Careers with Geographical Information Systems

● I am a Geographer

Head to the RGS-IBG's 'I am a Geographer' pages https://www.rgs.org/iamageographer/

These pages contain a huge bank of interviews with professionals from all areas of geography. Each profile contains the name and job title of a professional, as well as their picture. We provide a breakdown of what their job involves, the specific skills they have that are relevant for the role and also why they feel studying geography is important.

They can be filtered to show just careers in 'Geospatial and Technological Innovations'.

Using the resources:
- Profile 1: Richard Martin, GIS Analyst
- Profile 2: Andrew Fielding, Flood Risk and GIS Analyst
- Profile 3: Terri Freemantle, Senior Earth Observation Specialist
- Profile 4: Patrick Rickles, Head of Business Intelligence and Spatial Data Science
- Profile 5: Katie Hall, GIS Education Consultant

Split the class into five groups and give each group one of the career profiles.

Give each group 10 minutes (max) to read through their profile and make two bullet point lists:
1. List three things this person does as part of their job
2. List five skills this person mentions in their profile

Some groups may require some support in determining exactly which geographical skills the profiles are referring to, particularly if students are in KS3. Depending on your group, this activity may need to be done as a class with the profile on the board for all to read and the teacher highlighting the skills as you go along. In this case, 2-3 profile could be discussed as a class rather than all five.

Each group should then feed back to the class, telling the rest of the group about this person's job and the skills they use to do their role, using the bullet points they have noted during their group discussions. As each group presents, the teacher should note the skills mentioned by each group on the board, so by the end of the activity there is a clear list of geographical skills employed by people working in GIS. This can be used as a summary plenary by the teacher to demonstrate what makes GIS a good career choice for geographers.

For teachers, here is a summary of what you might expect to hear regarding each career profile:

Profile	Job roles and responsibilities	Skills
Profile 1: Richard Martin,	• Delivering a coordinated	• Great communication

GIS Analyst	approach to conservation across the whole organisation • Understand how the organisation can benefit and deliver mobile data collection apps, story maps and web apps • Analysing a wide range of internal and external data that helps the National Trust understand its assets, from land to coastlines, buildings to trees and to enable strategic management decisions to be made. • I could be working on a project, dealing with ad-hoc queries, designing a dashboard or out at a property testing/training a new tool. • We could be focusing on coastal erosion one week to renewable energy sources the next.	• Being able to understand the needs of an audience or particular group of people • Providing solutions to problems • Gathering information from people about what they want or need • Sharing ideas, solutions and best practice • Demonstrate outcomes of work through visual aids / presentations / maps • Thinking outside the box • IT / GIS /software / data knowledge • Able to multitask • Work under pressure
Profile 2: Andrew Fielding, Flood Risk and GIS Analyst	• I've worked on a variety of projects, ranging from small scale flood risk assessments and research projects to multi-million-pound, national scale work. • My day to day role involves large amounts of spatial data analysis through the use of GIS and programming • I've developed a series of national datasets representing opportunity areas for woodland planting as a means of reducing surface water run-off; whilst providing multiple benefits (e.g. carbon sequestration and increased biodiversity). • I've been working in a large team updating the reservoir flood mapping across England assessing the impacts of potential reservoir breaches utilising broad scale 2D hydraulic models.	• Ability to research areas that may not have been researched before • Creative • Thinking outside the box • Problem solving • Good communication • Mentoring others
Profile 3: Terri Freemantle, Senior Earth Observation Specialist	• I oversee a number of projects, providing technical governance, meaning that I	• Independent research • Keeping knowledge up to date and relevant

	am responsible for the geospatial component of these projects, this includes reviewing work before it is submitted for accuracy and managing budgets and resource. • I undertake technical work in Earth Observation, remote sensing and GIS. This can include handling and processing optical and radar satellite data, using image analysis software and computer programming. • Using Earth Observation to help fulfil the Sustainable Development Agenda, by facilitating access to low cost, frequent operational monitoring of Earth systems processes, such as management of water resources, change in land cover (e.g. deforestation) and climate and disaster risk resilience • Use data and technology to find solutions to real world problems such as climate change resilience, disaster risk reduction, managing food security and monitoring infrastructure	• Working collaboratively in a team / team leadership • Solving problems • Understanding client or user needs / needs of specific groups of people • Project management • Presentation of research and work outcomes • Good communication • Design skills to create visually appealing materials to explain work outcomes • Ability to multitask and switch between tasks quickly • Ability to self-manage workload • Good coding skills • Knowledge in both commercial and open source programming languages, image analysis and GIS analysis software
Profile 4: Patrick Rickles, Head of Business Intelligence and Spatial Data Science	• Leading teams on data visualisation, solutions architecture and spatial analyses • I lead on integration of Esri, Microsoft and open source technologies • I am actively building the organisation's geospatial data capabilities and repositories, training people across the Ministry of Justice and acting as the department's representative for Esri, Ordnance Survey and Microsoft. • I regularly chair meetings with stakeholders to capture and incorporate feedback • Preparing maps to demonstrate pieces of	• Understanding how to create solutions • Conducting interviews and designing and deploying surveys • Managing stakeholders and stakeholder expectations • Project management • Geographic knowledge • People skills • Being able to visualise how data could be presented to help people understand it better • Training and mentoring others

	- information in a clear way - Advising colleagues how to best present information using a GIS tool - Training team members to use GIS	
Profile 5: Katie Hall, GIS Education Consultant	- I spend time using the ArcGIS platform to get to know our software as much as possible. - develop new resources for schools and universities and devise innovative ways to apply GIS to school curriculum content. - I develop training courses for teachers and students to help them use our technology - I act as a first line of technical support for users of the platform in schools, who get in contact to ask questions about what they can do with GIS, and I am part of the team that looks at the technical side of making GIS work in schools - Work with other companies and organisations that have interesting data they want to share to create interactive resources.	- Using skills developed in one area to help work in another area - Understand the needs of your target audience - Training others - Working with and understanding stakeholders - Filming, editing and producing video footage - Good geography knowledge - Ability to use others' skillsets to your advantage

Micro-activity
Rather than making a whole activity out of these career profiles, teachers could use just one profile and embed it within lesson, for example as a plenary to show how GIS is used in the real world in relation to the topic they are currently teaching. An example of this may be Profile 2: Andrew Fielding, Flood Risk and GIS Analyst, who you might refer to following a lesson on reducing flood risk. Andrew uses GIS to determine and map where trees and woodlands should be planted in order to reduce surface run off. He has also used GIS to identify potential reservoir flood risk areas using data collected from scientific models. Teachers could read through the profile and provide a quick summary of Andrew's job, what qualifications he has and his career pathway. It is important to emphasise to students how a professional uses their geographical skills in their job; in Andrew's case having knowledge about what causes floods and how flood risk can be reduced and being able to understand that changes in one area can cause both positive and negative impacts in another area.

Taking this further
This activity could be taken further by following up with the 'Job adverts' activity, which looks further into what skills employers are looking for when they are advertising GIS or geospatial jobs and provides further information about job titles and wage brackets in this sector.