

How Ordnance Survey is supporting lifelong learning in geography and geospatial:

the impact of education, promotion,
and development



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Introduction from the CEO

Ordnance Survey (OS) is part of a thriving and engaged ecosystem, from the private and public sectors, to the work of organisations such as the Association for Geographic Information, the Royal Geographical Society, and the university networks.

We collaborate to advocate for and promote the importance of geography and geospatial – in all walks of life.

By educating, promoting, and developing geospatial skills, we can unlock new opportunities, drive progress, and create a more sustainable and informed world.

As the National Mapping Service for Great Britain, we know we're living through an exciting period of digital revolution, and the opportunities that geospatial offers people to be on the forefront of critical solutions.

We support and engage schools and teachers, helping educators move from a paper-map-first approach to building confidence with using digital maps through Geographic Information Systems (GIS).

We're also privileged to have a proactive workforce at OS, with strong take-up of opportunities to build technical expertise and continuous professional development, foster critical thinking and problem-solving skills, and support the leaders of the future.

Let's keep going!



Nick Bolton, CEO

Executive summary

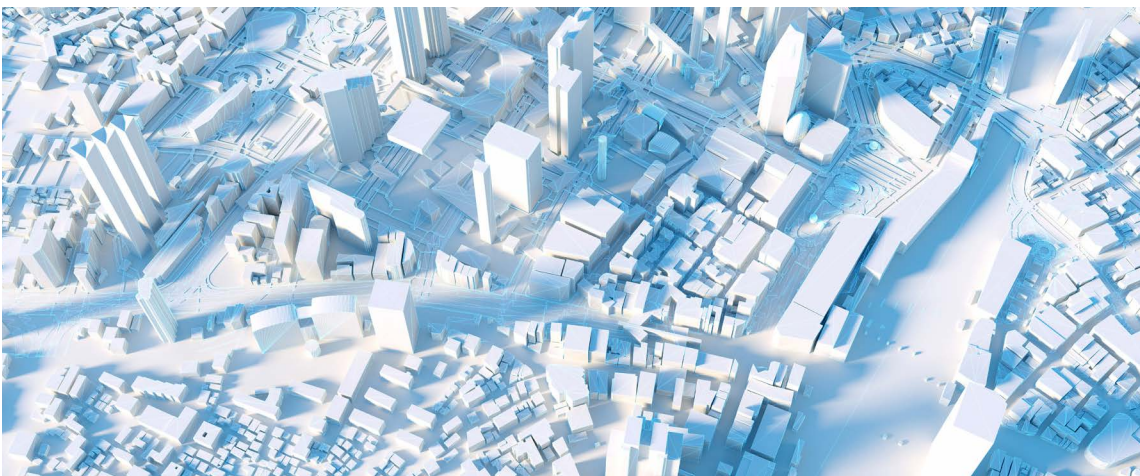
As the National Mapping Service for Great Britain, Ordnance Survey (OS) has a crucial role to play in supporting the promotion of geography and geospatial learning and skills.

OS wants to make sure that people from all backgrounds have access to learning experiences that inspire curiosity, promote critical thinking, and enhance spatial awareness. OS supports teachers in the classroom, helps students develop map reading skills, and enables staff to keep pace with rapid changes in technology through continuous professional development.

Working together

At OS, we recognise we're part of a much wider network of organisations – public sector bodies, educational institutions, and the private sector, who all support education, skills, and training.

Our core responsibilities are set out by government. This includes a key aim to 'support the development and growth of geospatial capabilities and the geospatial ecosystem.' This will be achieved, in part, through 'championing and developing geospatial education, skills and impactful networks.'



Key areas of impact

Education:

- **Teacher training:** Providing comprehensive training for teachers, from PGCE students, to experienced educators, so they can confidently use geospatial data in classrooms.
- **GIS tools for schools:** Offering free access to Digimap for eligible schools, helping empower students and staff to reach their goals.
- **Online resources:** A range of online materials are available to support the use of geospatial data in education.

Promotion:

- **Public engagement:** Promoting the importance of geography and mapping skills through public initiatives, such as National Map Reading Week.
- **Sponsorships and partnerships:** Collaborating with organisations such as the Royal Geographical Society to enhance geography education and professional development.
- **Geospatial data visualisation:** Developing tools and resources to support geospatial data visualisation and training.

Development:

- **OS Graduate Programme:** A two-year programme to build technical expertise and professional skills in new graduates.
- **Professional development:** Apprenticeships, coaching, mentoring, and learning platforms support continuous professional growth for OS colleagues.
- **Research collaborations:** Engaging in research partnerships with universities, including sponsoring PhD and postdoctoral research to help advance geospatial science.

Future plans

Education initiatives:

- **New teacher resources:** Publish free online resources to integrate Geographic Information System (GIS) and geography into Year 8 Information Technology (IT) modules.
- **Revised guidance:** Update and distribute best practice guidelines for teaching GIS in Key Stage 3 and 4 geography.
- **Peer mentoring:** Pilot a scheme where Year 8 students mentor Year 5 students to strengthen educational links.
- **Regional training:** Expand teacher training through a network of regionally-based trainers, supported by OS experts.
- **Enhanced GIS tools:** Improve the provision of school-appropriate GIS tools to maximize educational impact.

Promotion:

- **Public resources:** Continue to develop and promote resources for navigation and map reading, to encourage outdoor activities.
- **Corporate partnerships:** Utilise sponsorships to advocate for geography applications and enhance geographic skills education.

Development:

- **Diverse talent attraction:** Explore ways to attract talent from diverse socio-economic backgrounds.
- **Artificial Intelligence (AI) training:** Provide training to harness AI for improving geospatial capabilities and driving effectiveness in data strategies.

The context

The last 20 years has seen a transformation in the way most people are accessing mapping, from pulling up real-time traffic information on phones and tablets, to tracking taxis and deliveries. Others still are using location-based financial services, and carrying out complex tasks such as climate change analysis.

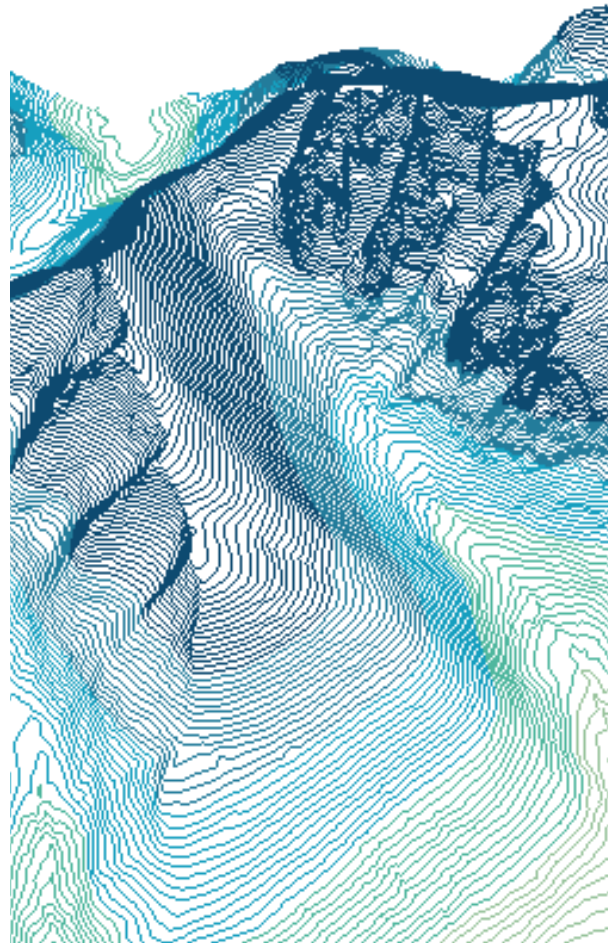
This growing demand is in turn driving recruitment to the geospatial sector. The 2023 [Education & Skills Report](#) from the Association for Geographic Information (AGI) found that:

63% of geographic organisations were recruiting because they were experiencing higher demand for geospatial skills in their business.

The UK Geospatial Strategy 2030, published by the Geospatial Commission (now part of the Government Digital Service) identified skills and education as a key area of development to maintain this pipeline of talent entering the industry.

“The UK cannot realise the value from geospatial applications without an appropriately skilled workforce that is positioned to develop and use new technologies. The pipeline of geospatial skilled individuals will depend on schools, further education and continuing professional development.”

(UK Geospatial Strategy)



Educate, promote, develop

In a period of technological innovation, it's vital that educational institutions and industry stakeholders continue to build links and collaborate closely. Only by doing so can the best talent be attracted.

At OS, there are three key areas where the most impact can be delivered, either directly, or by working alongside a team of relevant bodies, leveraging our unique position as a government-owned company:

- **Educate:** OS has a long track record of supporting the delivery of geography teaching. This is currently funded through the Government Digital Service (GDS) as part of the Public Sector Geospatial Agreement (PSGA), which enables OS to deliver a training programme for teachers, and encourage the awareness and use of high-quality geospatial data in the education sector. OS was also the original digital data provider to the University of Edinburgh's EDINA Digimap service, and has supplied geospatial data to universities for 25 years, a service which now also supplies colleges.
- **Promote:** The position OS holds in both the cultural and digital landscape of the nation means it has an important role to play in demonstrating the power of geography, the importance of mapping skills, and to help widen awareness of geospatial across government, the public sector, and industry.
- **Develop:** OS recognises the importance of a workforce consistently engaged in learning and innovation, helping maintain OS's role as a leading geospatial organisation. Through creating pathways for emerging talent, OS is able to benefit from a steady influx of skilled professionals at the cutting edge of geospatial technology.

Educate



The Education Plan

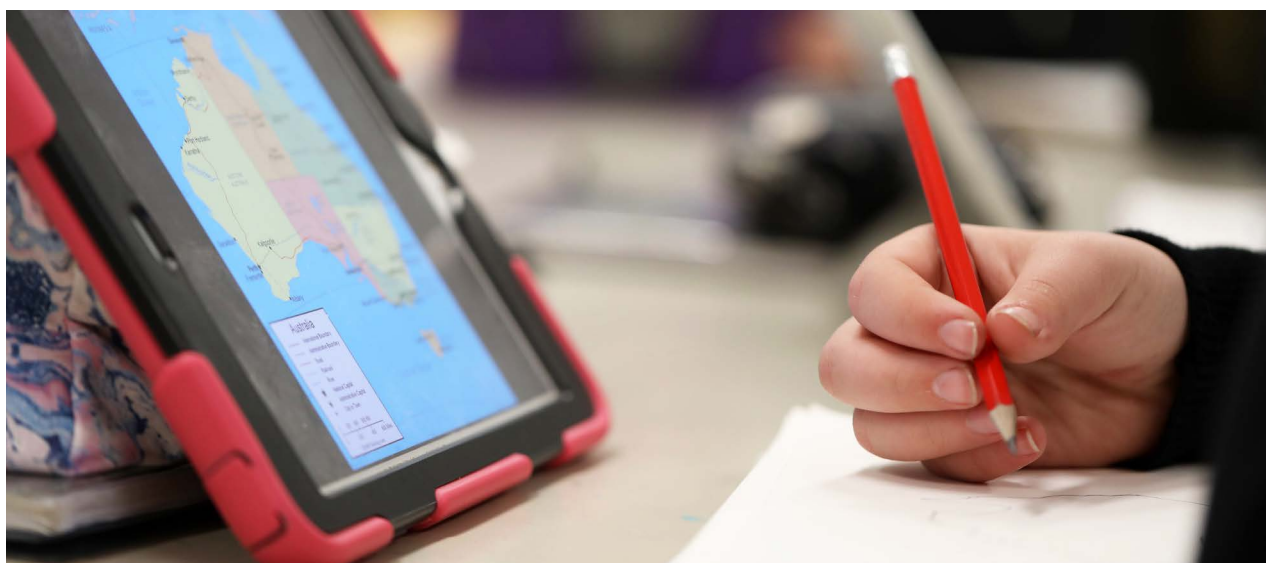
OS has a long and proud history of supporting the teaching of geography in schools across the country, through our teacher training programme. OS maps also feature as a key part of the national curriculum, making sure students are able to interrogate and read maps, understand how they relate to physical geography.

With the move from paper maps to digital, there are a range of tools available for teachers to support their work in the classroom. However, without the right support in place, building understanding and confidence can feel daunting for trainee or in-class teachers.

Since 2019 our support for teachers has been funded through the PSGA and underpinned by an Education Plan agreed by OS and government.

The Education Plan has two objectives:

1. To promote the importance and use of geospatial information in schools, drawing on OS's role as the creator and curator of the National Geographic Database – the high quality and authoritative national data set of Great Britain.
2. To support the national curriculums across Great Britain, including using OS mapping data, as well as more broadly, atlases, and field work.



To meet these objectives, OS has undertaken the following activities:

- **Direct teacher and trainee teacher training:** Aimed at all teachers – from PGCE students, through to experienced teachers at primary, secondary and A-level. The aim is to equip teachers to confidently use geospatial data in the classroom, in line with the national curriculum and exam board syllabuses. This often involves changing the mindset around using Geospatial Information Systems (GIS), (which some may have only cautiously touched on in their own education), to embracing GIS through various different approaches. In 2023/24, training was provided to just under 2,000 teachers through a mix of virtual and in-person training.
- **The provision of school age-appropriate GIS tools:** Funding the free provision of [Digimap For Schools](#) to English primary and secondary schools based on Ofsted scores of 3 (requires improvement) and 4 (inadequate) for two years, via our Partner EDINA, and input into its ongoing development. This reached 81 Secondary Schools and 162 Primary Schools in 23/24.
- **Online tools and materials:** A range of online [resources for teachers](#), including guidance materials for using geospatial data in the curriculum, covering Key Stages 1 to 4.
- **Exam and textbook support service:** Exam boards (and associated services) and textbook providers can access the [OS Data Hub](#) to obtain map extracts for free. Or they can request specific map extracts for use in exams for a limited fee.
- **Enabling easy and free access to OS data across the education sector:** The Education Services Provider Contract is a streamlined licence allowing educational providers to use the PSGA to utilise OS data in their products for free.
- **Exploration of Virtual Work Experience and Geospatial Insight Sessions:** A 3-year trial of our Virtual Work Experience programme to allow GCSE Geography and STEM students to engage with OS.
- **A programme of stakeholder advocacy:** Engaging with education and skills stakeholders to support delivery and maximise opportunities to promote geospatial education, including opportunities to support teachers with and beyond geography, and curricula review, across Great Britain.

OS also provides additional support, including:

- **An annual GIS Day:** Local schools in the Southampton area are invited to visit OS HQ and attend a day of activities, interacting with our teams and engaging with the potential of geospatial as a career path.
- **Mapzone learning:** [Mapzone](#) is a free teaching resource that brings geography and mapping to life. It includes interactive games, quizzes, and map skills activities.
- A wide range of [Education resources](#)

Teachers survey

In 2024, OS conducted a survey of geography teachers at all levels, to gauge their levels of engagement with GIS tools, and what other materials they used in the classroom – to better understand how teachers are using GIS (and supporting resources) to identify options for better, more targeted support in the future.



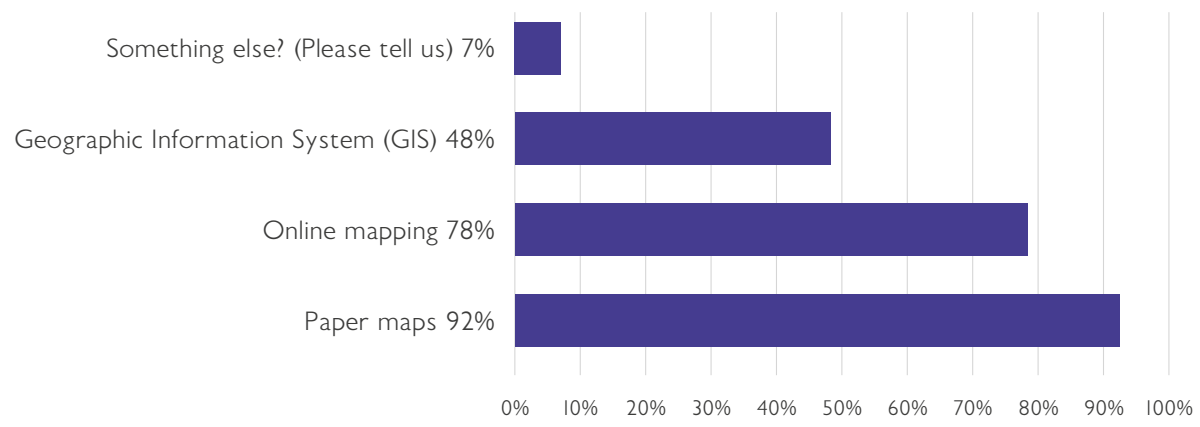
OS received 416 responses, with the headline responses being:

- “While there is positive update of digital tools in schools, there continues to be a reliance on traditional teaching materials such as paper maps.”
- “There are clear barriers for teachers accessing GIS, particularly at the primary school level.”
- “There are significant gaps in training, with nearly 50% of all teachers saying they struggle to access training tools. This becomes increasingly challenging the further they progress into their careers.”

Nearly all respondents endorsed the idea of further support for GIS being embedded into the curriculum.

Results breakdown

What type of mapping do you use in the classroom?
(398 responses)

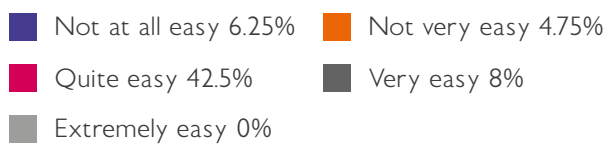
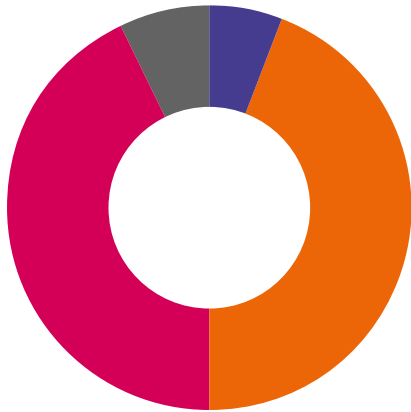


What type of mapping do you use in the classroom?
By school type (398 responses)

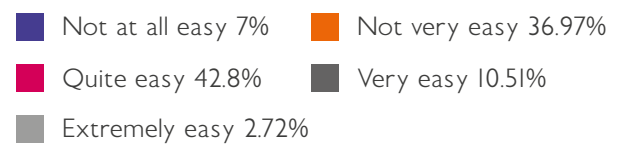
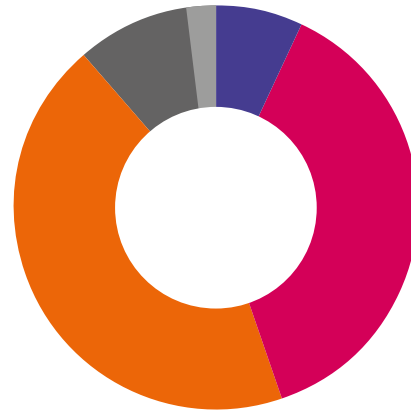
	None	Paper maps	Online mapping	Geographic Informaton Systems (GIS)	Other
Primary and / or junior school	1%	90%	88%	26%	8%
Secondary	0%	93%	74%	53%	6%
Other	0%	88%	91%	70%	12%

How easy is it to find useful online resources and / or training?

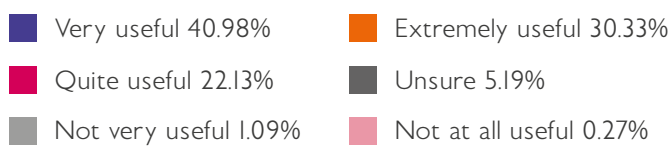
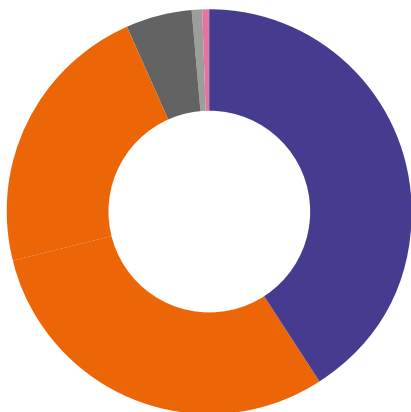
Primary / junior school (80 responses)



Secondary (257 responses)



If there was curriculum guidance on how to embed GIS, would you find this useful? (366 responses)



Digimap service for colleges and universities

Digimap is an online map and data delivery service, available through subscription to UK higher and further education establishments for education and academic research.

The OS Collection includes a wide range of products and has been supplied through Digimap for 25 years, the full service having launched on 10 January 2000. The success of the colleges and universities service was one factor leading to the launch of Digimap for Schools 10 years later.

In an average year, approximately 130 universities and 70 colleges subscribe to the service – translating to around 80,000 registered users, all of whom have access to the latest OS data products.

OS endeavors to always supply the latest data to make sure the academic community is able to benefit from the most up-to-date and authoritative geospatial information available. An evolving Digimap has enabled that to happen, including most recently, the OS National Geographic Database (OS NGD), bringing value to both students and researchers.



Promote



Working with the educational community

OS is part of a rich and passionate community, stretching from a love of maps and geography through to geospatial and location data. Our dual public and private sector role means we're well placed to promote the benefits of our sector to both general and expert communities in Great Britain, working alongside a network of Partners who share that common goal.

In addition, OS also maintains comprehensive sponsorship agreements with the Royal Geographical Society (RGS) and the Royal Scottish Geographical Society (RSGS). Both agreements were recently renewed, with the aim to deliver and further improve a range of activities. This will benefit geography professionals, students, and teachers, through deeper and broader cross-sector collaborations, enhancing the teaching of geography in schools, and engaging professional communities at all career levels.

As part of the agreement between OS and the RGS, both bodies work together to enhance the function of an increasingly multi-disciplinary skills pipeline, through targeted interventions, such as educational support, curricula review, field work support, and training.

OS is the proud sponsor of an RGS Award celebrating excellence in secondary level education, as well as sponsoring the Young Geographer of the Year awards.

From 2025, OS is also the sponsor of the Geographical Association's award for excellence in primary education.

OS undertakes a regular programme of wider stakeholder engagement in relation to education, including:

- The Geographical Association
- The Association for Geographic Information
- The University of Edinburgh's EDINA service
- ESRI UK
- Textbook publishers, including Hodder, Cambridge University Press and Oxford University Press
- The Scottish Association of Geography Teachers

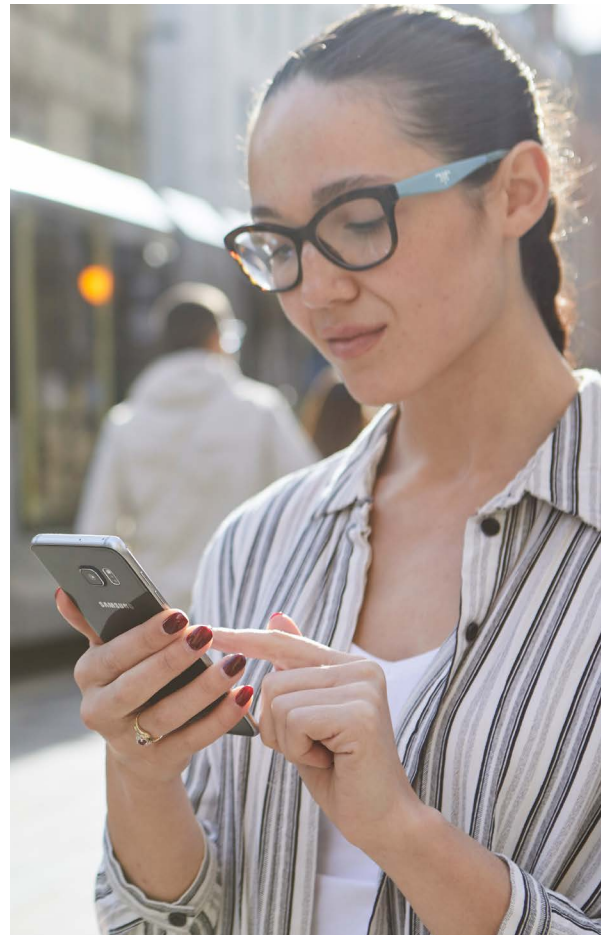
Working with the public

With mapping tools becoming more widespread, it's more important than ever to help people develop their map reading abilities – particularly when trekking outdoors. It can help build confidence, make walks more interesting, and in the rare cases when needed, enable assistance from emergency services.

A survey conducted by OS in 2022 found that more than a quarter of people in Great Britain believed that they had never been taught to read a map, and more than half (56%) of walkers admit they've gone astray because they were unable to use a map or follow an app correctly.

To help support people with understanding how a map works, we host [Map Reading Guides](#) for all ages and knowledge levels. These are some of our most consistently popular pages on our [GetOutside](#) site – always in the top 10 of our page views.

We've also championed an annual National Map Reading Week, working with Partners such as Mountain Rescue England and Wales, among others, with the aim of demystifying navigation, educating people about the importance of map reading, and promoting how to enjoy the outdoors in a safe and accessible way.



Working with the geospatial community

With growing interest around how to use geospatial techniques to help support decision-making and visualise data to create compelling narratives, the OS Geospatial Data Visualisation (GDV) team has produced several tools to support training, skills development, and education in this area.

These include:

- **GDV Toolkit**

[GitHub](#)

A comprehensive GitHub repository filled with information to aid in creating maps and data visualisations. It includes colour palettes, symbology, and more.

- The GDV team has been involved with the Virtual Work Experience program, through an exercise focused on data capture and map design.

In 2023, the OS GDV team won the Geography in Government Award for Contribution to Public Sector Geography.

- **[More than Maps](#)**

An online self-serve platform, providing a wealth of knowledge, tools, and resources for all things geospatial, including articles, tutorials, demonstrators, code examples, and more.

OS has provided the British Cartographic Society with a new OS Student Award to encourage the innovative use and visualisation of geographic data.

The team regularly host work experience placements and have participated in numerous school and college job fairs, discussing roles and careers at OS. Additionally, we've delivered virtual presentations to various schools on topics such as Storytelling with Maps, Emergency Mapping, Map Design, and more.

Working with government



The Government Geography Profession was established in 2018 to support geographical expertise across the public sector and is supported by OS through talks, information sharing and the hosting of events including the Profession's 2024 Conference, bringing together geospatial professionals from across the public sector at OS Headquarters in Southampton. OS has a named 'Deputy Head of Geography Profession' within the organisation to support staff in their continuous professional development as geographers.

OS supports a number of capability building initiatives across government to help develop geospatial skills. For example, we've embedded technical expertise into public bodies for a time limited period to develop certain geospatial functions, usage or strategies to increase adoption. We've also contributed to the Geography for Data Science and Analysis module for the Government Data Science Graduate Programme, operated by ONS.

Develop



For OS to continue to be successful and fulfil its obligations as the National Mapping Service for Great Britain, we need to make sure that pathways are open for new entrants, and that current staff are supported to develop their skills.

Graduate Scheme

OS has developed a two-year graduate programme that provides early professionals with the chance to work on projects and activities that build their core technical expertise, collaborating with key parts of the business, such as the Data, Products, Innovation, Consultancy, and Technology areas of OS.

There are also opportunities to spend time with some of our UK geospatial Partners within the UK, such as wider government bodies or with our commercial Partners. Graduates have the chance to work on real-life projects, programmes, and business challenges, interacting with key stakeholders and real customers.

At the same time, graduates will work through a learning programme that will help develop soft skills and support professional development.



Supporting our teams

At OS, we have four key values which help shape us and the work we do:

- | | | | |
|--|--|---|--|
| <ul style="list-style-type: none">• Think customer:
We put customers at the heart of everything we do, dedicated to users across a variety of sectors and industries. | <ul style="list-style-type: none">• Thrive together:
We work as one team to deliver for our customers; learning from each other, openly connecting and communicating. | <ul style="list-style-type: none">• Stay ahead: We set the standard and lead the way – delivering certainty today and innovating to stay ahead tomorrow. | <ul style="list-style-type: none">• Seize the moment:
We seize every opportunity to turn ambition into action; making things happen with passion and purpose. |
|--|--|---|--|

To help us meet these values, a suite of support is on offer for staff to build their skills, enhance their knowledge, and progress through their career:

- **Apprenticeships** – there's a wide range of apprenticeships available to staff to progress in their current role. Apprenticeships range from Level 2 (GCSE equivalent) to Level 7 (Masters / MBA equivalent). We currently have 70 colleagues on apprenticeships at OS.
- **Coaching and mentoring** – colleagues at OS are encouraged to develop skills to help support others, as well as being able to access a pool of 105 staff in our mentor community. We're in the process of developing an internal pool of coaches to support colleagues across the business, ensuring they can get access to coaching.
- **Learning platforms and self-led toolkits** – to support being curious, challenging oneself, and taking control of learning.
- **A focus on technical training** – aligned to driving our strategy, our Strategic Workforce Plan, and data skills development across OS.
- **Professional body memberships** – we encourage staff to become accredited in relevant professional fields, whether that's surveying (working closely with the Royal Institute for Chartered Surveyors), as geographers (with the Royal Geographical Society), or with a range of other accreditation awarding bodies (such as the Royal Institute of Navigation). These memberships recognise employee commitment to maintaining their expertise through Continuing Professional Development and offer programmes of professional engagement with peers and wider networks.

- **Early career support** – OS sponsors and supports a number of early career networks in the geospatial ecosystem to provide peer-led information sharing and engagement, such as the AGI's Early Career Network.
- **The OS Academy** – the programmes demonstrate our commitment to growing, nurturing and developing our people:

Aspire – our self-led discovery programme, helping people seize opportunities to progress careers through enhancing self-awareness, building new skills, and broadening networks. So far we've supported 80 colleagues through this programme.

Ignite – developed to progress gender diversity across our senior leadership team. Our first two cohorts focused on women's development, and saw ten colleagues progress through the programme, with two already securing promotions.

Accelerate – designed to support the development of colleagues who aspire to move into senior leadership roles within the next three to five years. Our first cohort sees 10 OS colleagues experiencing a bespoke learning journey to set them up for future success.

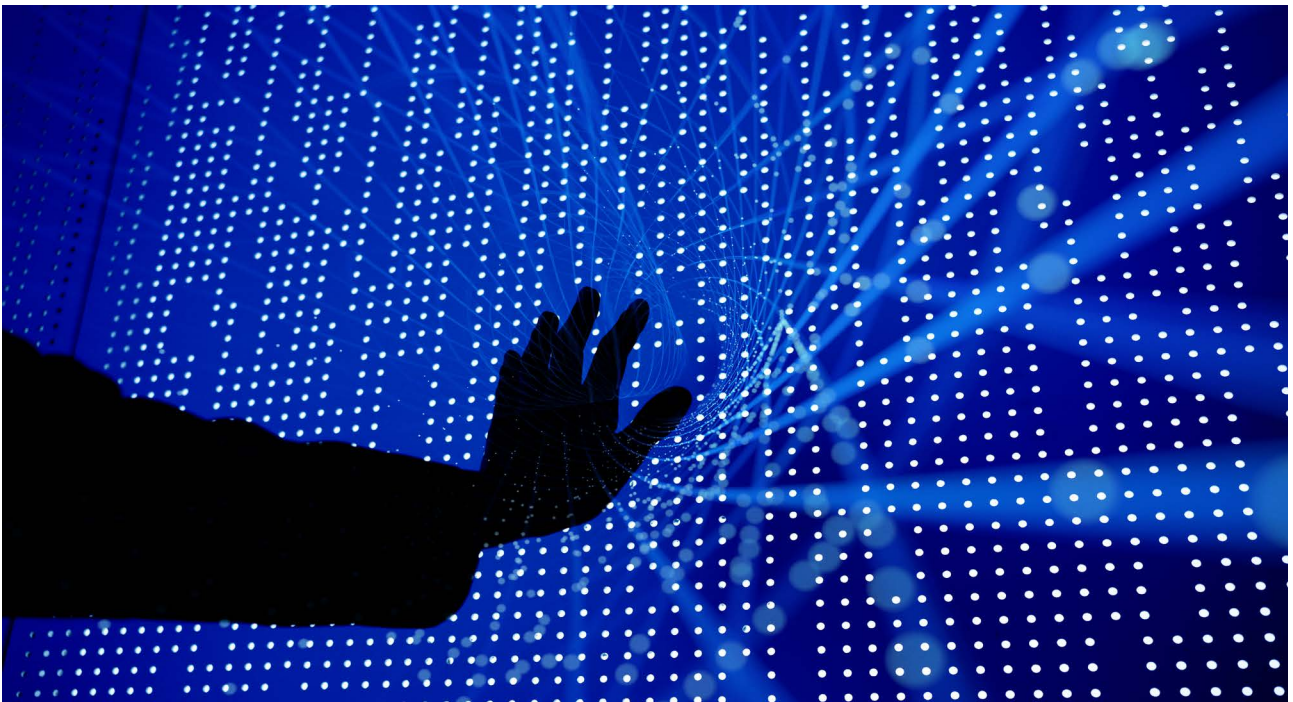


Research engagement

Our Research team has close relationships with a number of universities throughout the UK, and through a very active external research programme, sponsors several PhDs and postdocs in any given year.

Each year the annual OS Research Workshop brings together our external sponsored researchers from around the UK – a mix of faculty academics, postdoctoral researchers and PhD students, to present their work over a two-day period. The workshop is also a time for our researchers to share ideas, learn from one another and build collaborative relationships to improve the research they're delivering.

For many years, OS has been a major sponsor of the Geographical Information Science Research UK (GISRUK) conference, whose natural constituents are academics and practitioners focusing on the advancement of spatial sciences. It's a conference that focuses on nurturing the next generation of spatial experts and early career researchers – an important community to work with and support.



Next Steps



To maximise the impact of our work, there are things OS, working in partnership with government and the wider geospatial industry, can do:

Educate

- Support the use of geospatial in science, technology, engineering, and mathematics (STEM) subjects, publishing a free new teacher resource aimed at integrating GIS and geography into a Year 8 teaching module on IT.
- Enable teachers to use GIS in geography at Key Stage 3 and 4, publishing a free, revised set of guidance and best practice.
- Strengthen links between Key Stage 2 and 3, supporting a pilot scheme of peer mentors, where Year 8 students guide Year 5 students.
- Expand our training provision to teachers within schools through an additional network of regionally-based trainers – all supported by OS experts.
- Evolve our support for the provision of school age-appropriate GIS tools through a new approach to identifying schools who would benefit, and enhancing our support to maximise the impact.



Promote

- Continue to develop our public-facing resources around navigation and map reading, supporting people on their journey to understanding and valuing the outdoors as a space for leisure and adventure.
- Work in partnership with our corporate stakeholders, utilising corporate sponsorship and benefactor agreements to deliver a programme of work which advocates for the applications of geography, enables sector collaboration, draws on our organisational and collective strengths, and enhances geographic skills and education provision across the UK.

Develop

- Help widen the talent pool, exploring ways to attract talent from all socio-economic backgrounds and entry levels.
- Provide training and support for colleagues to harness the power of Artificial Intelligence (AI), transforming the way we work to drive greater effectiveness in service of our Data and Destinations strategy.



OS is proud of the role it plays within the education, skills and training landscape of the nation and is dedicated to continuing that support into the future. To find out more please visit www.ordnancesurvey.uk



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