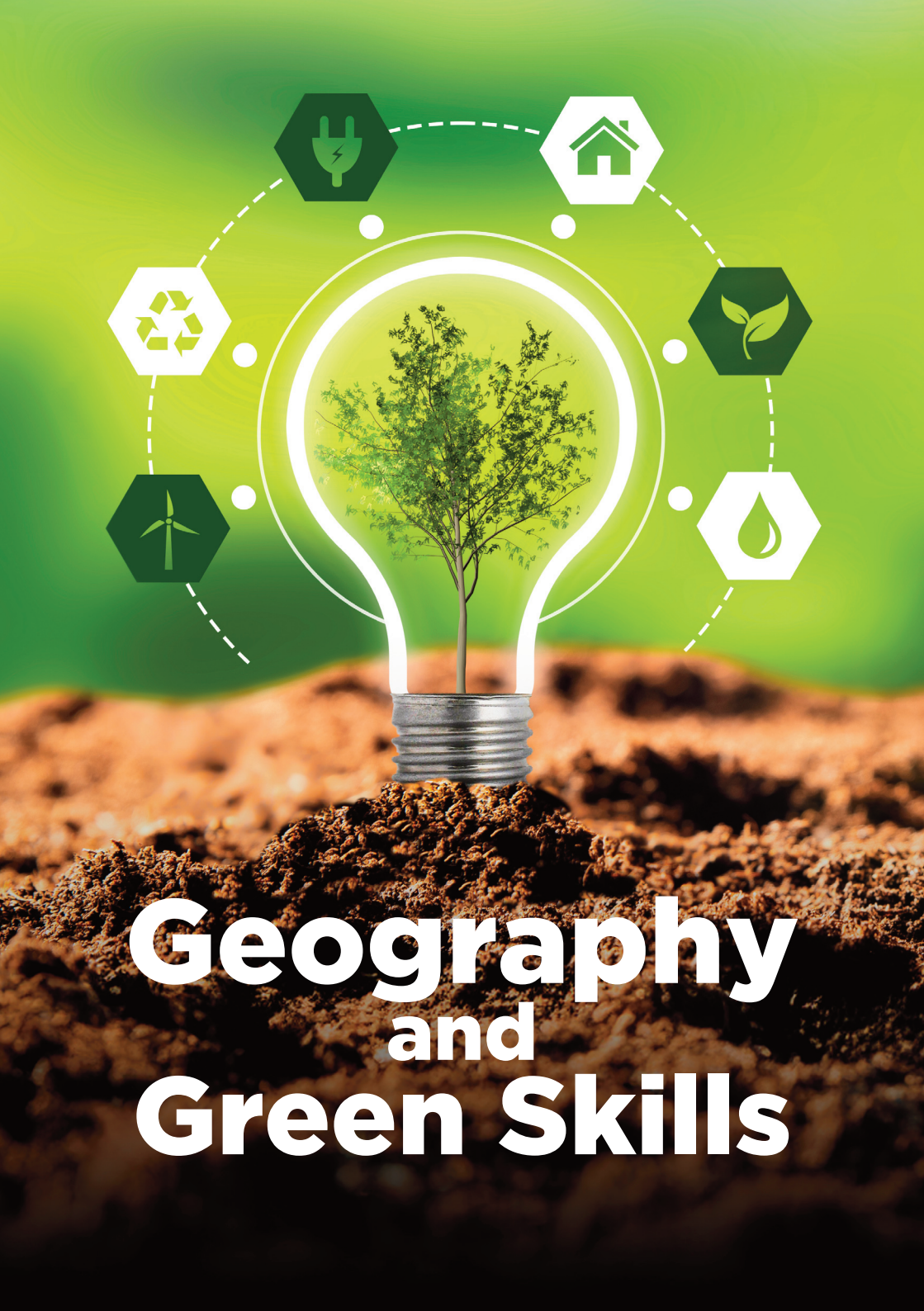
Geography
and
Green Skills

The need for green skills

'The green revolution is reshaping entire industries, creating new jobs and transforming existing ones'

Minister of State for Skills, Baroness Jacqui Smith, 2024[1]

Pupils who started school in September 2025 will be in their thirties by the 2050s, which is when the UK aims to reach net zero carbon emissions[2].

The Government's National Risk Register has already recognised how the 'increasing impact of climate change on our day-to-day lives' [3] and achieving net zero will bring change to our economy, environment, workplaces and society.

The Confederation of British Industry (CBI) identified how the UK's net zero economy has become a 'powerhouse of job creation and economic expansion'. Net zero businesses, and their supply chains, provide the UK with an economic impact of £83.1 billion and 951,000 jobs[4].

The importance of net zero is being recognised in relation to young people's future careers.

For example:

- The Gatsby *Good Careers Guidance* identifies how 'sustainability and climate change are anticipated to touch every career'[5].
- Skills England has highlighted the need to 'future-proof the workforce for green transition'[6].
- The Nuffield Foundation and National Foundation for Educational Research note politicians' calls for a 'green skills pipeline' to equip learners with the knowledge and skills needed to deliver net zero.

However, currently only 5% of Gen Zs in the workforce believe they have the green skills needed to help drive the net-zero transition[8].

1 https://www.newstatesman.com/wp-content/uploads/sites/2/2024/11/22/NewStatesman-SUEZrecyclingandrecoverUKTheReport-1.pdf

2 https://researchbriefings.files.parliament.uk/documents/CBP-9888/CBP-9888.pdf

3 https://assets.publishing.service.gov.uk/media/64ca1dfe19f5622669f3c1b1/2023_NATIONAL_RISK_REGISTER_NRR.pdf

4 https://www.cbi.org.uk/articles/growth-and-innovation-in-the-uk-s-net-zero-economy

5 https://cdn.gatsbybenchmarks.org.uk/app/uploads/2024/11/good-career-guidance-the-next-10-years-report.pdf

6 https://www.edie.net/uk-government-launches-skills-england-with-focus-on-future-proofing-workforce-for-green-transition

7 https://www.nfer.ac.uk/media/hgwls32i/the_skills_imperative_2035_working_paper_1_essential_skills_literature_review.pdf

8 https://www.edie.net/the-uphill-upskill-battle-are-businesses-ignoring-training-when-it-comes-to-delivering-on-sustainability

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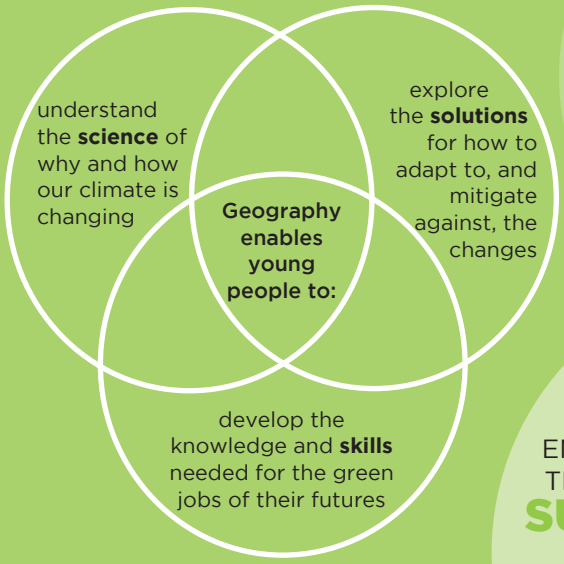
In addition, the CBI has argued that a 'huge task' is needed to educate the public about the path to net zero, without which people are less likely to consider careers in this sector[9].

This green skills gap can, in part, be addressed through studying geography; and 70% of UK adults agree that studying GCSE geography helps prepare young people with the skills and knowledge needed to work in green jobs[10].

Geography's distinctive real-world approach focuses on the interactions and interdependencies between people and their environment[11]. The subject provides a vital curriculum heartland for climate education, sustainability and green skills.



Here, we aim to highlight:

- how geography enhances young people's understanding of climate change and sustainability and develops their environmental awareness and green skills
- the good practice of schools and the perspectives of employers and industry sectors
- the future opportunities and challenges for geography, and where further action is needed.

Green Careers Week

Green Careers Week (November), alongside Careers Week (March) provides ideal opportunities for highlighting geography's contribution to green skills. In 2024, Green Careers Week had a social media reach to over 11 million unique users and connected schools and colleges with a wide range of prospective employers[12].

GCW
GREEN CAREERS WEEK

Key messages from Green Careers Week 2024:

EMPOWERING POSITIVE CHANGE THROUGH CAREERS EDUCATION
SUSTAINABILITY
ENVIRONMENT
INSPIRATIONAL
CLIMATE
ENGAGING

[9] https://www.cbi.org.uk/articles/skills-and-training-for-the-green-economy/

[10] YouGov survey, 2024

[11] https://discovery.ucl.ac.uk/id/eprint/10212236/1/A%20curriculum%20policy%20proposal%20about%20the%20key%20contributions%20of%20subjects%20to%20climate%20change%20and%20nature%20education.pdf

[12] https://nationalcareersweek.com/gcw-2024-impact-report/

What are green skills?

There are varying definitions of green skills and this term is poorly understood. For example, World Skills UK's survey of young people (aged 16-24) found that the majority of young people said that while they felt inspired to pursue a green career, they also had a limited understanding of the green skills employers required and what green jobs were available[13].

The current consensus focuses on their relevance to understanding human-environment interactions; exploring these interconnections at different scales; system thinking and problem solving.

The United Nations identifies how, 'green skills are the knowledge, abilities, values and attitudes needed to live in, develop and support a sustainable and resource-efficient society'[14].

Such skills are found in the geography curriculum and what makes a geographical skill 'green' is not necessarily the skill itself, rather its application to sustainability and an environmental context.

[13] https://www.worldskillsuk.org/wp-content/uploads/2022/06/GreenSkillsReport-2022_v3b.pdf

[14] https://www.unido.org/stories/what-are-green-skills

[15] https://geography.org.uk/green-skills/

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Green skills in the geography curriculum

The development of green skills and environmental awareness is found in many aspects of the geography curriculum. In England, geography is studied by all pupils throughout key stages 1, 2 and 3 and each year over 300,000 pupils go on to study geography at GCSE and about 35,000 at A level. When compared with 2010 figures, 125,000 more young people each year are now continuing their studies, through geography, of climate change and sustainability to the age of 16.

As they progress through their education from start to finish, geography develops pupils' knowledge about climates, environments and biodiversity; the use of natural resources; how human and physical processes interact to bring change to landscapes, the environment and climate; food security; energy choices and the carbon and water cycles.

Spanning the local and global scales, geography develops young people's environmental awareness, nature connectedness, and their understanding of the concepts of interdependence, change and sustainability.

Relevant geography skills include geographical enquiry; fieldwork; the collection and use of data about human and physical processes; spatial analysis; synoptic perspectives; use of geospatial information and the application of geographic information systems (GIS).

A high-quality geography curriculum should have systematic and embedded opportunities so pupils regularly encounter and apply their geographical understanding to environmental contexts. This enables them to develop and progress their use of such skills[16] and better understand the changes taking place in our world and how to respond to them.

'Geography is a curriculum heartland for climate education, sustainability and green skills. Its distinctive approach focuses on the interactions and interdependencies between people and their environment and develops the skills young people will need in order to understand, adapt to and mitigate against a changing climate. Geographical fieldwork provides them with first-hand experiences of nature and landscapes. In this way, geography enables young people to better understand how and why our climate is changing, how this will impact and transform our economy, society and environment and what can be done about it' [17].

[16] https://ga-blog.org/2025/01/21/building-green-skills-into-your-geography-curriculum/

[17] https://discovery.ucl.ac.uk/id/eprint/10212236

Exemplifying green skills through geography

The young people in education now will face a different world in the future. They need the relevant knowledge and skills to thrive and adapt to our changing climate. A review of submissions to the Geographical Association (GA) Geography Quality Mark accreditation identifies three broad stages for how schools are developing their pupils' environmental awareness and green skills through geography.

1. Initial adoption

Initial engagement was often through environmentally themed events and initiatives that were connected to their geography curriculum. This included themed events, such as Earth or Oceans days, initiatives including Let's Go Zero or establishing an Eco club, and work towards an accreditation such as the Eco Schools Green Flag award.

These schools' geography lessons included reference to environmental issues and sustainability. Curriculum links were further enriched through themed assemblies and engagement with environmental charities.

2. Developing curriculum coverage

Greater development was seen in schools that had included 'environmental impact' and/or 'sustainability' within their curriculum intent statements. This led to a more enhanced curriculum, through which more time in geography was dedicated to environmental issues, resulting in greater coverage across their schemes of work.

These developments often relied on the work of a passionate teacher whose geographical and environmental interests complemented their school's ethos.

3. A geography curriculum that embeds green skills

At the more embedded stage, schools had a specific curriculum thread dedicated to environmental issues and/or sustainability. In addition, sustainability and/or environmental awareness was often identified as a key concept to be taught through their geography curriculum.

Such schools also often used external frameworks and initiatives to inform and develop their geography curriculum, for example drawing on the Sustainable Development Goals and uptake of the National Education Nature Park.

Pupils were taught to become informed about, investigate and then debate a range of environmental

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issues and key questions such as: 'How will tackling climate change affect jobs and how we live?' or 'Should we spend money on new technologies to replace fossil fuels with renewable energy sources?'.

Such developed work also provided enhanced opportunities for pupil agency and action. For example, a geographical curriculum aim in one school was to 'allow all pupils to become courageous advocates for (environmental) change'.

National Education Nature Park

The **National Education Nature Park**[18] is one of the largest community science projects England has ever known. Participation connects young people with the natural world, regardless of where they live or their background, learning their place within it and becoming advocates for the planet.

Young people can use digital tools to identify habitats, map them, make decisions about them, plan and then carry out habitat enhancements to improve their site for nature. This data will provide fascinating insights into local ecosystems and develop virtual maps of UK biodiversity. It's also an easy way to build in more experience with GIS into lessons.

Each step in the Nature Park process gives young people the opportunity to develop a range of skills that will prepare them to take advantage of the rising number of jobs that require green skills when they leave education: skills in identification and ecology; recording and interpreting data; creative thinking and decision making; environmental stewardship and horticulture; and communication.

The range of case studies on the Nature Park website shows how other schools are successfully using the activities to develop their students' green skills while working together to build positive change and act on behalf of nature, their education setting and their local community.

[18] https://www.educationnaturepark.org.uk

'As society transitions to net zero... it is crucial that young people are aware of the evolving labour market and equipped to navigate a changing world'

Gatsby Good Career Guidance[19]

Making green careers visible in geography

There are significant opportunities for all schools to provide greater visibility for green careers in their geography lessons. This supports Gatsby's career guidance benchmark 4 – linking careers to the curriculum – and also promotes the positive outcomes of geography graduates, who secure above-average levels of graduate employment and 'top 10' salaries.

The examples here illustrate how green careers have been embedded in the primary and secondary geography curriculum.

Warren Farm Primary School in Birmingham integrated study of a range of green jobs, such as ranger, recycling officer or environmentalist, into their Y5/6 geography lessons. Through this work their pupils discovered a wide range of green jobs and filled out job applications for their future green careers[20].

[19] https://www.gatsby.org.uk/app/uploads/sites/2/2025/07/good-career-guidance-the-next-10-years-report-1.pdf
[20] https://x.com/warren_farm_pri/status/1906799495905518012/photo/3

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Secondary geography teacher Miss Pickett included adverts for 'Future Geographers'[21] to introduce each new unit of work. These profiled jobs such as hydrology and flood protection roles at the Environment Agency. Pupils then investigated the roles, using the RGS's I am a geographer[22] profiles, and decided whether they wanted to enter this career and why.

For more geography-focused careers resources see:

- GA: Career Spotlight resources[23]
- Environment Agency and GA: Careers Case Study[24]
- Esri UK: Careers with GIS[25]
- Geological Society Geology: Career Pathways[26]
- National Careers Service: Explore Green Careers[27]
- Royal Geographical Society: I am a Geographer[28]
- Time for Geography: Career Explorers[29]

The following organisations offer a range of virtual or on-site work experience programmes:

- British Antarctic Survey[30]
- British Geological Survey[31]
- Environment Agency[32]
- Meteorological Office[33]

[21] https://x.com/miss_m_pickett/status/1448369523011297288?t=YxNbb5NFyV9iV1C1SYfI3w&s=03
[22] https://www.rgs.org/choose-geography/i-am-a-geographer
[23] https://geography.org.uk/online-teaching-resources
[24] https://geography.org.uk/resources/environment-agency-careers-a-river-catchment-case-study/
[25] https://careerswithgis.co.uk/
[26] https://www.geolsoc.org.uk/Geology-Career-Pathways/Careers/Career-Profiles/Career-Profiles.html
[27] https://nationalcareers.service.gov.uk/careers-advice/green-careers
[28] https://www.rgs.org/choose-geography/i-am-a-geographer
[29] https://timeforgeography.co.uk/careers/careers-explorer/
[30] https://www.bas.ac.uk/jobs/work-experience-opportunities/
[31] https://www.bgs.ac.uk/about-bgs/working-with-us/work-experience/
[32] https://www.springpod.com/virtual-work-experience/environment-agency-opportunities-your-environment-your-career/WEXP-00433
[33] https://careers.metoffice.gov.uk/early-careers/work-experience

Industry sector and employer perspectives

There is growing political and policy support for green careers. The Department for Education's Sustainability and Climate Strategy recognises that 'Green jobs will not be niche (and) we anticipate that sustainability and climate change will touch every career'[34].

The following case studies share employer and industry sector perspectives on how further study in geography can support entry into a wide range of rewarding careers. Beyond the highlighted sectors there are also increasing opportunities for green careers spanning environmental law, green finance, business and financial planning, insurance, logistics and supply chain management, infrastructural development, planning the sustainable communities, retail, and helping individual businesses reduce their use of carbon and strengthen the sustainability of their operations.

As the Government's Industrial Strategy[35] identifies, there will be economic opportunities from net zero and through green manufacturing, services, innovation, exports and the circular economy.

Creating better places for people and wildlife: The Environment Agency

CASE STUDY

The Environment Agency works to create better places for people and wildlife, and supports sustainable development in England. It is sponsored by the Department for Environment, Food and Rural Affairs.

The Environment Agency takes action to regulate major industry and waste; the treatment of contaminated land; water quality; fisheries; inland river, estuary and harbour navigation; and conservation and ecology. It is also responsible for managing the risk of flooding from main rivers, reservoirs, estuaries and the sea.

The Environment Agency employs over 13,000 people in a wide range of roles that may be of interest to geographers. For example, its Environment and Science Graduate Training Scheme accepts applications from fields including environmental sciences; physical geography; catchment and river basin management; hydrology; ecology and biodiversity; geomorphology; coastal processes; climate science; carbon management; sustainability and environmental management; and data science and informatics[36].

Your Environment, Your Career is an online work experience programme for young people aged 13+ who are interested in finding out more about careers in flood and coastal risk management at the Environment Agency. It explores the management of risks from flooding and coastal change and highlights a range of career pathways[37].

In addition, the Environment Agency and Geographical Association have jointly developed a range of resources for primary and secondary geography lessons examining flooding, sustainable coastal management, natural flood management and careers at the Environment Agency[38].

[34] https://www.gov.uk/government/publications/sustainability-and-climate-change-strategy/sustainability-and-climate-change-a-strategy-for-the-education-and-childrens-services-systems
[35] https://assets.publishing.service.gov.uk/media/68595e56db8e139f95652dc6/industrial_strategy_policy_paper.pdf
[36] https://www.gov.uk/government/organisations/environment-agency/about/recruitment
[37] https://www.springpod.com/virtual-work-experience/environment-agency-opportunities-your-environment-your-career/WEXP-00433
[38] https://geography.org.uk/environment-agency-resources/

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CASE STUDY

CIWM

Shaping the Future: Chartered Institution of Wastes Management

A dynamic sector for geographers
For geographers, the resources and waste management sector presents an exciting, fast-growing career path. This is a field at the heart of the global drive toward sustainability and the circular economy, where 'waste' is re-born as valuable material, making it a perfect fit for those with an interest in the environment, planning and resource use.

Why work in the sector?
Beyond contributing to a greener future, professionals benefit from excellent career progression, competitive salaries and good job security. With demand for skilled workers rising, salaries in many roles now exceed national averages, especially in senior or specialist positions, reflecting the sector's importance to the UK economy.

Diverse and rewarding roles
Careers span a wide range of disciplines, from waste management officers, recycling co-ordinators and environmental consultants to policy advisors, analysts and circular economy specialists. Opportunities also exist in research, innovation and community engagement. From designing smarter waste systems and launching innovative recycling programmes to advising on policy, analysing data, driving circular economy projects, pioneering new technologies and inspiring communities, professionals in this sector are at the forefront of creating a cleaner, more sustainable future.

Careers of the future
- Near-term (2023-30) careers include roles associated with policy development and implementation; design of products and packaging; regulation and compliance; collections and operations, including drivers; recycling managers; reuse and repair operations; material sorting and reprocessing (chemists and engineers).
- Medium-term (2030-35) careers include circular economy specialists; renewable energy specialists (materials, engineers); change managers; manufacturing and remanufacturing; industrial reuse and repair, chemists and material scientists.
- Long-term (2035-2040) careers include net zero carbon capture and storage; automation and AI.

As the leading professional body for resources and waste management, the Chartered Institution of Wastes Management[39] (CIWM) is your gateway to the sector. CIWM offers accredited training, professional development, networking events and exclusive job listings to support your career journey.

If you're ready to align your geographical expertise with one of the world's most pressing challenges, visit CIWM's website for resources, training and career opportunities. The resources and waste management sector isn't just a job – it's a chance to shape a sustainable future and thrive professionally.

Katie Cockburn, Senior Director Policy and Education CIWM

[39] https://www.ciwm.co.uk/

CASE STUDY

People, Planet and Profit: green opportunities at SUEZ UK

SUEZ UK[40] is part of a global resource management company operating waste and water related service and infrastructure projects. In the UK we are a £1.4 billion business with over 7,500 staff and 350+ sites managing materials, resources and waste for customers including the Greater Manchester Combined Authority, Surrey Country Council and the West London Waste Authority. We recruit from the communities we are based in, and for specialist skills when needed, helping build careers, harnessing innovation and delivering efficiency.

We have recently onboarded 150 graduates into roles spanning accounts, IT, technical and engineering teams, sustainability managers and communications. Many have a geography or environmental science background, and we need a range of skills and competences that can be learnt on the job and through our education programmes.

We are taking interns from universities in their industry placement year providing real world experience, and a good salary comparable to other graduate roles. Our apprentice programme provides opportunities in engineering disciplines, sustainability, accountancy, communications, project management, legal and environmental teams.

However, most of our staff have joined us straight from school or another sector. They can grow their expertise while working with us and build a career that spans any number of our divisions. Many on our senior leadership team have grown up in the business and are now industry-recognised experts.

As part of the wider waste and resource management sector SUEZ UK is looking to deliver low carbon, community benefits, secondary resource fuelled economic growth. This means protecting the planet, supporting people through green jobs and making a profit for reinvestment in the business and our partners, including charities. It is a win-win in the triple bottom line of people, planet and profit.

Dr Adam Read MBE, Chief Sustainability and External Affairs Officer, SUEZ

[40] https://www.suez.co.uk/en-gb

Ordnance Survey

CASE STUDY

Mapping biodiversity, climate risk and clean power: Ordnance Survey

Ordnance Survey's (OS) geographic data for Great Britain plays a crucial role in tackling the challenges posed by climate change. Recent enhancements such as the inclusion of field boundaries and updated Land Cover[41] information significantly improve the nation's ability to monitor biodiversity changes and plan land use more effectively.

Flood risk assessments also rely heavily on OS data, which is essential for insurance companies seeking to better understand climate-related risks[42], as well as for local authorities planning flood mitigation strategies.

OS has also released detailed data on approximately 40 million roofs across Great Britain, including information on their shapes, aspects, materials, and the presence of solar panels. This dataset reveals that 5% of buildings currently have solar panels[43]. When combined with Met Office weather data, it enables the identification of roofs well-suited for future solar panel installations.

In addition, geospatial skills are increasingly used across the UK's digital economy, with greater use of geospatial data generating between £6bn-£11bn per year in economic value and providing wider social and environmental benefits[44].

[41] https://www.independent.co.uk/climate-change/news/ordnance-survey-britain-national-geographic-sustainability-england-b2522971.html
[42] https://www.ordnancesurvey.co.uk/insights/insurance-managing-climate-related-risks
[43] https://www.ordnancesurvey.co.uk/insights/supporting-the-governments-drive-for-a-rooftop-revolution
[44] https://assets.publishing.service.gov.uk/media/5b72edf5e5274a1cf7427d04/Initial_Analysis_of_the_Potential_Geospatial_Economic_Opportunity.pdf

Future opportunities and challenges

The Geographical Association recognises that this is an area in flux, where the education policy environment is in transition and there are developing needs from employers and industry sectors.

This situation presents opportunities and challenges for the geography subject community, including:

Curriculum reform

There are opportunities to strengthen coverage of climate education, sustainability and green skills in a revised geography curriculum and qualifications.

The Curriculum and Assessment Review's interim report (March 2025) identified how 'rapid social, environmental and technological change necessitates that the curriculum keeps pace; including a renewed focus on digital and media literacy, and a greater focus on sustainability and climate science'[45].

Education reform is also taking place in Northern Ireland, Scotland and Wales, presenting comparable opportunities to strength geography's contribution to green skills.

In addition, PISA has committed to developing a new global metric on climate change literacy, planned for 2029, which will enable British pupils to benchmark their climate literacy against their international peers[46].

Strengthening careers education within geography

There is work to do to strengthen careers education within geography and help young people explore the rewarding careers that geography can lead into.

Many employers are actively seeking the knowledge and skills of geographers and there is potential to build stronger partnerships between the geography classroom and workplaces through which young people can build their future careers.

The views of young people, most of whom are seeking a good salary and/or the 'right' job[47], need to be central to this approach. This requires green jobs to be presented as careers that can meet young people's career and salary aspirations, as well as providing wider positive environmental benefits.

[45] https://www.gov.uk/government/publications/curriculum-and-assessment-review-interim-report
[46] https://www.unesco.org/en/articles/cop29-ministerial-roundtable-greening-education-and-enhancing-climate-literacy-metrics
[47] https://www.rgs.org/about-us/what-is-geography/geography-in-schools/young-peoples-views-on-subject-choices-further-study-and-careers

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Recognising that most young people will 'take their geography with them' into other study, vocational training and apprenticeships

The health of geography relies on more young people, of all backgrounds, going on to study geography at A level and university. However, almost 85% of pupils who study GCSE geography will move on to study other subjects and/or enter vocational training or apprenticeships.

There is the opportunity to more fully recognise how young people can 'take their geography with them' and to better connect geography with other pathways alongside further study in the subject at A level. For example, the Institute of Apprenticeships and Technical Education has identified a number of key themes through its Green Toolkit[48] that are relevant to the geography curriculum. These include carbon, energy sources and usage; resource management; procurement and full-life decision making; and resilience, adaptation and preparedness.

Indeed, geographical perspectives and interests are strongly reflected in a wide range of vocational courses, apprenticeships and training. Such opportunities span, for example, environmental management, data analysis, transport and logistics, construction, surveying, working in travel and tourism or landscape management or working within utilities such as water and clean power.

As society transitions to net zero geography has a vital role to play in supporting the next generations' awareness of environmental issues and the development of their green skills.

[48] https://skillsengland.education.gov.uk/media/qjlp4dc2/green-toolkit-november-2023.pdf

Geography shapes who we are, how we view the world and how we live within it. It enhances everyone's learning, livelihoods and lives, and has a vital role to play in supporting the next generation to develop their green skills.

Geography and Green Skills aims to highlight:

- how geography enhances young people's understanding of climate change and sustainability and develops their environmental awareness and green skills
- the good practice of schools and the perspectives of employers and industry sectors
- the future opportunities and challenges for geography, and where further action is needed.

Written by Steve Brace, Rebecca Kitchen and Jon Cannell on behalf of the Geographical Association

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