



Using **web-based resources** in Secondary Geography

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Many good geographical resources can be accessed using the internet. These can be bookmarked, or added to a list of favourite sites, and set to be used offline. Some resources can be downloaded and adapted by the teacher to meet specific learning objectives. The examples given here describe a number of lessons in which ICT is used effectively to support the teaching of geography at Key Stages 3 and 4. There are also resources for the post-16 phase.

Young people do not acquire geographical skills and knowledge by magic. They need to be taught how to work things out in their heads, how to check whether their answers are reasonable and how to plan ahead when solving geographical problems. They need opportunities to discuss their ideas with their teacher and their peers, to test things out and to listen to how others arrived at their solutions. This interaction is vital for developing their geographical knowledge and skills. In addition, the skills of the teacher are essential to question and probe the understanding of young people.

Some students will benefit from using a computer to practise and consolidate their geographical knowledge and understanding. They can do this during break time, after school or at home. Use of ICT during the daily lesson should focus on modelling geographical concepts and strategies for the whole class, or smaller groups, and should aim to raise standards in geography.

The National Curriculum for geography, from Reception to Key Stage 3, makes specific reference to how ICT can be used to support teaching and to motivate young people's learning. Schools do not need to buy a large amount of software to support the teaching and learning of geography. What they do need to do is to make sure that they have a range of targeted applications available that can be used by different year groups during geography lessons.

<http://www.ictadvice.org.uk/webbasedresources>

Geography teachers have traditionally used a range of resources to reinforce geographical concepts through problem solving. The introduction of projection technologies means that ICT can have a real impact on direct teaching in geography lessons.

The role of the teacher, or a teaching assistant, is paramount in raising standards. They can use ICT to model geographical ideas and strategies, demonstrate, explain and question, stimulate discussion, invite predictions and interpretations of what is displayed, and ask individual pupils to give an instruction or a response. As the examples here demonstrate, ICT can also be used effectively in plenary sessions to 'model' what pupils have been engaged in, allowing them to explain what they have learned and how they have worked out their answers.

This leaflet was produced in partnership with the Geographical Association and the Royal Geographical Society (with the Institute for British Geographers).



All web addresses have been checked and were correct at time of printing.



Peak District National Park (PDNP) KS3 & 4

The Peak District National Park Authority manages this website. The website covers a variety of topics from tourism through to farming, and includes the sustainable management of the park.

URL: <http://www.peakdistrict-education.gov.uk/>

Relevant to the following:

Scheme of work for KS3

Unit 5: Exploring England

Unit 19: Tourism – good or bad?

GCSE

For example, AQA, Geography A, sustainable development: managing resources

Year 11 students used this site to investigate the impact of tourism in the Peak District National Park (see Fact sheets section). As part of their GCSE work on managing resources, they focused on the impact of tourism and plans to manage the park in a sustainable manner.

Although working independently, students' investigations were directed through a series of questions. These included:

- *Why, despite the appeal of foreign resorts, does the PDNP remain a popular site for day visitors?*
- *How has the type of activity tourists are involved in changed over the last 30 years?*
- *What are the main issues facing the PDNP?*

The pupils were also required to evaluate and produce a report (using ICT) on each of the schemes that had been introduced to manage the park sustainably.

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Investigating Brazil KS3 - AS

The Brazilian government manages Investigating Brazil. The website covers a wide range of issues, including rainforest depletion, which is studied by Key Stage 3, 4, and post-16 students.

URL: <http://www.brazil.org.uk/>

Relevant to the following:

Scheme of work for KS3

Unit 11: Investigating Brazil

Unit 14: Can the earth cope? Ecosystems, population and resources

Key Stage 4 and GCSE

For example, managing resources, and/or ecosystems



Year 8 high achievers used this site as part of a homework task on the depletion of the Brazilian rainforest (see Brazil in the school section). They were required to contrast what this 'official' site said about rates of deforestation with what other websites recorded. Their tasks included describing how the rates of deforestation have been reduced in the area and explaining how this has been possible. The pupils were also asked to consider bias in information provided, for example:

- *Why would Brazilian officials claim that the problem of deforestation is decreasing rather than increasing?*
- *What problems might this area face in the future?*

Wherever possible, pupils were encouraged to email their reports to the teacher, and the assessment was communicated in the same way.

Global Eye KS3 & 4

This online resource is intended to supplement the excellent magazines that have been sent to many UK schools. The focus is on development issues but it can be used in a range of topics, from tourism to the impact of humans on the environment.

URL: <http://www.globaleye.org.uk>

Relevant to the following:

Scheme of work for KS3

Unit 16: What is development?

Unit 18: Global fashion industry

Unit 19: Tourism – good or bad?



A teacher used the Spring 2002 web pages (see Back Issues) with Year 9 students who were studying tourism. The map of tourism destinations was used to consider the following questions:

- *Why are some tourist destinations more popular than others?*
- *How might the popularity of resorts change in the next ten years?*
- *What would have to happen to make some resorts more popular?*

During the next part of the lesson pairs of pupils used the links provided (for example, Tourism Concern) to consider the possible negative consequences of tourism. They were encouraged to sub-divide the consequences into 'natural', 'economic' and 'social'. For the last part of the lesson, individual pupils researched, via the site, examples of 'pro-poor' tourism projects. They were asked to take on the role of a person working on such a project and to describe their typical day and outline their plans for the future.

6 billion Human Beings KS3 & 4

6 billion Human Beings is an exhibit from the Musée de l'Homme in Paris that has been converted into an interactive website. The website has both French and English versions. The website provides a lively and thought-provoking resource for students at Key Stages 3 and 4 who are studying population change and related issues.

URL: <http://www-popexpo.ined.fr/english.html>

Relevant to the following:

National Curriculum

1. *In undertaking geographical enquiry, pupils should be taught to:*
 - d) *analyse and evaluate evidence and draw and justify conclusions*
 6. *During the key stage, pupils should be taught the Knowledge, skills and understanding through the study of two countries and 10 themes:*
 - f) *population distribution and change*

A teacher used this site with a mixed-ability Year 11 GCSE class studying changes in global population. In order to stimulate discussion and to raise issues associated with global population change, the teacher used the website to introduce the unit and provide basic facts.

Next, pairs of pupils worked through the website, recording answers to a number of pre-set questions. They were asked to note down the information on the 'world population clock' at the start of the lesson and again at the end. The focus of their work was factors affecting population growth and how the rate of population change had altered over the last 2,000 years. The interactive sections provided motivation throughout the lesson.

Finally, each pair was asked to choose one of the issues raised at the end of the sequence on which to undertake further research. In a later lesson, they gave a brief presentation on their findings.

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Multimap KS3 & 4

Multimap is one of the ten most accessed websites in Britain. As you would expect, it contains an extensive range of maps and aerial photographs of Britain and the world. If you need a road map of the Central African Republic, you can find one on here!

URL: <http://www.multimap.com/>

Relevant to the following:

National Curriculum

2. *In developing geography skills, pupils should be taught:*
- c) *to use atlases and globes, and maps and plans at a range of scales, including Ordnance Survey 1:25,000 and 1:50,000 maps.*

GCSE

OCR – Geography C (Bristol Project)

Using an interactive whiteboard, a teacher worked with Year 7 students to label local features on a map of their area. The pupils then used the overlay facility on the website to annotate the map with aerial photographs of the locality. This is a great way of demonstrating links between maps and aerial photographs. (Using this facility on an interactive whiteboard as a starter activity is motivating for pupils.)

Next, the pupils used the scale 'in/out' feature to work through questions about detail linked to scale, for example:

- *Which map shows more detail 1:10,000, 1:25,000, 1:50,000, 1:100,000 or 1:200,000?*
- *What differences are there between the maps?*
- *Which map would you use to plan a journey to a nearby town?*
- *Which map would a parcel delivery company use to find a particular street?*

Finally, using an interactive whiteboard, the pupils worked on developing their understanding of map symbols by locating features such as motorway, golf course and so on. In the following lesson, the teacher worked with the pupils to devise an interactive quiz around the map symbols.

Year 10 pupils used this site to incorporate aerial photographs and maps of local areas into their coursework. They annotated the images electronically as part of their finished project work.

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National Oceanic and Atmospheric Administration (NOAA) KS3 - A2

The NOAA's website covers weather, satellites, climate, oceans and coasts as well as other areas of research. It contains contemporary news articles, downloadable resources and animations. There are also classroom activities (in the Science, Service and Stewardship section), images and extensive web links.

URL: <http://www.noaa.gov/>

Relevant to the following:

National curriculum

2. *In developing geographical skills, students should be taught:*
- d) *to select and use secondary sources of evidence, including photographs (including vertical and oblique aerial photographs), satellite images and evidence from ICT-based sources.*

GCSE

OCR – Geography C (Bristol Project), Theme 1: physical systems and environments and natural hazards and people

GCE AS-level/A-level

Edexcel – AS, research linked to Unit 1: changing landforms and their management; A2, Unit 4: global challenge: the natural environment; and option module: managing natural environments.

Using resources from the site, groups of GCSE students were set the task of answering the question 'Is the climate changing?'. The teacher asked them to study the impact of hurricanes – emergency planning, predicting, tracking and forecasting hurricanes – to answer the key questions:

- *What physical processes are responsible for hurricanes?*
- *How is remote sensing used to monitor a hurricane?*
- *What is the Saffir-Simpson scale?*

Next, the pupils were asked to investigate the impact of a recent hurricane on the USA, as a more economically developed country, and compare this to its impact on Mexico, as a less economically developed country – which country coped best? As a plenary, there was a whole-class discussion on the findings while the site was displayed on the interactive whiteboard.

As part of an AS unit on the natural environment, pupils could be asked to consider the question 'What management problems are caused by the seasonality of climates?'. They could investigate the El Nino/La Nina animation details (for example, January 1997 – December 1998), which show the weekly change in position of warm water in the oceans. They could also consult the answers to the site's FAQs. Students could use the information they gather to create and give a presentation to the rest of the class.

Farming and Countryside Education (FACE) KS3 & 4

FACE was established in September 2001 when the National Farmers Union and the Royal Agricultural Society of England merged. Its aim is to help young people learn more about food and farming in a sustainable countryside. The website has an excellent set of regularly updated case studies about farming.

URL: <http://www.face-online.org.uk/>

Relevant to the following

National Curriculum

6. During the key stage, pupils should be taught the Knowledge, skills and understanding through the study of two countries and 10 themes:
- h) ii – changing distribution of economic activity and its impact.
 - k) i – the effects on the environment of the use of a resource

Key Stage 4 and GCSE

For example, farming systems show different characteristics and all farming systems have been experiencing change



The FACE website offers the opportunity for Year 10 high achievers to research a range of different farming types within the UK.

Pupils worked in groups of three to produce an A3 display illustrating the key characteristics of their chosen farming type. Their 'poster' had to include a location map and aerial photographs. These were displayed around a map of the main relief and climate features of the UK.

Next, each group used the FACE website to research information on issues and changes related to their type of farming. They gave a brief verbal presentation of these issues and changes. The common issues and problems faced by farmers within the UK were then drawn together in a plenary session.

During follow-up work, groups of pupils were asked to suggest possible strategies to help farmers cope with the challenges they face.



Unlocking the Archives KS3 & 4

This site has learning resources for Key Stages 2, 3 and 4. Students can explore the collections of the Royal Geographical Society (with IBG) to discover people and places, and understand our changing world. The site can also support the teaching of history and citizenship at all levels.

(these resources are aimed at Key Stage 4, but can be used at Key Stage 3, as the cameo shows)

URL: <http://www.unlockingthearchives.rgs.org>

Relevant to the following:

Scheme of work at KS3

Unit 19: Tourism – good or bad?

As part of a role-play activity, a group of Year 9 students studied the economic, social and environmental impact of tourism in the Everest region. Questions asked included:

- Who makes decisions about changes?
- How do these changes affect the environment?
- How can tourism be regulated to protect the environment but still earn money?
- What will be the effects on the local people and their way of life?

Using the website's information, the pupils were asked to complete a table listing the positive and negative impact of tourism under three categories: social, environmental and economic.

Working through the role-play activities and exploring the different attitudes towards managing the environment, the pupils were asked to decide if they were for or against creating a National Park in the Everest region. In a plenary session, a class discussion was held and a consensus reached.

Environment Agency KS3 - A2

There is a wealth of information on the Environment Agency site. It contains contemporary news articles, downloadable resources, animations and classroom activities in the Fun and Games section of the site. There are also images and web links.

URL: <http://www.environment-agency.gov.uk/>

Relevant to the following:

National Curriculum

6. During the key stage, pupils should be taught the Knowledge, skills and understanding through the study of two countries and 10 themes:

j) environmental issues, including... (ii) how and why attempts are made to plan and manage environments

GCSE

OCR – Geography C (Bristol Project), Theme 2: natural hazards and people

GCE AS-level/A-level

Edexcel – AS, research linked to Unit 1: changing landforms and their management; AS/A2 option module: managing natural environments



As part of a unit on environmental issues, groups of Year 9 pupils looked at the effects of car pollution on the environment. The teacher asked them to complete a word-processed report, incorporating images, figures and graphs in order to answer the questions:

- How do we measure air quality?
- How do we measure pollution incidents?
- What are the main pollutants?
- What are the health implications of air pollution?
- What steps are being taken to make air cleaner for everyone?

The site allows for progression in understanding of environmental issues. For example, Year 11 pupils used it when working on part of a unit dealing with the impact of human activities in urban areas. Working in groups, they interrogated the site autonomously to gather information on pollution of air, land and water. The groups also looked at the causes of environmental degradation. After which they were asked to give an ICT-based presentation on 'moving towards a more sustainable situation in relation to resource use'.



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Moving Here KS3

Moving Here provides free online access to original items from 30 museums, archives and libraries. All of the records on the Moving Here website illustrate and record the migration of Jewish, South Asian, Irish and Caribbean communities to England over the past 200 years. The Moving Here site is also useful for teaching and learning about citizenship.

URL: <http://www.movinghere.org.uk/>

Relevant to the following:

National Curriculum

6. During the key stage, pupils should be taught the Knowledge, skills and understanding through the study of two countries and 10 themes:
 - f) ii – the causes and effects of changes in the population of regions and countries, including migration
 - i) ii - effects of the differences in development on the quality of life of different groups of people
 - iii – factors, including the interdependence of countries, that influence development



For a homework task, the teacher asked Year 8 pupils to look at the images of the Caribbean in the 1900s on this site. They were also asked to study the stories of people who had migrated to Britain from the Caribbean and the range of reasons why they moved to London. The pupils were given a number of questions to consider, including:

- What regions in Britain have a significant population of Caribbean origin?
- What have been the causes of this?
- How has this changed?
- What is the relationship between Britain and the Caribbean?

In the next lesson, the pupils used this and other sites to explore the current issues of immigration policy in Britain. As follow-up homework, they were asked to produce a brief word-processed report on their findings.



UK Census 2001 KS3 & 4

The Census 2001 website provides a comprehensive background to the history and methodology of the UK Census, as well as a wealth of data that can be used by students of all ages. Interactive maps and population pyramids provide stimulating visual material. Much of the data can be downloaded for analysis in spreadsheets.

URL: <http://www.statistics.gov.uk/census2001/default.asp>

Relevant to the following:

National Curriculum

2. In developing geographical skills, pupils should be taught:
 - d) to select and use secondary sources of evidence...
6. During the key stage, pupils should be taught the Knowledge, skills and understanding through the study of two countries and 10 themes:
 - f) population distribution and change
7. In their study of countries and themes, pupils should:
 - b) study different parts of the world and different types of environments, including their local area, the UK...

Key Stage 4 and GCSE

For example, population structure and characteristics vary from place to place and over time

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A teacher used this site to provide the background information for Year 10 pupils to answer the questions 'Why do we have a census?' and 'How is the census organised?' The pupils investigated the data for their local authority and wrote a short newspaper-style article summarising the key characteristics of the population in their local area. They used one aspect of the data to provide the focus for their headline.

In a follow-up lesson, the site was used to provide population pyramids for a 'new town' (Milton Keynes) and a seaside town (Bournemouth). Students copied and pasted the two pyramids into a word-processed document and annotated each one to indicate the similarities and differences between the population structure of each settlement. They also made comparisons with the national population structure. In the plenary session, issues linked to the two different population structures were discussed.



Geography in the News KS3 - AS

Managed by the Education Division of the Royal Geographical Society (with IBG), the website contains contemporary news articles, classroom activities with links to the National Curriculum, images, and links to other web-based resources. (Note that you need to complete a simple registration process to access the resources.)

URL: <http://www.geographyinthenews.rgs.org>

Relevant to the following:

National Curriculum

6. During the key stage, pupils should be taught the Knowledge, skills and understanding through the study of two countries and 10 themes:

k) resource issues including (i) the effects on the environment of the use of a resource

GCE AS-level

Edexcel – AS, Unit 1: Changing landforms and their management – river environments

As an example, the news item, *What killed King Coal?* (see back issue, 8 March 2004), relates to the above.

Year 9 pupils looked at an article that compared the effects of two similar-sized earthquakes in different parts of the world (see back issue, news item, 9 January 2004). The teacher explained that pupils were to answer the question:

- *Would a wealthy, developed country suffer more or less than a poorer, economically less developed country if an earthquake of the same intensity hit both?*

The pupils used the article as a main source of reference and covered such points as:

- *how the two countries began to cope with the disaster*
- *which earthquake had the most impact*
- *when the earthquakes happened*
- *the kind of damage that occurred*
- *why some buildings were affected worse than others.*

Pupils completed a word-processed report in response to the key question and to cover the points described.

Our Favourite Places KS3

This is part of the Ordnance Survey's Mapzone website. Its interactive map shows the favourite places throughout Britain visited by students. Students can add their own recommendations to the site and discover the most popular 'favourite places' in Britain.

URL: <http://www.mapzone.co.uk/pagesourfavouriteplaces/gateway.cfm>

Relevant to the following:

Scheme of work

Unit 1: Making connections

Unit 5: Exploring England

Year 7 pupils used this site when identifying their favourite places around their local area, with a view to creating a booklet for visitors. They entered their choices on the site and then compared the chosen favourite places of the whole class.

Questions included:

- *What are the similarities and/or differences between the various pupil choices?*
- *Why do these occur?*

Pupils then examined the types of 'favourite places' entered for other areas of the country. Questions included:

- *How do the choices in other parts of the country compare with your local area?*
- *What are the reasons for any similarities and differences?*

This activity can also be used as an assessment tool to inform the teacher of the range of prior learning experiences of Key Stage 3 students. Further lesson ideas based on this site can be found on the Teacher Resource Exchange [<http://tre.ngfl.gov.uk/>].



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The Met Office KS3 – A2

Provides geography teachers with clear, up-to-date teaching and learning material. The site provides live and archived weather data from the local to the global scale. (Thus, data from a meteorological station reasonably near to the school can be related to local conditions.) The site also has a virtual Curriculum Learning Centre, a virtual Teacher-training Centre, and contains numerous other resources.

URL: <http://www.met-office.gov.uk/>

Relevant to the following:

National Curriculum

6. During the key stage, pupils should be taught the Knowledge, skills and understanding through the study of two countries and 10 themes:
 - d) how and why weather and climate vary including...(iii) how and why aspects of weather and climate vary from place to place

GCSE

OCR – Geography C (Bristol Project), Theme 1: physical systems and environments

GCE AS-level/A-level

Edexcel – AS/A2, research for Unit 4: the natural environment

Year 9 pupils studying how and why weather and climates vary were given the following activity from the site as a group task:

You are a travel writer for a national newspaper. Your editor has asked you to write the weather section for a special supplement being published for readers planning a short break this weekend to various British towns and cities. You are to cover Bournemouth, Aberdeen and Jersey.

(a) Consult the rolling archive of data for the weather stations in Bournemouth, Aberdeen and Jersey to gain an idea of what weather conditions have been like over the past 48 hours. The data for 0600, 1200, 1800 and 2400 will help you. Write a paragraph describing the conditions at each of the stations.

(b) Now use the forecast charts for Europe to see what the weather might be like for the next couple of days at each station. Write another paragraph describing the future weather conditions at each of the stations.

During a unit on atmospheric processes and climate, one Year 10 group looked at the weather associated with frontal systems. The teacher asked them to answer the questions that are found in the site's Curriculum Learning Centre under 'rainfall over the UK'. The activity was linked to a synoptic chart and to a satellite image. The pupils responded to the activity by producing an annotated 'storyboard' using ICT.



Volcano World KS3 – A2

Produced and managed by the University of North Dakota, this site contains contemporary news articles, a huge archive, downloadable resources in the form of classroom activities and ideas, images and further web links related to volcanoes.

URL: <http://volcano.und.nodak.edu/vw.html>

Relevant to the following:

National Curriculum

6. During the key stage, pupils should be taught the Knowledge, skills and understanding through the study of two countries and 10 themes:
 - b) tectonic processes and their effects on landscapes and people including...(iii) the nature, cause and effects of earthquakes or volcanic eruptions

GCSE

OCR – Geography C (Bristol Project), Theme 2: natural hazards and people and the impact of volcanic eruptions

GCE AS-level/A-level

Edexcel – AS/A2, individual research (for essay): managing natural environments

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During a unit on 'natural hazards', a teacher asked Year 9 pupils to select from a short list of volcanic eruptions in the last 50 years. The pupils were required to produce a report on their chosen volcano. Their report had to include the following:

- type of volcano and its geographic location
- distance to, and the name and number of inhabitants of, the nearest major city
- dates of most recent and of most destructive eruptions
- other events associated with the latest eruption (for example, earthquakes, floods, mudslides)
- images.

The site was also used with small groups of Year 11 students who were studying the effects of natural hazards on people. These students were given a range of recent volcanic eruptions to investigate and were asked to produce and give an ICT-based presentation to other students. The groups also mapped the distribution of volcanoes, what processes resulted in a volcanic eruption, and the types of volcano.



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