conceptual understanding to be revisited with increasing levels of complexity? In what way do you share multiple stories of people and places to avoid the limitations of a 'single story' (Adichie, 2009)? (For further detail, see Lomas and Rawlinson, 2024.)
Pupils have a key role as co-creators in the curriculum whose knowledge and geographical achievements are celebrated.	Do pupils' geographies matter in your setting? Are there opportunities for pupils to share their everyday geographies (journeys they make, places they visit, etc.)? How do you elicit pupil ideas? How do you plan and support next steps in their geographical learning? Do pupils within your setting have a chance to 'think like a geographer' through engaging in critical thinking, geographical enquiry and problem solving? Are pupils' views about geography sought and listened to? Do they have an opportunity to discuss local issues? Are there opportunities for genuine participation in safe and nurturing classroom spaces? What provision is made for pupils to pursue geography-related extra-curricular work? (For further detail see Owens and Witt, 2024.)

Figure 1: Emerging issues for schools aspiring to high-quality geography, and reflection prompts for primary geography SL.

geography for schools in its publications, journals and through CPD opportunities. Initiated in 2006, the PGQM is a self-assessment framework designed to help primary school subject leads (SL) to develop and evaluate strategies for improving geography by supporting their colleagues in the classroom.

Catling *et al.* (2023) provide an overview to the research background; they note that leadership in geography is the most significant and determining influence in providing a high-quality teaching and learning context and experience for pupils. The report – based on the PGQM (Catling *et al.*, 2022) – offers clear guidance on aspiring to high-quality primary geography. Four dynamics of leadership were identified:

- school leadership
- the geography SL in a school
- class teachers' leadership in geographical learning
- pupils' contributing leadership in their geographical education.

Figure 1 looks at these four areas, thus providing reflection opportunities to support developing primary geography. Column two shares reflection prompts for colleagues to consider within their own contexts.

Conclusion

The six articles that have appeared in *Primary Geography* have demonstrated how PGQM schools view geography as more than just knowledge acquisition. High-quality provision is about 'recognising and creating a balance between the energies of pupils, teacher and subject (Owens and Witt, 2024). Geography matters, and the prompts in Figure 1, which emerged from the report (Catling *et al.*, 2022) will support teachers as they audit and consider the development of their geography provision. Ofsted's 2023 *Getting Our Bearings* report suggests that schools need to further develop the teaching of place and fieldwork and consider further opportunities for

assessment as well as providing a rationale for curriculum decisions – all areas that are considered within the PGQM assessment structure.

Research into primary geography is limited, thus the *Aspiring to high quality primary geography* report (Catling *et al.*, 2022) makes a significant contribution in terms of the sample of 168 schools awarded the PGQM in 2015, 2017 and 2019.

The PGQM provides a framework to help school and subject leaders to identify and celebrate their geography curriculum strengths and successes while also identifying ways to continue to develop geography subject expertise for both teachers and their pupils. It is hoped that the lessons shared from this research will support teachers to critically question and develop their geographical provision and practices.

View a video on the PGQM on YouTube, read the requirements on the GA website, complete the self-assessment audit and consider applying for the award for your own school (see web resources).

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Owens, P. and Witt, S. (2024) 'Learning from the PGQM Part 5: Children as geography leaders', *Primary Geography*, 113, pp. 30–31.



Web Resources

PGQM information: <https://geography.org.uk/the-primary-geography-quality-mark-pgqm>

PGQM report: https://geography.org.uk/wp-content/uploads/2023/03/ThePGQMReport-AspiringtoHighQualityPrimaryGeography_final.pdf

YouTube PGQM video: https://www.youtube.com/watch?v=4_6C_N6VzY0

Attention2Place: <https://attention2place.blogspot.com/>

Dr Kate Glanville is Senior Lecturer in Primary Geography at Birmingham City University. Jen Lomas is a class teacher and Geography and Curriculum Lead at Whitley Park Primary and Nursery School, Reading. Dr Sharon Witt is a geographical consultant working as Attention2Place (see web resources).

GEOGRAPHY in practice

This page offers further ideas for using the contents of this issue of *Primary Geography in practice* in your classroom. Share your ideas inspired by this journal using #PriGeogJournal

Article	In practice
The Start Gallery: Ask the expert	Identify a local river near you. Using a range of maps and satellite imagery, give pupils time to ask questions they could investigate on a local field trip. This could include a visit to a local waterway or a school outreach visit from the Canal and River Trust (https://canalrivertrust.org.uk/explorers/teachers/school-outreach).
Exploring the journey of a river: River Dane case study	Consider what fieldwork opportunities are presented in your setting. How do these opportunities build and develop through their time at your setting? Julia Tanner's (2021) geographical fieldwork framework (https://portal.geography.org.uk/journal/view/J002868) is an excellent place to start to ensure progression is considered from the very start.
Learning about the fluidity of risk	Before embarking on a fieldtrip, identify what risks are present along a route with the pupils. As pupils are knowledgeable, often more so than teachers, of their local area ensure this understanding is used. Maps of the local area could identify where it is difficult to cross a road, where there may be small-scale risks, such as broken glass and dog poo (while acknowledging this may change over time).
The Lost Rainforests of Britain	Use the Interactive Map of the Lost Rainforests of Britain (https://map.lostrainforestsofbritain.org/) to look for patterns in their distribution – where are they most likely to be found? How could the class get involved in their protection – this might include writing to your local MP or to the local Wildlife Trust to show how important they are as local ecosystems.
The PG Interview with Elijah Richardson	Choose an action from the CoralWatch website (https://coralwatch.org/ambassadors/save-reefs-from-home/) to consider what your class could do to help the Great Barrier Reef. If you want to look closer to home, you can consider how to make your school a Nature Park and how to measure the change in biodiversity.
How can schools become more sustainable?	Discuss the ideas in this article with your setting's Sustainability Lead (https://www.gov.uk/guidance/sustainability-leadership-and-climate-action-plans-in-education) to see which would be most appropriate to feed into your climate action plan.
Walking with chalk stream magic	If you're not lucky enough to teach near a winterbourne, think about places within the local environment that flit in and out of existence over the course of the year. For younger children, this could be drawing the outline of puddles on the school playground that may disappear over an afternoon. For older children, this could be the movement of a tree in a gale in the style of a hydroglyph.
Changing landscapes, changing attitudes	Discuss with your class: what do they value in their local environment? What makes it special?
'Look at that!' Using pupil-led photography to document change	Consider the role that photography can play in fieldtrips and how pupil-led photography could enrich that experience. What do they consider important and decide to capture that we may overlook? Also, consider what you'll do with these photographs when back in school, to ensure they have a purpose.
Fluid identities: what do we mean by 'safe spaces'?	Think about your classroom space. What changes could you make to make it more inclusive? This could include focusing on the everyday language shared in the classroom. It could include considering how classroom routines contribute to the reinforcement that this is a safe space for all. It could include surveying the class to gather their ideas.
Threshold concepts in primary geography	Think about your last unit of geography teaching. Which threshold concepts did you plan for that pupils experienced? What threshold concepts occurred that were unexpected? How would you use that to alter your planning of this unit in the future? What concepts will you follow up on during their next unit of study?
Investigating fluidity: life alongside death in Victorian cemeteries	Use Historic England's List of Registered Cemeteries and Landscape of Remembrance register (https://historicengland.org.uk/images-books/publications/list-of-registered-cemeteries/registered-cemeteries-list-jan18/) to look for local landmarks near you. This is a good setting to consider the tension between life and death in one space.
Geography for Everyone	Identify some key scientists and social scientists who have links to geography – see how far you can cast that net!
Learning from PGQM 6: Developing your school's geography	Watch the PGQM video (https://www.youtube.com/watch?v=4_6C_N6VzY0) to start your own Primary Geography Quality Mark journey.



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