Google Maps

Getting started with GIS – for free

Online CPD http://www.geographyteachingtoday.org.uk/chartered-geographer/online-cpd-from-cgeogs/

Objectives

- To understand the potential of Geographical Information Systems to develop spatial thinking and skills
- To use develop and share ideas for using GIS in the classroom, for free!

Resources

- ACCESS TO ICT – minimum one PC (with internet connection) and projector
- http://maps.google.co.uk/
- http://www.panoramio.com/
- http://dexautomation.com/googlechartgenerator.php
- 'Google Maps' helpsheet
- 'Google Chart Generator' helpsheet
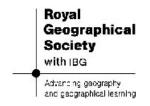- 'Panoramio' helpsheet

Session outline

- Introduce the session title and objectives.
- Explain the key principles and potential of GIS, using the presentation.
- Demonstrate the basic navigation tools of Google Maps (panning, searching, switching views, turning layers on/off). Allow teachers to practise these skills.
- Demonstrate how to create a new map (adding points, lines, areas, information, photographs). Allow teachers to create their own maps and to discuss teaching ideas.
- Demonstrate how to create charts, using quantitative data, with Google Chart Generator. Allow teachers to create graphs and charts and add these to their maps.
- Plenary – discuss GIS entitlement and next steps.

Pre-course task

The presenter will need to be proficient enough with Google Maps and Chart Generator to demonstrate the use of this (free, internet-based) software to the audience.

It is advisable to create Google Map and Panoramio accounts BEFORE the session. The best method is for the presenter to create accounts with a user name and password for all participants to share. Alternatively, ask participants to create their own accounts.

Further reading/resources

ESRI (1995) Exploring Common Ground: The Educational Promise of GIS
http://www.esri.com/industries/k-12/PDFs/xcg.pdf

Mitchell, D. (2007) 'Get started with GIS on the internet … for free' *GA Magazine* Spring (No.5)

Mitchell, D. (2010) 'Being critical when teaching with technologies' in Brooks, C. (ed.) *Studying PGCE geography at M level*. Routledge. Abingdon.

Ordnance Survey (2007) *GIS for schools* September (Issue 3)

Ordnance Survey resource sheet – 'Teachers guide to GIS'
http://www.ordnancesurvey.co.uk/oswebsite/education/pdf/teachgis.pdf

Notes for presenters

Slide 1 [1 min]

Explain that the Chartered Geographer network is comprised of experienced and committed teachers of geography and that the network resources are available from www.geographyteachingtoday.org.uk
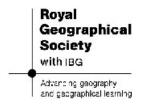
Slide 2 [2 mins]

Introduce the session aims. Allow time for teachers to ask any relevant questions about these.

Emphasise that this session is really an introduction to the use of simple Geographical Information Systems (GIS) – with an emphasis on using free, freely-available and straightforward methods.

Slide 3 [3 mins]

A Geographical Information System (GIS) combines digital maps with a great range of data (from photographs and other 'qualitative' information to quantitative data stored on a database). It is the *geographic* nature of the information (i.e. the fact that its location is known and can be plotted on the map) that gives it such great potential for geography.

As Roy Laming from ESRI UK (the largest GIS company in the UK) puts it: "**GIS has the ability to store, retrieve, manipulate and analyse a range of spatially related data".**

In the diagram on this slide, we need to ask, 'Who is the person in the middle?' Hopefully, this will be one of our students – collecting and sorting data, making decisions about how to represent this information and using the outcomes to gain *geographical* knowledge and understanding.

Slide 4 [4 mins]

Expand briefly on each of the bullet points on this slide. Note that:

- GIS can be used simply to produce accurate and professional-looking maps, but that we need to be aware of the cartographic skills being used (simply pressing 'print' involves very limited skills!);
- By its very nature, using a GIS encourages students to engage with real places. We can exploit this in order to promote curiosity about places, 'sense of place and scale' as well as knowledge of location and the potential to link and compare places;
- GIS allows students to gather information and decide how to represent it – important parts of the enquiry process. One of the advantages of using GIS is its ability to let students handle large amounts of data. It encourages students to analyse spatial patterns and to 'think spatially';
- GIS also allows students to input their own data, from fieldwork. By comparing this with secondary data from other sources, they learn important lessons about data collection and reliability;
- Finally, if it is to have maximum impact on geographical learning, GIS should be used to tackle complex and challenging geographical thinking. If students have enquired into places or patterns and become familiar with geographic information, their ability to reach justified conclusions, take informed decisions or make reasoned predictions *should* be increased.

Slide 5 [10 mins]

Explain that we are going to 'start simple'.
Hyperlink to Google Maps. Use the first page of the Helpsheet Section A: 'Using what's already there' (and, if needed, the 'Basic Navigation' page at the back) to demonstrate basic navigation and searching using Google Maps.

Most teachers might have seen/used this website, but allow a few minutes for them to explore its functionality and limitations in comparison to the claims for GIS made earlier.

If time, elicit one or two ideas relating to the 'discussion points' at the bottom of this section:
- What geographical information can you find that helps you investigate your place of interest?
- Which geographical skills are being practised here?

Slide 6 [15 mins]

Use the Helpsheet Section B: 'Creating a new map'.

Demonstrate how to:
- sign in (a common user name and password is more effective, as it allows everyone's work to be viewed at the same time, on the same account)
- create a new map under My Maps
- add a point and change the place marker
- insert text (including Rich Text) and hyperlinks (e.g. to a website)
- add lines and areas to the map
- insert a photograph from elsewhere on the internet (Section C: 'Adding photographs to your map').

Allow time for teachers to create their own maps and display these on the screen. (Treat Section D: 'Sharing your work' and the 'Panoramio' help sheet as **extension** activities for teachers who make rapid progress and/or want to make use of digital photographs they have brought to the session with them.)

Briefly discuss teaching ideas. If needed, share some of these as prompts:
- Interpreting information - Create a map with 'stimuli' (such as photographs, text) and ask students to make use of these to describe a place, pattern or process (e.g. photographs along a river valley); Create two or more maps with information and ask students to draw out similarities and differences.
- Locating information - Create a map where information is not yet located accurately (e.g. photographs arranged down one side of the map) and ask students to move information into the 'correct' or 'most likely' location (e.g. a series of images from across an urban area).
- Following or creating trails – Create a line or trail for students to make investigations along. Ask them to collect and select information (e.g. the proposed route of a by-pass); Ask students to sequence place markers containing information along a line or trail created by the teacher (e.g. different types of vegetation or conditions along a sand-dune transect); Ask students to select a route and present information to justify it (e.g. creating a 'safe route to school').
- Looking for patterns – Ask students to use shapes to delimit the boundaries of areas, based on geographic information (e.g. land-use zones within an urban area).

Slide 7 [15 mins]

[Note – with a short session it will probably not be possible to use 'real' data collected from the field, unless this is available from previous work undertaken by teachers. It is therefore recommended that teachers practise the principles of using the chart generator and insert numbers just to illustrate how each chart works. With a half-day session or longer, it is possible to ask teachers to go outside to collect some quantitative data and record its location on a base map.]

Use the hyperlink on the presentation to visit
http://dexautomation.com/googlechartgenerator.php

Refer to the Google Chart Generator Helpsheet. Follow its example to create a bar chart.

Copy the hyperlink from the bar chart you have generated. Paste this into a Google Map:
• EITHER as an image within a place marker (so that the chart can be seen when the place marker is opened);
• OR as an icon (so that the chart can be seen directly on the map)

Allow around 5-10 minutes for teachers to practise creating different charts and inserting these into their Google Maps.
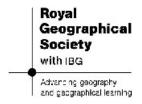
Slide 8 [5 mins]

Point out that digital mapping and GIS have been available to schools for many years. In the past few years, their status has shifted from an 'optional extra' to part of every student's entitlement, as part of a good geographical education. GIS might be tricky at first, but it is very rewarding and is no longer an option!

NOTE, for example, that :
• many features of the National Curriculum for Geography can be addressed through the use of GIS. Some of these are on the slide. In addition, the statutory Programme of Study DOES make specific reference to GIS (third bullet point);
• "GCSE specifications in geography must require learners to demonstrate knowledge and understanding of the use of new technologies including GIS, to assist geographical investigation" (GCSE Criteria). The Criteria, which all specifications are required to meet, also require students to 'use GIS' (as on the slide);
• The A level Subject Criteria "require students to use modern information technologies, including geographical information systems, as appropriate to the content" and also refer to the need to understand this technology;

- For both GCSE and A level, there are many other aspects of the specifications that could be met using this technology.

[At this point, it may be worthwhile to return to the list of 'claims' about GIS made on Slide 4. From what they have created and begun to do so far, how many of these skills do the teachers feel they have practised? What is their relationship to the skills needed at GCSE and A level?]

[Optionally, make the point that we don't want GIS to emerge through coercion! There are growing opportunities for ACCREDITATION and REWARD for GIS work. Apart from raising their attainment in geography, students can, for example, attain a Level 3 qualification in GIS - the ASET GIS course post-16. Teachers and departments can also gain from GIS use, receiving accreditation for GIS courses run by the Royal Geographical Society (with IBG) and the Geographical Association and/or refer to their use of this teaching technology when seeking formal recognition as individuals (e.g. the Chartered Geographer scheme) or as departments (the Quality Mark for Geography).]

Slide 9 [5 mins]

Create an open discussion as the session plenary. Share ideas, try to resolve queries and difficulties and focus on 'next steps'. Emphasise that this session was intended as a 'free and easy' introduction: more complex and costly software is available when the limitations of this freeware have been reached.

Try to get each teacher to identify how, where and when they intend to apply these skills.