



Digimap for Schools: scalable web mapping without the jargon

Richard Spooner reflects on this innovative online mapping service for teachers and pupils in primary and secondary education, and discovers that even time-served GIS professionals can learn from its customer focus

Digimap for Schools¹ is a subscription service that removes the need for individual schools to acquire and store mapping data on their own computers. EDINA, the national academic data centre based at the University of Edinburgh, takes care of that and provides map updates as required. However, Digimap for Schools is much more than a central and up-to-date mapping repository. It is also a mapping *service* and a mapping *application*.

Many schools will think of Digimap for Schools not only as data, but also as application software: software that that can be accessed by any authorised user in the school or at home, without having to download or install anything.

By providing a browser-based application for accessing Ordnance Survey (GB) data, EDINA has removed the need for additional expenditure by individual schools on hardware and software. Equally importantly, EDINA has assumed most of the data and software management effort that would otherwise have fallen on schools' ICT staff and resources.

Mapping functionality

With Digimap for Schools, Ordnance Survey maps are accessed via a modern, lightweight browser-based application which provides

searching via postcode, place name and Ordnance Survey grid reference. The application also has the usual pan and zoom capabilities one would expect from modern web mapping interface. Map keys are available for each scale of map to explain the symbols used, and users can choose whether or not to display national grid overlays on their maps. Annotation tools are provided to allow pupils to add point markers, draw lines and regular and irregular polygons, and add text labels, all according to their own style. Measuring tools are also included. Any features drawn on the screen can be saved, and printed maps created at either A4 or A3 size, portrait or landscape, and in Adobe® PDF, JPEG, or PNG formats.

Digimap for Schools isn't a GIS; but it never set out to be one. It is a digital mapping service designed to be fast, easy, and fun for its target market, i.e. Key Stage 2 and 3 pupils (7-14 year olds) and their teachers to use. In fact the service is so versatile that it is also being used at KS1 (5-7 year olds) and KS4 (14 - 16 year olds). By putting ease-of-use, speed of access, and fun at the heart of its service, EDINA has delivered not just a collection of spatial data, nor just a neat web application, but a complete service in support of the educational needs of primary and secondary school pupils.

Support for geography teaching

Some insight into what these needs might be can be gleaned from the 2011 Ofsted report into geography teaching in England and Wales.² It was published just three months after the Digimap for Schools service was launched, based on visits by Ofsted inspectors to look at geography in a sample of almost two hundred primary and secondary schools between 2007 and 2010. The report's authors praise the value of geography in the modern curriculum and note that the study of geography can contribute to the development of a deeper understanding of people and places.

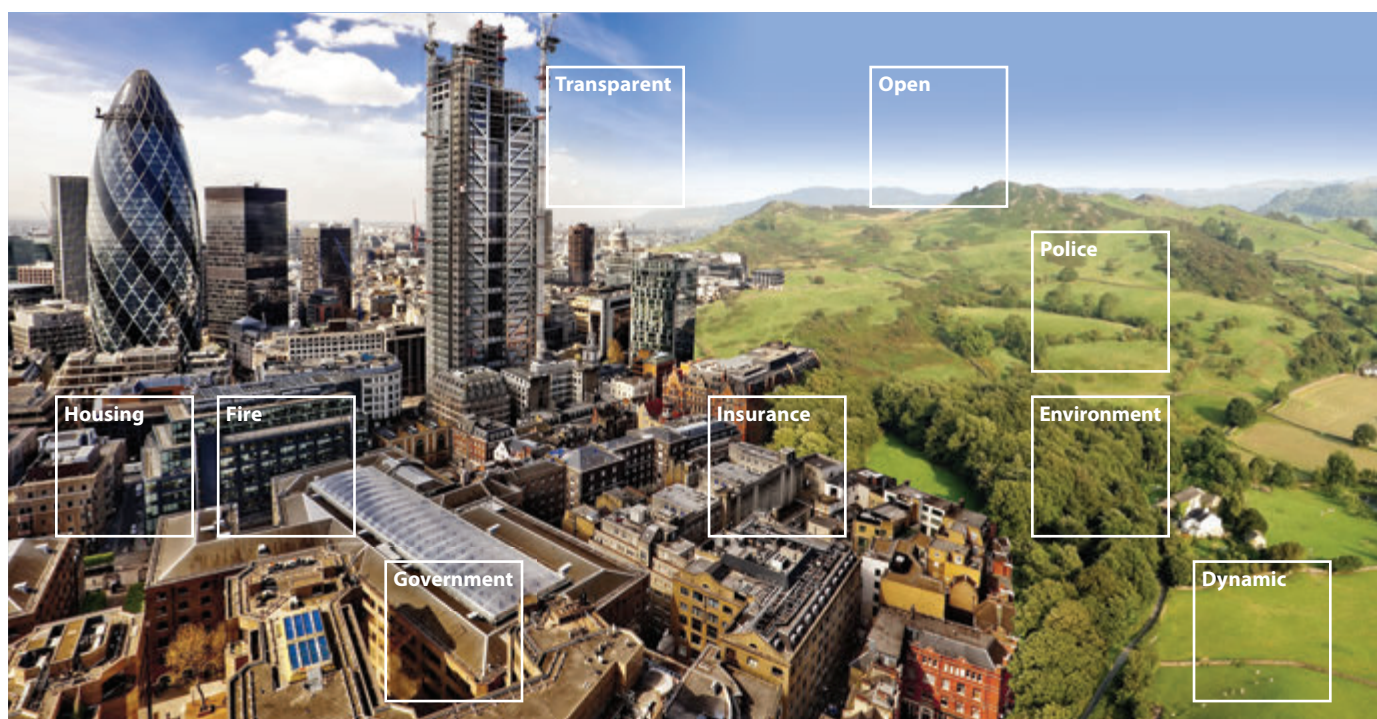
Geography links the disciplines of science and humanities and helps students develop a wide range of skills and knowledge, especially in information and communication technology (ICT). Yet the report also



details both an overall decline in, and a polarisation in the quality of, teaching and learning of geography. The inspectors found sharp contrasts existed between inadequate and outstanding practice in geography teaching and learning, that geography was disappearing as a taught subject in one in ten primary schools, and that in secondary schools uninspired teaching was discouraging students from choosing geography at GCSE.

Digimap for Schools is no panacea for uninspired teaching, and there is far more to geography than simply working with maps. However, Digimap for Schools can and is being used very effectively to address at least one of Ofsted's central findings: that for many students "their mental images of places and the world around them were often confused and lacked spatial coherence."

Digimap for Schools becomes an effective vehicle for understanding space and place when it is used within a structured teaching programme: something that EDINA has encouraged by providing more than sixty online teaching resources.³ These resources, written by geography experts, cover KS1-4, and are available for use independently of Digimap



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for Schools. However, there is clear synergy between these resources, the functionality of Digimap for Schools, and the power of an interactive digital whiteboard as an exciting teaching medium.

Mapping can be fun

It is possible to see this synergy in the very first exercise: Lesson One, Key Stage One – by Dr Paula Owens, which is called 'Letter to our School'⁴, and covers locating and describing places, based on addresses.

Dr Owens uses a school's postcode to convey the understanding that addresses carry information about where places are. She demonstrates how pupils can use a postcode in Digimap for Schools to search for and locate their own school. Having found their school, pupils are encouraged to centre the map display on the school, and then pan and zoom the map to see the surrounding area. They can add a marker to the school location, label the school playing fields and any other features, add a map title, and finally save and print the map, allowing mapping studies to continue outdoors.

By the second lesson, pupils are applying the same tasks to their home address. By lesson three they are plotting their route between home and school, measuring that route, and, by using a map key, are recognising features along the route.

By the fifth Key Stage 1 lesson in Dr Owen's set, pupils are using Ordnance Survey maps to investigate not only familiar but also unfamiliar locations: places they have never been to, but can be understood from maps. The exercise called 'Where does a pint of milk come from?' begins with pupils using Digimap for Schools to search for a location by name (see screen shot sequence, right)

Digital mapping without the jargon

What amazes me as a 'time-served GIS professional' is that without using the terms, Digimap for Schools is introducing children as young as five to what grown up GIS professionals might like to call address gazetteers, scale-dependent mapping, map navigation, database searching, digitising, feature recognition, red-lining, and PDF creation. It is simply that they call it something else. Fast, easy, and fun. That has to be good news for the teaching of geography.

The Cadcorp Spatial Information System (Cadcorp SIS®) was selected by EDINA in 2007 to support the original EDINA Digimap service for higher and further education. Digimap for Schools uses Cadcorp GeognoSIS software to create print output on demand.

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References

¹ <http://digimapforschools.edina.ac.uk>

² Geography: learning to make a world of difference, Ofsted, February 2011, www.ofsted.gov.uk/resources/geography-learning-make-world-of-difference

³ Available at <http://digimapforschools.edina.ac.uk/cosmo/home?page=resources>

⁴ <http://digimapforschools.edina.ac.uk/Resources/Primary/Lesson1.pdf>

⁵ www.geograph.org.uk

Digimap for Schools EDINA

Search: Enter a place name, full postcode or grid reference (e.g. TQ30 4012 5000) [GO]

Display a map key [GO]

Print: Print your map as it is [GO], Print your map with [GO], Print your map in black and white [GO]

Pupils search for the place name 'Chincock'; This returns a map centred on three Somerset villages of that name. Having found and zoomed into Middle Chincock, they locate Broadstone Farm in the village. Finally, they zoom to display the farm at 1:1250 scale in OS MasterMap

OS MasterMap® Topographic Layer maps
Nominal scales: 1:1250 1:2500 and 1:10 000 for urban, rural and moorland areas respectively. Copyright EDINA - these are not Ordnance Survey map symbols

BUILDINGS & STRUCTURES	ROADS
Buildings	Road surface
Overhead structure	Public limit of road
	Man-made surface
	Natural surface
	Structure
	Paths
	Steps

RAILWAYS	LAND SURFACE COVER
Standard gauge railway	Man-made surface
Railway buffer	Natural surface
	Multiple surface type
	Unclassified surface type

EDINA has kept the application uncluttered by not including map keys in the application but providing them instead as PDF documents. Pupils are introduced to the concept of a map key to help them interpret the farm and its buildings.

Annotations Toolbar: Annotations, Mark a feature, Measure, Erase, Undo, Redo, Help

Based on their interpretation of the map, pupils are asked to speculate. Where do they think the cows might graze? In what part of the farm might they be milked? Why is there hard surfacing around farm buildings? They are encouraged to annotate their maps using the tools provided

Measurement Tools: Search destination, Distance: 9.51 km, Start, Finish

Pupils can go on to examine the relationship between farm, dairy, and supermarket, identifying the location of each using post code searches and working at a different map scale. They are asked to draw what they think might be the route taken by the milk tanker. More able pupils might measure distances using tools provided, and this information can be added as map annotation. By specifying just a few parameters, pupils can create their own print output on demand at either A4 or A3 size, portrait or landscape, and in Adobe® PDF, JPEG or PNG formats



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