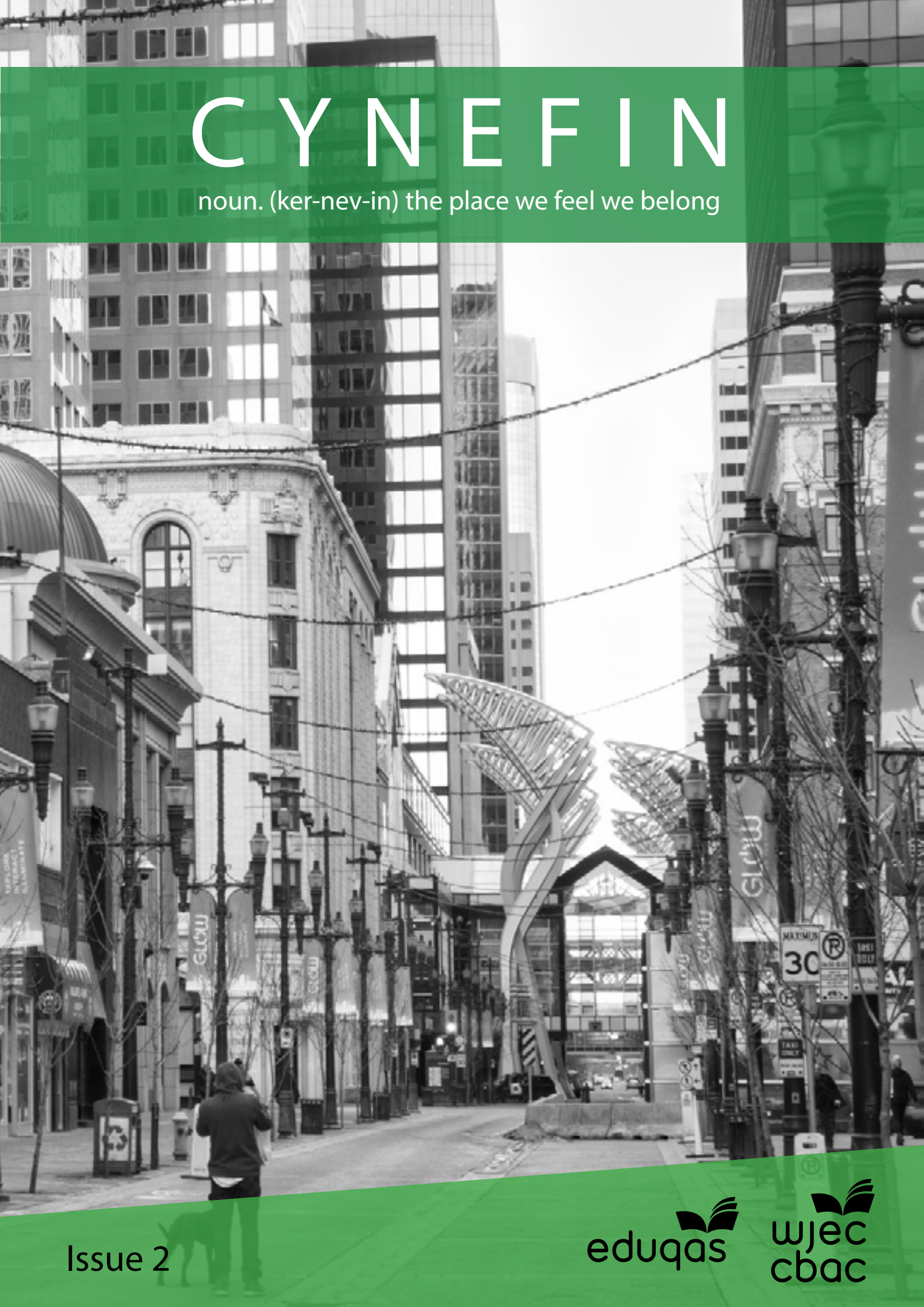

CYNEFIN

noun. (ker-nev-in) the place we feel we belong

Issue 2

eduqas

wjec
cbac

Introduction

Welcome to the second issue of Cynefin. The previous edition proved very popular and we hope this issue will be just as useful for you. Our magazine aims to provide a mix of knowledge updates, support and practical ideas for those teaching WJEC Eduqas Geography qualifications.

This issue contains contributions from current teachers of our specifications, including a practicing Head of Department who shares ideas on raising standards when it comes to the application of knowledge and understanding within examination responses. At the end of a particularly challenging 12 months for all those involved in teaching and learning, Chris Evans takes a closer look at Blended Learning, offering some new ideas to try. Gill Miller, President of the Geographical Association in 2019-20 reflects on the 2020 Geographical Association e-Conference and looks forward to this year's e-Conference – always a fantastic opportunity for geography teachers to meet, share ideas and be inspired by all the different lectures, workshops and discussion groups. We also have contributions from university lecturers, education professionals and a meteorologist. A huge thank you to all the contributors who have generously supported this edition.

If you would like to write an article for our next edition, share a few 'easy wins' with your fellow teachers, or ask your students to submit a piece reflecting on their experiences of the past year, please do get in touch. We would love to hear from you.

As always, please do not hesitate to get in touch with your WJEC Eduqas subject support teams if we can assist in any way.

Paul and Erin

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GeogPod is the Geographical Association's podcast. In each episode, the host John Lyon will be chatting to a guest from within the Geography community and discussing their work and areas of interest. GeogPod is available on most main podcast apps, including Spotify and iTunes. Just search, 'GeogPod' to find it. Don't forget to subscribe to receive all the latest episodes straight to your phone, completely free! Series 5 is kindly sponsored by WJEC Eduqas so look out for the final episode of the series when we will interview their special guest!

GeogPod
Produced by the Geographical Association

Geography Centre Maps

WJEC Eduqas are looking to help schools develop networks of teachers to support one another in the delivery of all of our GCSE and GCE Geography specifications. In order to do this we are developing Centre Maps.

Centre maps enable you to locate schools teaching WJEC and Eduqas Geography across the country.

Being included on the map will help you establish local networks and contact other schools. In order to access the map you do have to agree to be part of it (due to GDPR).

Please complete the questionnaire in the link below:

For our Eduqas centres - https://bit.ly/3kAyCr6

For our WJEC centres - https://bit.ly/2ZYnyKX

Once you have completed the questionnaire a link to the map will be emailed to you.

Climate Crisis

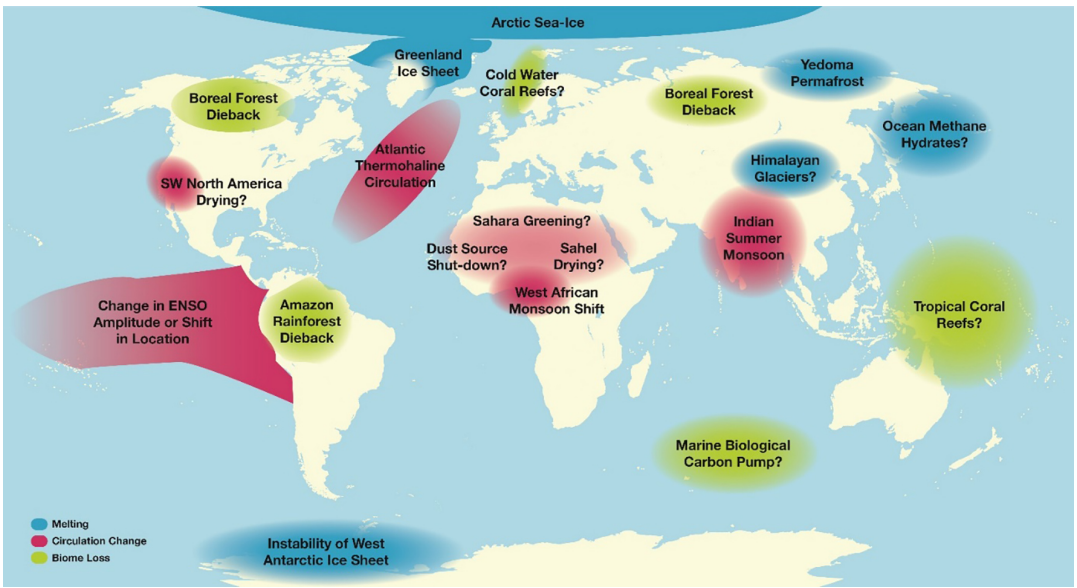
By Sylvia Knight, Head of Education, Royal Meteorological Society

This year, the Royal Meteorological Society will be publishing Weather and Climate: How it Works – a free secondary geography text book. Covering key weather and climate topics in 20 chapters, the associated teaching resources integrate key geographical skills and fieldwork. This text is taken from the supporting materials for teachers which accompanies Chapter 15 – the Climate Crisis.

In October 2019, the Guardian newspaper stopped referring to climate change, using the terms 'climate emergency' or 'climate crisis' instead. More generally, 2019 was a year when the rhetoric surrounding our climate system ramped up significantly, driven in part by the IPCC's 2018 1.5°C report and the contributions by Greta Thunberg, who inspired a generation, and Extinction Rebellion. Other recent terminology includes the term 'climate catastrophe', introduced by Sir David Attenborough.

Do Tipping Points Exist?

Abrupt climate change is defined as a large-scale change in the climate system which takes place over a few decades or less and is anticipated to persist for at least a few decades and causes substantial disruption in human and natural systems. A number of components or phenomena within the Earth's global or regional climate system have been proposed as potentially possessing critical thresholds, referred to as tipping points (see also Chapter 12), beyond which abrupt or nonlinear transitions to a different state ensues. Such a change is irreversible if the recovery time scale due to natural processes is significantly longer than the time it took to reach the new state. So, to some extent, it can be said that most aspects of climate change due to CO2 emissions are irreversible due to the long residence time of CO2 in the atmosphere. Tipping point events may be irreversible and the term is usually used in the context of an irreversible change.



This is a map of potential tipping elements in the climate system, overlain on global population density. The subsystems indicated, including the cryosphere, the circulation of the atmospheres and oceans and biomes, could exhibit threshold-type behaviour in response to anthropogenic climate forcing, where a small perturbation at a critical point qualitatively alters the future fate of the system. They could be triggered this century and would undergo a qualitative change within this millennium. Systems in which any threshold appears inaccessible this century (e.g., East Antarctic Ice Sheet) or the qualitative change would appear beyond this millennium (e.g., marine methane hydrates) have not been included. Question marks indicate systems whose status as tipping elements are particularly uncertain.

Image reproduced with permission from Prof. Tim Lenton, University of Exeter from- Tipping elements in the Earth's climate system. PNAS 105(6), 1786–1793, doi: 10.1073/pnas.0705414105.

Another version of this diagram may be found at https://www.carbonbrief.org/explainer- nine-tipping-points-that-could-be-triggered-by-climate-change

Aspects of the Earth's climate system have tipped in the past and projections suggest that increasing greenhouse gas concentrations may lead to future tipping points being reached. The most likely abrupt, but reversible, change to the climate system expected in the 21st century is the decline of Arctic sea-ice, especially in the summer.

Change in climate system component	Potentially abrupt (AR5 definition)	Irreversibility if forcing reversed	Projected likelihood of 21st century change in scenarios considerd
Altantic MOC collapse	Yes	Unknown	Very unlikely that the AMOC will undergo a rapid transition (high confidence)
Ice sheet colapse	No	Irreversible for millennia	Exceptionally unlikely that either Greenland or West Atlantic Ice sheets will suffer near-complete disintegration (high confidence)
Permafrost carbon release	No	Irreversible for millennia	Possible that permafrost will become a net source of atmospheric greenhouse gasses (low confidence)
Clathrate methane release	Yes	Irreversible for millennia	Very unlikely that methane from clathrates will undergo catastophic release (high confidence)
Tropical forests dieback	Yes	Reversible within centries	Low confidence in projections of the collapse of large areas of tropical forest
Boreal forests dieback	Yes	Reversible within centries	Low confidence in projections of the collapse of large areas of boreal forest
Disappearance of Summer Arctic sea ice	Yes	Reversible within years to decades	Likely that the Arctic Ocean becomes nearly ice-free in September before mid-century under high forcing scenarios such as RCP8.5 (medium confidence)
Long-term droughts	Yes	Reversible within years to decades	Low confidence in projections of changes in the frequency and duration of megadroughts
Monsoonal circulation	Yes	Reversible within years to decades	Low confidence in projections of a collapse in monsoon circulations

IPCC 2013 WG1 Table 12.4. Components in the Earth system that are potentially susceptible to abrupt or irreversible change.

Arctic Sea Ice

As the atmosphere and oceans warm, sea-ice melts which exposes a much darker ocean. This triggers a positive feedback by lowering the albedo of the ocean's surface and leading to more of the Sun's light being absorbed, amplifying the warming.

The rapidly declining summer Arctic sea-ice cover might already have passed a tipping point, although this is hard to identify due to high year-to-year variability. In this case, the Arctic will change from having year-round to seasonal sea-ice cover.

It is likely that the Arctic Ocean will become nearly ice-free in September before 2050. The transition will be abrupt but, if the amount of CO2 in the atmosphere falls, the loss of sea-ice could be reversed within years to decades.

The effect of rapid changes to Arctic sea-ice might have consequences throughout the climate system, particularly on cloud cover.

The IPCC 1.5°C Report and 12 Years to Save the Planet

In late 2018, the Intergovernmental Panel on Climate Change published its Special Report on Global Warming of 1.5°C . The report highlighted a number of climate change impacts that could be avoided by limiting global warming to 1.5°C compared to 2°C, or more. For instance, by 2100, global sea level rise would be 10cm lower with global warming of 1.5°C compared with 2°C. The likelihood of an Arctic Ocean free of sea ice in summer would be once per century with global warming of 1.5°C, compared with at least once per decade with 2°C. Coral reefs would decline by 70-90% with global warming of 1.5°C, whereas virtually all (> 99%) would be lost with 2°C.

"Every extra bit of warming matters, especially since warming of 1.5°C or higher increases the risk associated with long-lasting or irreversible changes, such as the loss of some ecosystems". Allowing the global temperature to temporarily exceed or 'overshoot' 1.5°C would mean a greater reliance on techniques that remove CO2 from the air to return global temperature to below 1.5°C by 2100. The effectiveness of such techniques are unproven at large scale and some may carry significant risks for sustainable development, the report notes.

"Limiting global warming to 1.5°C compared with 2°C would reduce challenging impacts on ecosystems, human health and well-being, making it easier to achieve the United Nations Sustainable Development Goals".

Although this was not stated in the IPCC's report, some media reported the findings of the report with headlines such as "we have 12 years to limit climate change" – a figure that was taken up by organisations around the world. It stemmed from the IPCC's conclusion that "limiting global warming to 1.5°C would

require "rapid and far-reaching" transitions in land, energy, industry, buildings, transport, and cities. Global net human- caused emissions of carbon dioxide (CO2) would need to fall by about 45% from 2010 levels by 2030, reaching 'net zero' around 2050." There are, however, many possible pathways to emissions reductions, and the 'final' temperature change depends on which is taken – do emissions fall gradually, or abruptly? Do they first carry on rising? When are reductions made?

Although such headlines did, arguably, generate a significant amount of attention and action, they can be less than helpful if they give rise to fear and a feeling of helplessness.

Greta Thunberg and Extinction Rebellion

Greta Thunberg started her School Strike for Climate in August 2018. By December, 20,000 students around the world had joined her. Extinction Rebellion was similarly formed in 2018. Take a look at the Fridays for Future map of strikes: https://fridaysforfuture.org/statistics/map

Sources of Information:

Intergovernmental Panel on Climate Change https://www.ipcc.ch

Carbon Brief https://www.carbonbrief.org/

Guardian https://www.theguardian.com/environment/climate-change and The Climate Crisis In 10 Charts

Blended Learning - what is it and where to start?

By Christopher Evans, Education Technology Manager at the Centre for Education Support and Innovation (CESI)

Introduction

2020 has been an "interesting" year and we find ourselves facing an unprecedented change in the way we will be teaching, and how students will be learning. Many educators find the task of teaching online daunting, and understandably so. Covid-19 has not just changed the world politically and socially, it has changed the way we need to think about how we teach our students in both a face-to-face environment and an online environment.

The concept of blended learning has been around for a long time and can conjure up a lot of anxiety and opposition amongst teachers. However, it really is quite straight-forward and nothing to worry about (honestly!).

What is blended learning?

Helms (2014) considers learning to be blended "if some student–student and student–teacher interaction were based in a face-to-face classroom and some took place in an online (asynchronous or synchronous) environment.

Simply put, blended teaching combines face-to-face interactions with online learning activities. No doubt you will have heard the words synchronous and asynchronous recently. Put in a blended learning content, attending a class taught in a traditional classroom setting or via a live webinar is synchronous, whilst learning via a variety of online components outside the classroom is deemed asynchronous.

The online experience should complement and enhance what is taught in class (synchronously!), allowing students to learn and engage at their own pace (asynchronously!).

How to blend

At Cardiff University, our Digital Education Programme focuses on five principles that are distilled from research about what makes for a successful online student experience. These are:

- Focus on quality not quantity
- Keep it simple
- Provide clarity and structure
- Focus on what works online

My personal advice is to focus on point two – keep it simple. Ensure you are confident enough to deliver what you set out to achieve. As you gain confidence and progress, then try adding different (perhaps more dynamic or complicated) elements to your online teaching. Don't put long videos within your course or class, or host long synchronous sessions – "chunk" everything to keep learners engaged.

It is important to blend other forms of learning technology alongside "live" face-to-face classes/webinars. This allows for an engaging and effective experience during a time where social interaction is limited. Creating a sense of community is essential, forming discussions between teachers and students. Try to include activities for active learning – you want to keep the students engaged and for them to feel that they are part of a learning community.

Digital tools for Synchronous Blended Learning

Webinars/Online Classroom: Zoom, Microsoft Teams, Google Classroom, Adobe Connect, Blackboard Collaborate Ultra

https://community.dur.ac.uk/lt.team/collaborate/#/ (Zoom, Collaborate or Teams)

Digital tools for Asynchronous Blended Learning

Microsoft Teams (use of Assignment, Quiz and Discussion tools)

https://support.microsoft.com/en-gb/office/microsoft-teams-video-training-4f108e54-240b-4351-8084-b1089f0d21d7?ui=en-us&rs=en-gb&ad=gb

Google Classroom

Microsoft Sway

PowerPoint

YouTube/Vimeo

Technology	Purpose
Padlet https://en-gb.padlet.com/ Popplet https://www.popplet.com/	These collaborative Web 2.0 tools encourage a collaborative, constructivist and active approach to learning. These tools also promote an informal approach, whilst also allowing anonymity where needed to encourage learner participation, which can be an issue initially in blended learning courses. They can also be used for on-going class assessment and peer review and feedback.
Poll Everywhere https://www.polleverywhere.com/ Mentimeter https://www.mentimeter.com/ Kahoot! https://kahoot.com/	Can be used in a variety of ways including ice breaking exercises, to encourage learner participation, for collaborative learning, group gaming/competition/quizzing, group assessment, consolidation of learning, group feedback, formative and summative assessment, and revision.
Quizlet https://quizlet.com/en-gb	Allows for a variety of active learning activities including flashcards, spelling tests, matching exercises and gaming exercises (space invaders).
Forums MS Teams Moodle Blackboard	Forums encourage a collaborative and constructivist approach (asynchronously), as well as a sense of community. Helms (2014) recommends using the online asynchronous forums to discuss difficult or complex topics, since this can reduce feelings of isolation/ disengagement that might be fostered in the classroom environment, thus allowing "students to approach the topic at their own pace, facilitating self-directed learning."

Benefits of Blended Learning

There are a number of positives to blended learning. These can include:

- Improvement of student and staff digital literacy. Staff will experience creating content in new ways, thus expanding their skills whilst looking at how technology can be used with an effective pedagogical focus. These skills are key takeaways for when "normal" teaching resumes.

- Flexible learning/increased accessibility. Students can learn at their own pace, as well revisit information and reinforce learning at a time that suits them.

Improved connectivity between staff and students. A sense of communication, community and inclusivity can be created through discussion boards and webinars.

- Improved student participation. Students who perhaps wouldn't normally contribute or may lack the confidence in class may be more inclined to do so online.

- A pool of resources will be created that can be recycled and reused.

Negatives of Blended Learning

- Technical issues: Such as student (and staff!) internet connectivity, online tools/software not working on certain devices, etc.

- Lack of digital literacy skills. This can be a significant issue. Try to support learners where possible.

- Disengagement. Not implementing short and engaging active learning activities can lead to student disengagement. As stated earlier, try to keep things simple.

Top Tips

- Start small. If you're not confident with technology, that's normal! Introduce small aspects of blended learning before looking at more complex elements.

- Focus on quality, not quantity. Think about why you want to use a specific tool and the benefits it will have on the student learning experience.

- Reflect on practices – What worked? What didn't? This may be new territory for both you and your students, so focus on the small victories.

- Test your content where possible, and regularly check any links are up to date.

- Ensure you have a structure and give clear guidance to your students. Don't overload them with information.

Conclusion

Every teaching methodology has its advantages and disadvantages and blended learning is no different. However, the pros can outweigh the cons, and these cons can often be overcome.

Helms (2014) states that several studies that have found that students received higher grades using this approach than they did in fully face-to-face or online classes. Using technology within a blended learning

approach can allow for autonomous, as well as constructive and connective learning (Biggs, 1996; Bruner, 1990; Piaget, 1936; Vygotsky, 1978), which can be utilised both synchronously and asynchronously.

Give it a go, keep it simple and good luck!

Christopher Evans is the Education Technology Manager at the Centre for Education Support and Innovation (CESI). (EvansC65@cardiff.ac.uk)

Further Reading and Useful Links:

Developing integrated approaches to support blended learning for the phased opening of schools (June 2020) WG/Estyn: https://www.gwegogledd.cymru/wp-content/uploads/2020/06/Developing-Integrated-Approaches-to-Blended-Learning.pdf

Welsh Government Distance Learning Support: https://hwb.gov.wales/distance-learning

https://www.digitalchalk.com/resources/blog/tips-and-tricks/pros-and-cons-of-blended-learning

References

Developing integrated approaches to support blended learning for the phased opening of schools (June 2020) WG/Estyn

Helms, S.A. 2014. Blended/hybrid courses: a review of the literature and recommendations for instructional designers and educators, Interactive Learning Environments, 22:6, 804-810, DOI: 10.1080/10494820.2012.745420

https://www.youtube.com/watch?v=4hVyLqP7kRc&feature=youtu.be&t=28m18

http://blogs.cardiff.ac.uk/CESI/2020/06/16/a-principled-approach-to-online-learning/

https://psyarxiv.com/qdh25 : 10 simple rules for supporting a temporary online pivot in higher education

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Providing opportunities for everyone
Sustainability for the future
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- **Choice of topics linking to WJEC Eduquas Geography curriculum**
- **Students able to access resources from home**
- **Reduce prep time and cover relevant fieldwork content**

A Level Digital Packages:

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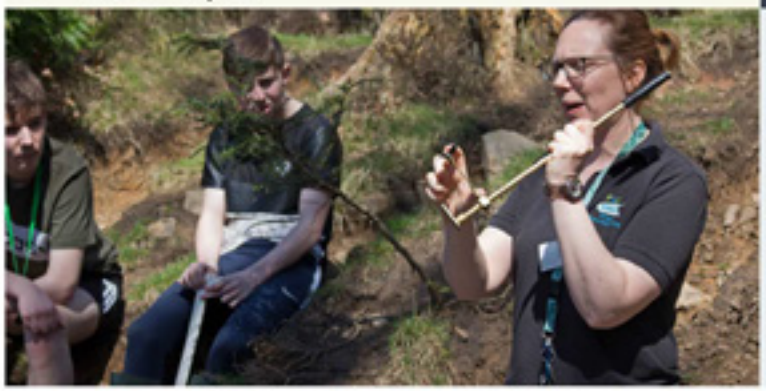
- Coastal
- Place
- Water
- GIS
- Data Analysis



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- Exam-ready Fieldwork Skills

www.field-studies-council.org/digital-and-outreach

Looking ahead..

We can't wait to welcome groups back to our field centres when it is safe to do so. We are currently taking bookings for day and residential visits from the summer term onwards - all covered under our Book with Confidence guarantee. Contact us to enquire:

schools@field-studies-council.org

Globalisation: Global flows, forms and conscience

by Rhys Dafydd Jones, Lecturer in Geography and Earth Sciences, Aberystwyth University

The following serves as a teaser into one of the chapters in a new textbook for Welsh medium Geography students.

What does globalisation mean to you? Perhaps familiar brands such as Starbucks, McDonald's and Disney spring to mind? Without a doubt, the presence of such brands across the world is indicative of significant global flows and relatively common reference frames, but there is more to globalisation than brands and claims of uniformity.

In essence, globalisation means an increased sense of belonging to the same planet. Economic flows, facilitated by neoliberalism (which means opening markets in order to encourage competition, which has intensified since the late 1980s) is an important part, but there are other factors as well. We can think of technological developments such as satellite communication and the internet, which Karl Marx referred to as 'the annihilation of space by time'. In turn, these technologies facilitate global conscience. Historical events, such as people reaching the moon, is important in order to create a global conscience. Similarly,

environmental problems etc. promote a common conscience of sharing a habitat that faces common problems. All of these contribute to ideas about globalisation.

Although the factors are common, the experiences aren't uniform. The local context is also important. We could think of Hollywood films, for example. New York was the historical focal point for the USA's acting industry, but the industry at Hollywood developed in response to particular factors at the start of the 20th century: California had a warm climate and plenty of sunshine, land was cheap there during the film industry's infancy, which created favourable conditions to start a new enterprise. Success at the beginning of the period meant more money to invest in the industry, but also in the local area. With success leading to further success, the local conditions whilst initiating an enterprise are often significant in order to establish an advantageous position. To convey this intertwining between locality and a global sense, the economic geographer, Erik Swyngedouw, coined the term 'glocalization'.

Similar to how local factors are important in generating globalisation, they are also important for global commodity consumption. Although McDonald's can be found in a majority of the world's countries, experiences of consumption vary from one place to another. There are different items on the menus, including the Kiwiburger in Aotearoa/New Zealand and the Maharajah Mac in India, where there is less beef consumption due to the cow's significance in Hinduism. While customers in the US or the UK tend to use the restaurant for its ease of use, it is used differently in other countries. For example, in Taiwan, families go to McDonald's on a Friday night, with an emphasis on smart clothing. It is therefore too much to simply convey globalisation as uniformity, although there are concerns over the loss of local ways, customs and significance.

Similar to how consumption varies, the penetration of globalisation also varies. The influence of the flows of information, people and forms does not reach all places to the same extent. Some places are more intensively connected into networks than others, and the nature of the connections can also be unequal. We can think of uneven access to the web. Not only does this vary between who has access and under which conditions (note the censorship of the web in countries such as China), but there are variations in speed, such as broadband internet not-spots in rural areas of west Wales. Although there are flows of people, information, goods and money, they are not equal and their impacts are not consistent.

Globalisation has raised a number of different implications to consider. Firstly, it raises questions about our responsibilities of people in distant places. Although people can live thousands of kilometres away, we are connected to them through far-reaching networks. Global commodity chains are complex; a pair of jeans can be designed in New York, made in Manila (with copper from Zambia, dye from Peru and cotton from Egypt), and sold in a retail chain store in Swansea. Through these chains, we are connected to people we will never meet. Nevertheless, we have a responsibility for them, as the purchase of the goods produced by them includes us in their working conditions. I am writing these words on a Macbook: my consumption means I am a contributor to the working conditions of Apple workers who produced it; conditions that have received negative attention in the past.

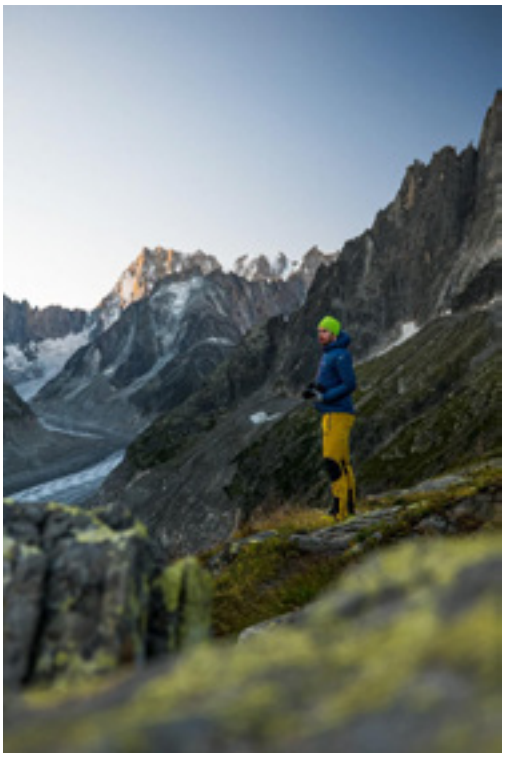
In drawing attention to workers' conditions and the agricultural damage in the unsustainable production of palm oil and coffee, the flow of information and goods raises questions about our responsibilities of others. At the turn of the century, the geographer D.M. Smith called for a change in morality in human geography, in order to consider these implications. As geographers, we are well placed to understand our connections with others, be it locally or from afar. We should not shy away from considering the moral questions raised about our responsibilities for them, and for our common home.

DOES IT MATTER IF THE GLACIERS VANISH?

by Huw James, Science Presenter and Fellow of the Royal Astronomical and Geographical Societies

I find this an interesting question to pose to school students. Especially ones in Wales and the wider UK who've likely never seen one up close. We don't get our water directly from glaciers, we don't use them for tourism. So does it matter? The knee jerk reaction is yes, but I feel it's worth breaking down the science for them, to let students come to their own conclusions.

I've been a Science Presenter for 14 years now. I've run countless workshops and talks, debates and panels. All with the goal to increase science literacy, make science engaging and promote critical thinking. A lot of my talks are about the places I spend a lot of time. In the Alps, Iceland, and the US, regularly on Glaciers and Mountains. I see the changes happening to them and how they look. They look unhealthy. If a non living object can look that way.



So does it matter if they're melting, other than they look nice, and it would be nice to keep them around to look at? To answer that question it takes ALL of science, technology, geography, engineering, history, and everything in between. My particular background is Astronomy and Geology. I tell students that I have the benefit of 4.5Ba of perspective when it comes to this.

When you head back in time you start to build up a picture of what's happened to our planet in the past, and what should be happening in the future. Our knowledge about the processes put forth by Wegener, Milankovitch, Safronov and more, all add to our understanding and ability to predict what comes next. One of the key processes we talk about are the Milankovitch Cycles. If we want to know what happened to the glaciers in the future, it's handy to know what happened to them in the past.

The Milankovitch cycles look at how the Earth orbits the Sun, and how that impacts the planet. They include:

- The shape of Earth's orbit, it's eccentricity;
- The angle Earth's axis is tilted with respect to Earth's orbital plane, it's obliquity;
- The direction Earth's axis of rotation is pointed, it's precession.

All these cycles work on different time scales, and have varying amounts of impact on different things.

The 100,000 year eccentricity cycle makes the seasons longer and shorter. The 40,000 year obliquity cycle is what gives us our seasons. And the 25,000 year precession cycle gives seasons more extreme contrast.

Add in to this the Suns life cycle and solar cycle, the fact that the Sun is consistently getting more luminous, and there's a lot of variables to play with. But that's a good thing. It draws from all subjects to answer a single question. The process for all of them though is critical thinking. As we analyse what's happened in the past, we see our Earth has gone through cycles of almost global coverage of ice, no ice at all, glacial periods and interglacial periods. So where are we now?

It turns out that all of these cycles are pretty average right now. We have a fairly circular orbit that means our seasons are pretty even with summers in the Northern Hemisphere only currently about 4.5 days longer than winters, and springs about three days longer than autumns. Our obliquity is at 23.4 degrees, about halfway between its extremes and still decreasing. In fact, with the cycles as they currently are, we should be getting cooler. The main anomaly is greenhouse gases.

We seem to have hi-jacked the Earth's cycle at just the right (or wrong) time. Creating positive feedback loops. We're already down from 32% glacial coverage during the last glacial maximum, to 10% now. As more glaciers disappear, more dark rock will be exposed, less ice, the world will warm faster. This means a lot of glaciers are on their way out.

To answer the original question, this matters. Drainage basins from mountain glaciers cover 26% of the world's surface outside of Antarctica and Greenland and feed water to the people who depend on it. Mountainous areas in southeast asia, for example, provide water to as much as 20% of the world's population. Ice Caps and Glaciers are just a long term store of fresh water. Continental glaciers accumulate snow during the winter, hold on to it, and melt slowly during the summer. As the water runs off it gives fresh water to the people down stream. This isn't even mentioning the wildlife and natural habitat destruction we'll see.

When we talk about climate change, how do we make it relevant to those who aren't seeing the effects until it's too late? The answer is Geography. Both Human and Physical. A good understanding of the world's cycles, it's past, present, and future, will give our next generation the tools it needs to mitigate the worst effects of the climate crisis. The planet will live on for 5 Billion more years with or without us.

But if humans want to hang around, this is the next hurdle for us to jump.

Huw James is a Science Presenter and Fellow of the Royal Astronomical and Geographical Societies. His education company Anturus Education has 50 hands on experiments, hours of videos and archive footage for teachers. Take a look at Huw's website - https://www.anturus.co.uk/

Assessment at the heart of the classroom experience

by Fiona Rennie, Head of Humanities Faculty, Ysgol Friars, Bangor

Assessment should be at the heart of the classroom experience. In order to prepare our learners, we need to guide and develop their assessment skills and increase their resilience in responding to the demands of different exam questions. In the Examiners' Report 2019 for both GCE and GCSE the need to develop the learner's ability to respond to the command words, and in particular their skills in the application of knowledge and understanding, is key to raising standards.

The Assessment Objective (AO) 'Apply knowledge and understanding…' is labelled differently at GCSE in Wales and England but is assessed in the same way.

Specifications	Assessment objective - Apply knowledge and understanding...
WJEC GCSE and GCE	AO2
Eduqas GCSE	AO3
Eduqas GCE	AO2

WJEC GCE 2019 examiners report:

Discussion and evaluation skills need to be developed by a fair number of candidates, in order to access the higher band marks for A02. Too many answers have a descriptive approach, which is self-penalising.

WJEC GCSE 2019:

AO2 (apply knowledge and understanding), continues to be the main overall discriminator between the more and less successful candidates.

Geography is a content rich subject; but we cannot let the experience in the classroom be solely focused on the acquisition of knowledge. The need to model the application of knowledge and understanding, considered by Barak Rosenshine's Principles of Instruction (2012), suggests:

"it is not enough to simply present students with new material…(it) will be forgotten unless there is sufficient rehearsal…"[1] and

"A high success rate during guided practice also leads to a higher success rate when students are working on problems of their own."[2]

1 5th Principle
2 7th Principle

As teachers we need to plan effectively, to deliver application of knowledge and understanding, as well as new themes and content. This, I feel, is best delivered alongside introducing content as it helps contextualise the new information and develop skills alongside developing knowledge.

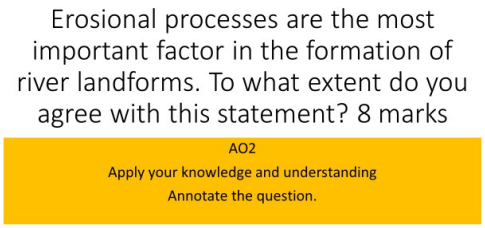
In their very useable book Teaching Backwards (2014) Andy Griffith and Mark Burns suggest:

" …. the exam criteria needs to be at the heart of the learning integrated into the classroom. The experience of the learner needs to include the instruction on how to apply knowledge and understanding."

The research would seem to confirm that the AO that assesses application needs to be demystified and we need to build up confidence in our learners at all levels to have a way to decode the exam question. I hope to demonstrate a few ways this can be brought into the classroom experience, building confidence and skills in our learners without losing crucial time for content coverage.

It is crucial that the principles of assessment need to be practiced alongside content delivery to develop resilience in the classroom. In the first example (Figure 1), the exam question is the title of lesson, fully setting out the destination for the learners. This allows them to see the purpose of the new learning, setting the exam question at the heart of the learning.

Figure 1



The learner's first task is to annotate the exam question, circle the command, identify the assessment objective (AO) and write a definition. The identification and underlining of the key geographical words show what content needs to be recalled, or in this case, justified explanation in order to demonstrate their knowledge of the topic.

Figure 2

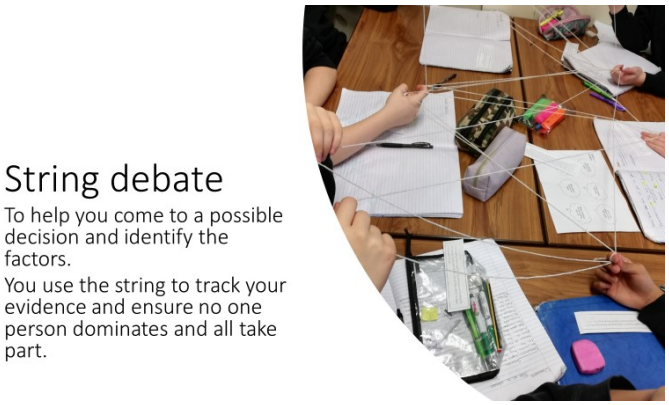
A useful scaffold is needed to help the learners see how they are to interact with the various demands of the command word. Scaffolds such as these help establish protocols that the learners can use without their teacher in an exam.

Applying knowledge and understanding requires the learner to go beyond being able to just describe and explain ideas and examples, the skill to write evaluatively and to think critically about geographical issues, needs to be developed. The learner needs to acknowledge contrasting perspectives and stakeholders' viewpoints in many cases to access AO2 marks. The learner should have the opportunities to practice and develop thinking like a geographer.

The demands of AO2 questions mostly require the learners to discuss - the action or process of talking about something in order to reach a decision or to exchange ideas.

Discussion in the classroom is a vital tool for developing application, as being able to talk the ideas through helps to reduce the learner's perceived obstacle of writing an answer. A useful technique to introduce this is, the string debate. This helps learners truly discuss the role of erosion and other factors in producing river landforms (Figure 3)

Figure 3



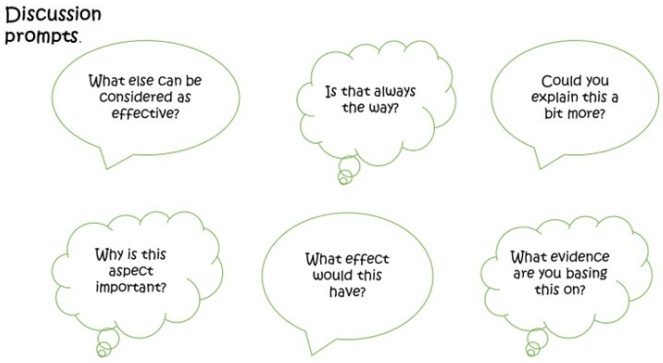
String debate using prompts considering the role of other factors as well as importance of erosive processes. Use expert cards and discussion prompts.

Develop counter arguments and evidence for the question.

Through debate the learners will develop inference.

The string debate activity adds a visual and physical element to the path of discussion, the learners can begin to identify the links and the complexity of to what extent as a command in the question.

Figure 4

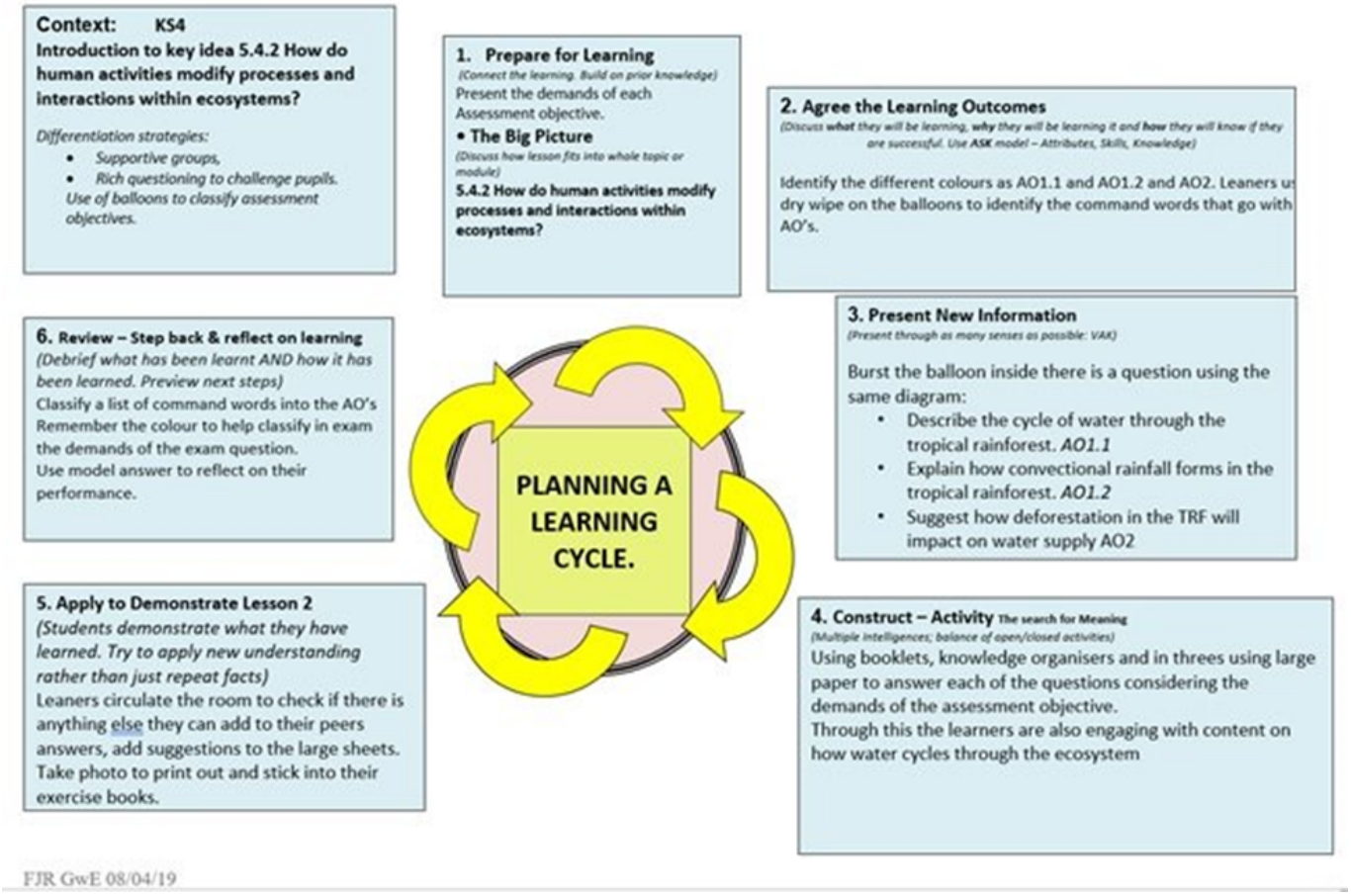


The learners are also given discussion prompts to help them if the conversation fails to link and be relevant to the question.

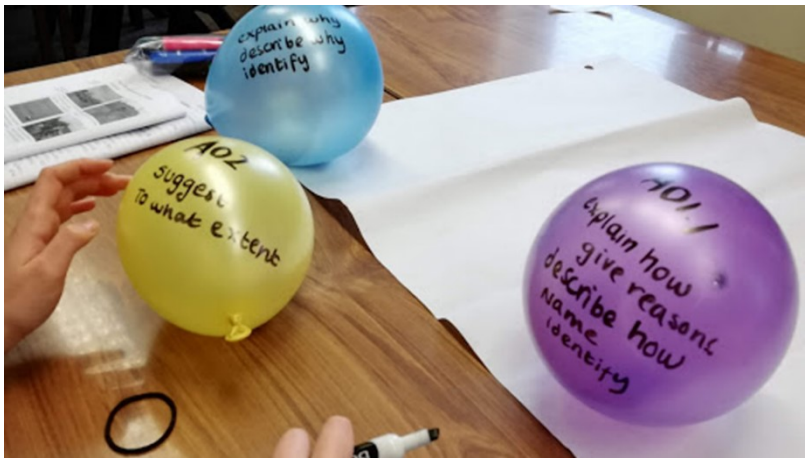
The object of these strategies is to develop the argument and counterargument and to investigate evidence to be used in response to this question.

The lesson planned below helps learners to identify and define the assessment objectives (AO's) using colour to classify each AO. Each balloon contained a question linked to the different AOs inside it. The use of colour (through coloured balloons) stimulates the visual memory of learners to help identify the demands of the question by AO in the exam room, reinforced by modelling in class.

Figure 5 The lesson plan is taken from the SSAT Teacher Effectiveness Enhancement Programme (TEEP) model.

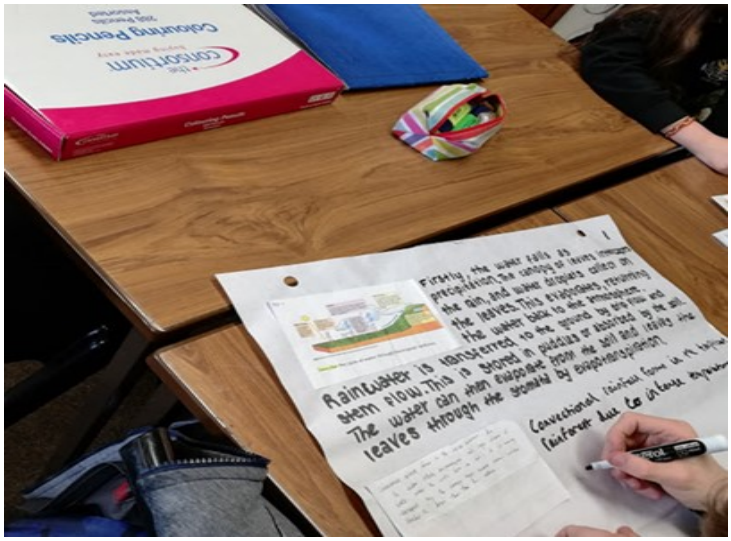


Present new information, (Point 3 from the lesson plan):

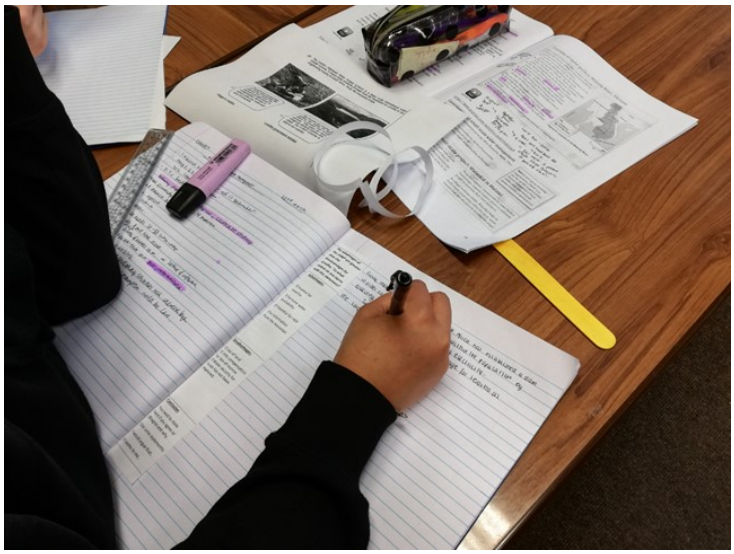


The colours were linked to the assessment objectives and the learners were given 3 balloons in their groups of 3. They had to think carefully about the AOs and then write appropriate command words on the balloon to coincide with the colour. Then, after discussing the command words learners suggested, the controlled bursting of the balloon allowed an appropriate question linked to the correct AO question to be revealed.

Construct-activity, (point 4 from the lesson plan):



As a group they used large paper to answer the questions. the same content (knowledge) was used for all of the questions from the different AOs.. This helps develop learners' skills in the interpretation of exam question command words. Learners begin to realise the same knowledge is used to tackle the different demands of the assessment objectives.



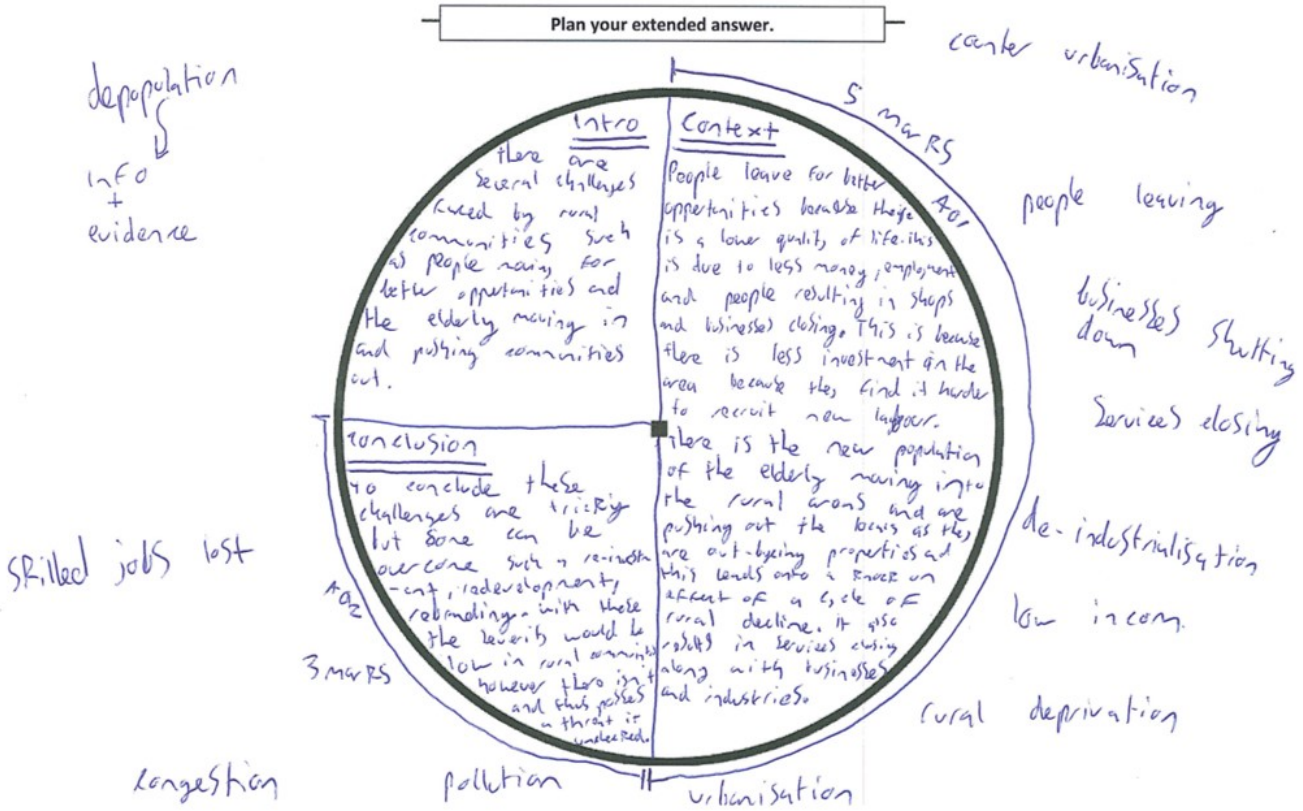
In follow up lessons a similar technique can be undertaken using coloured sticks to represent the AOs that they draw from a hat Learners then identify the correct type of AO question linked to the colour: so yellow is an AO2 question. The learning here is they need to interpret the demand of the command word . Using their references, they would then attempt to answer using booklets for content. The learners could be given a brief introduction to the content and instructions given to the learners in the class to highlight relevant sections in their booklets for about 10-15 minutes at the beginning of the lesson.

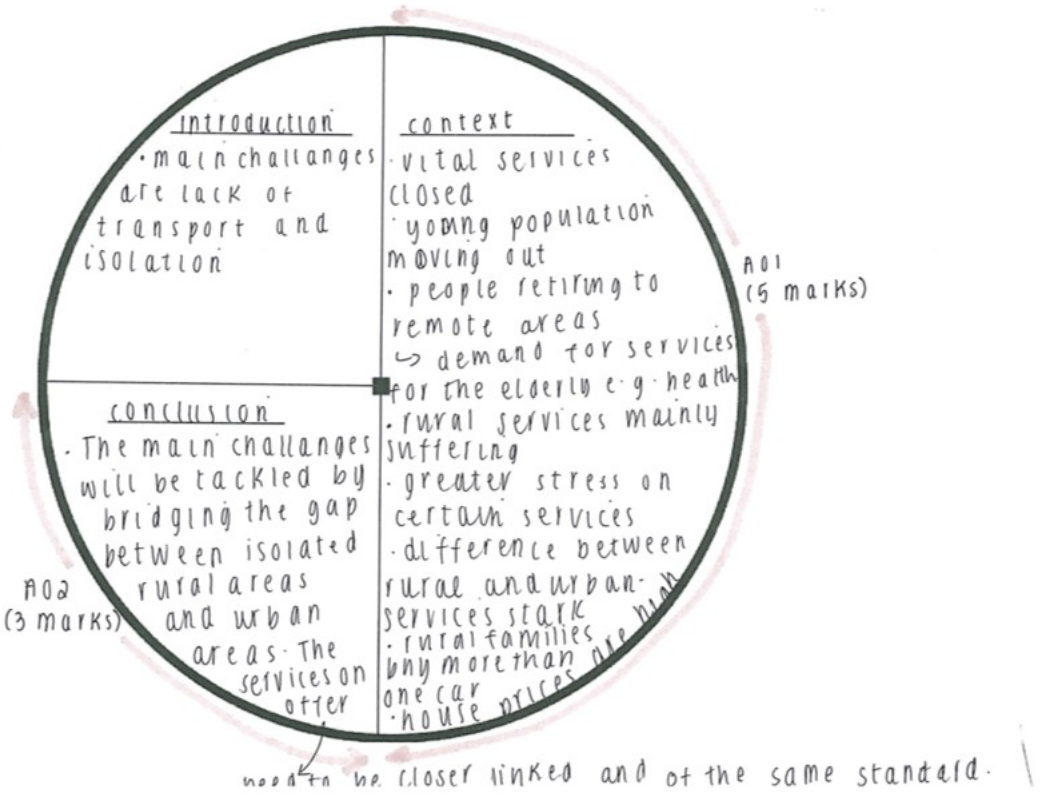
These examples at GCSE show how the content delivery and the development of assessment skills should take place alongside each other as a continuum to allow the integration of assessment and content. The separation of AO's at GCSE does make this approach more straightforward than for GCE level.

At AS level the learners are more receptive to investigate new content through being required to read articles for example. The following lesson again starts with the exam question, **Examine the severity of two challenges faced by rural communities. (8).**

As the focus for the lesson, the year 12 learners are asked to organise their answer linked to the AO's. The template was introduced at a teacher's conference in November 2018 by Sharina Burtally, a geography teacher. The learners have a series of resources to hand and they interrogate the resources to find the content that helps them answer the question. The idea being that the content always has a purpose and the application becomes more embedded. The circle framework gives structure to the response. The

learners identify that there are 5 marks for AO1 (Knowledge and understanding) and 3 marks for AO2 available and mark these points on the circle. Learners have time to read through the resources that will help with the answer. The learners are encouraged to "brain dump" any ideas they may use in the answer outside the circle. Too often Year 12 learners find the AO1 element straightforward to develop but fail to understand how to fully address the AO2 element. This method allows them to see how this application of knowledge and understanding can be developed.





When the assessment is fully part of the learning experience, purpose is given to the new content, the big picture is revealed. As Rosenshine (2012) admits there is a balance between content delivery and the need to practice and review performance. The challenge to develop the learner's knowledge and understanding and being able to apply this learning requires teachers to guide candidates to develop these skills in the classroom, building their confidence in responding to the demands of the exam question.

References:

Andy Griffith and Mark Burns (2014), Outstanding Teaching: Teaching Backwards, Crown House Publishing Ltd.

Barak Rosenshine, American Educator Spring 2012, Principles of Instruction Researched-Based Strategies That All Teachers Should Know.

1. 5th principle: Guide student practice: Successful teachers spend more time guiding students' practice of new material

2. 7th principle: Obtain a high success rate: It is important for students to achieve a high success rate during classroom instruction,

Tom Sherrington (2017), The learning Rainforest, Great teaching in real classrooms, John Catt Educational Ltd.

Reflections on the Geographical Association E-conference 2020

by Gill Miller, Geographical Association President 2019-20

In 2020, the GA annual conference was transformed into an e-conference thanks to the hard work and determination of the conference team. While the format was different, conference had all the usual ingredients – 750 geographers who were enthusiastically communicating in the Adobe Connect chat rooms, and on Twitter. The atmosphere was set by the call to arms in the presidential lecture which reminded us why we need to 'make a noise' for geography.

All the public lectures and panel discussions are available on YouTube – search for Geographical Association conference 2020. There you can catch up with explorer Paul Rose and his inspirational geography teacher Mr Grey, who rescued Paul from an uncertain future to become one of the world's most experienced divers, field scientists and polar experts, and now broadcaster. Visit the lively Teachmeet, hosted as usual by David Rogers, and review the great ideas, extensive chat and comments shared by over 570 committed geography teachers. Find out about Patrick Rickles' work as a deputy head of the Government Geography Profession and the strides which geographers are making to influence decisions and show that geography really matters in many government departments.

Friday and Saturday conference sessions were organised into 4 'rooms' on Adobe Connect, with different themes on each day. Support for teachers and teaching was shared through pathways on Primary, GCSE, A-level and Beginning Teachers. For those a little reticent about GIS, look no further than the Real World pathway which gave plenty of support and confidence boosters for fieldwork and outdoor learning at every key stage. The Curriculum planning pathway also amply provided a range of invaluable advice. For those looking to update their subject knowledge, or to simply be inspired, the themes of Geography for Sustainability and Case Studies for a Changing World fulfilled that need with challenging presentations from, among others, Professor Danny Dorling, Adam Corsini and Professor Kate Heppell with Kate Amis. All the presentations are freely available on the GA website and in the course of time it will be possible to access the audio to accompany them.

What was wonderful about the e-conference was the integration of experience and innovation, famous names and newcomers. The chatter was lively, inclusive, friendly and responsive. Everyone was welcome to make a contribution to our community and show that geography really matters. It was so exciting to see many people joining in for the first time and feeling the buzz of conference over the airwaves.

Highlights for GCSE and A-level centres (https://www.geography.org.uk/eConference-2020)

1. Effective use of case studies: Jo Payne. Friday GCSE pathway. In a world where there are too many to choose from, less is most definitely more. Students should use a case study to illustrate more than one aspect

of the specification. This session provides some excellent advice and clear illustrations.

2. Update on periglaciation: Dr Richard Waller. Friday A-level pathway. An excellent, must-see for students who study glaciation with superb examples and images, plus some really good resources and links.

3. NEA: Friday A-level pathway. Two sessions on a) managing for success, and b) getting the best titles, are worth a careful viewing. There are lots of good tips and practical advice without compromising on the need for independent work.

4. Could geography save the world? Paul Turner. Saturday Geography for Sustainability pathway. There is plenty to think about and is very accessible and challenging for students. This would be good session for student groups to critique and debate.

5. The end of the great acceleration: Professor Danny Dorling. Saturday Geography for Sustainability pathway. For any student or teacher wanting to understand 2020 in the wider context of global development, then this is one to watch. Some interesting and thoughtful ideas well-supported and explained.

6. Saturday Case studies pathway. There are two excellent presentations to update knowledge here. Look for Water management on the River Chess and the Infamous Eyjafyalljökull. Both provide clear and informed explanations and build in enquiry methodology.

7. Fieldwork. Real World Enquiry pathway. Look for Charlotte Foster discussing how to analyse qualitative data. This is very useful for students to broaden the range of data they might use in an NEA.

8. No more #Cartofails: David Morgan. Real World Enquiry pathway. This is another presentation from the FSC, but with a wider focus on mapping. David shows students and teachers how to avoid making ghastly and simple errors on maps and diagrams. Excellent examples and sensible, clear advice.

The GA staff and hundreds of preseners, fieldwork providers and other stakeholders are now busy preparing for the next GA conference, I'm certain that our community will adapt again and provide an excellent online experience for all. All the details can be found here and we look forward to seeing you there!

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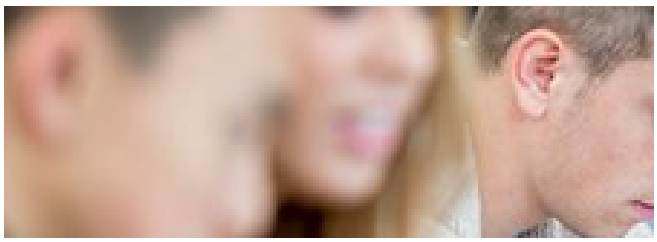
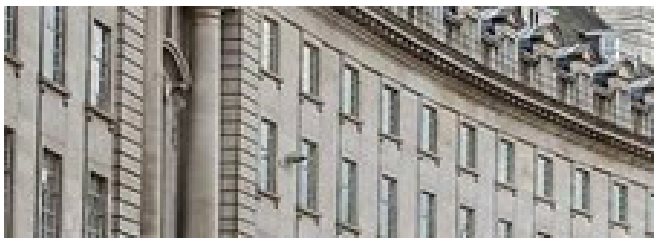
	AO2: Developing evaluative writing skills KS5 https://bit.ly/3diRIGf
	Approaching fieldwork from the classroom KS4 https://bit.ly/2NdIwmv
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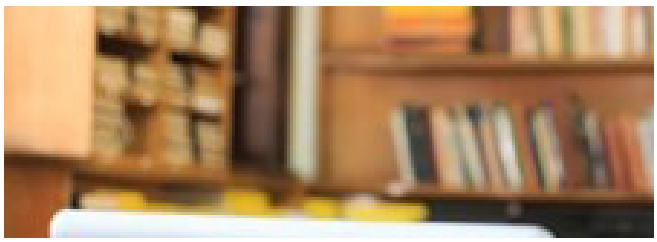
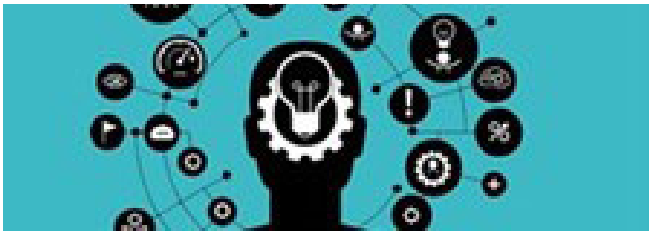
	Exam walk through KS4 - https://bit.ly/3pmTP8R KS5 - https://bit.ly/3amRq9S
	GCSE Geography knowledge organisers KS4 Specification A - https://bit.ly/3aYSWj4 Specification B - https://bit.ly/2LVoFrD
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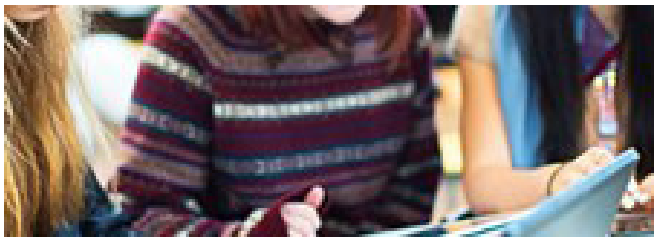	AO3: Developing data analysis skills KS5 https://bit.ly/2O1s3lm

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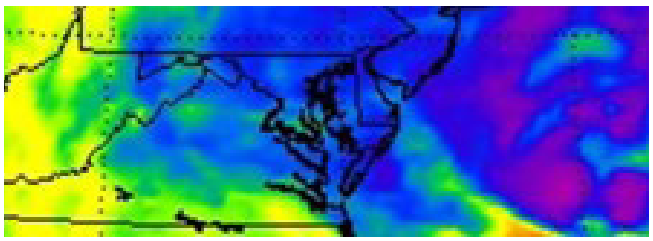	Key Idea 5.2: Weather patterns - Blended Learning KS4 https://bit.ly/3ux2f1g
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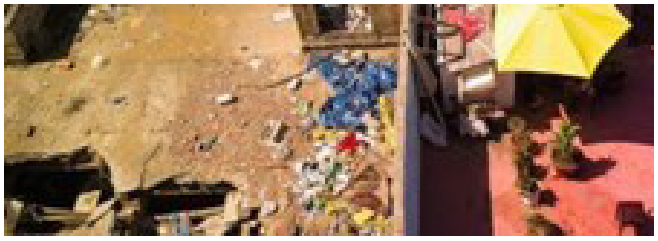	Key Idea 6.1: Measuring global inequalities - Blended Learning KS4 https://bit.ly/2ZVRPdn
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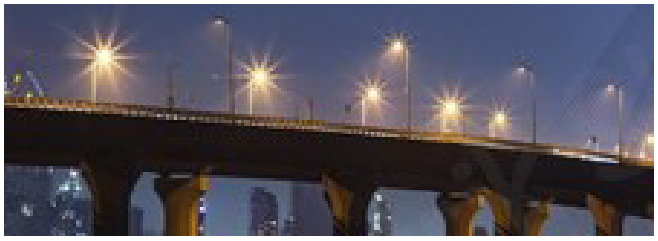
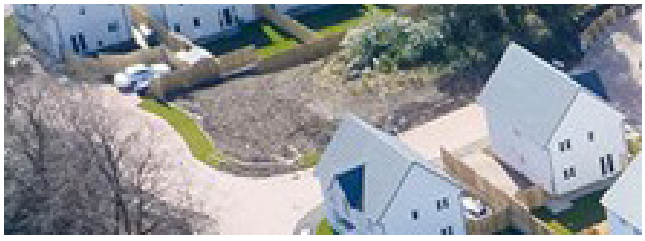
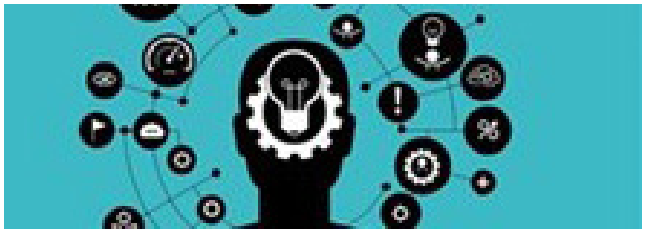
	Key Idea 2.3 Globalisation - Blended Learning KS4 https://bit.ly/3pRbF4c
	Key Idea 2.1: The urban-rural continuum in Wales KS4 https://bit.ly/3bLNjng
	GCSE Geography knowledge organisers KS4 https://bit.ly/3kpLoZA

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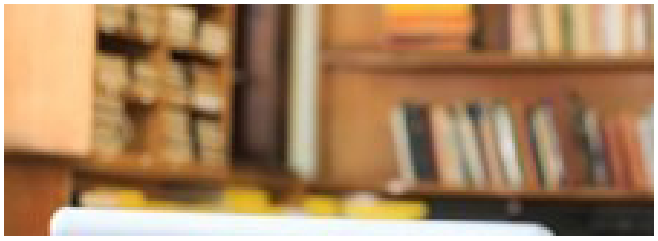	Exam walk through - Geography KS4 - https://bit.ly/3qYuZ0x KS5 - https://bit.ly/3qZVumn
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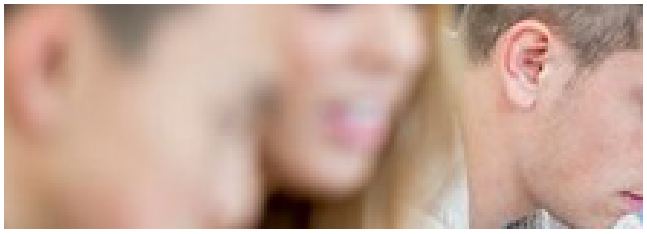	AO2: Developing evaluative writing skills KS5 https://bit.ly/3qYUvTA

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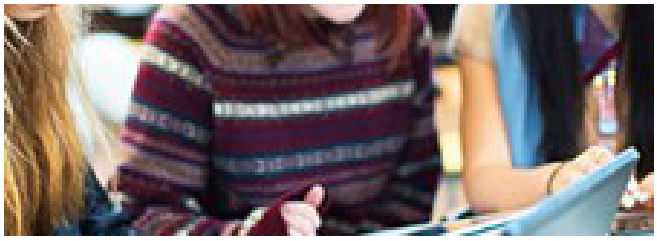	A collection of Student focused Geography resources. KS5 https://bit.ly/3aVETKN
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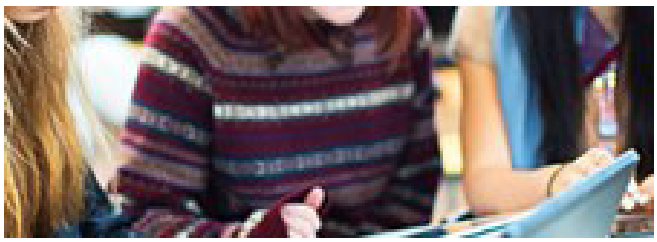	AO3: Developing data analysis skills KS5 https://bit.ly/3ktsJvO

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