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International GCSE

Geography (4GE0)

Teacher's guide

Issue 2

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This guide is Issue 2. We will inform centres of any changes to this issue. The latest issue can be found on the Edexcel website: www.edexcel.com

Authorised by Martin Stretton
Prepared by Matt Gregory

Publications Code UG031039

Introduction

The Edexcel International General Certificate of Secondary Education (International GCSE) in Geography is designed for schools and colleges. It is part of a suite of International GCSE qualifications offered by Edexcel.

About this guide

This guide is for teachers who are delivering, or planning to deliver, the Edexcel International GCSE in Geography qualification. The guide supports you in delivering the course content and explains how to raise the achievement of your students. The guide:

- gives information on new assessment requirements
- provides details of Assessment Objectives (AO) and weightings
- gives both linear- and linked-approach course planners
- shows innovative ways to integrate practical geographical enquiry skills
- offers you suggestions for a range of websites and other resources.

Contents

Why choose this qualification?

The Edexcel International GCSE in Geography:

- reflects recent changes in the world and in the teaching and learning of geography
- encourages practical geography enquiry skills, including fieldwork, to underpin geographical knowledge and understanding
- is assessed through one external examination offering grades of A* to G
- provides a solid basis for progression to GCE AS and Advanced qualifications in Geography, or equivalent qualifications such as BTEC Nationals in Travel and Tourism and/or land-based subjects.

Please go to www.edexcel.com for more information about this International GCSE and related resources.

Support from Edexcel

Edexcel support services

Edexcel has a wide range of support services to help you implement this qualification successfully.

ResultsPlus — ResultsPlus is an application launched by Edexcel to help subject teachers, senior management teams and students by providing detailed analysis of examination performance. Reports that compare performance between subjects, classes, your centre and similar centres can be generated with one click. Skills maps that show performance according to the Specification topic being tested are available for some subjects. For further information about which subjects will be analysed through ResultsPlus and for information on how to access and use the service, please visit www.edexcel.com/resultsplus.

Ask the Expert — To make it easier for you to raise a query with us online, we have merged our **Ask Edexcel** and **Ask the Expert** services.

There is now one easy-to-use web query form that will allow you to ask any question about the delivery or teaching of Edexcel qualifications. You'll get a personal response, from one of our administrative or teaching experts, sent to the email address you provide.

We'll also be doing lots of work to improve the quantity and quality of information in our FAQ database where you'll be able to find answers to many questions.

Support for Students

Learning flourishes when students take an active interest in their education; when they have all the information they need to make the right decisions about their futures.

With the help of feedback from students and their teachers, we've developed a website for students that will help them:

- understand subject specifications
- access past papers and mark schemes
- find out how to get exams remarked
- learn about other students' experiences at university, on their travels and entering the workplace.

We're committed to regularly updating and improving our online services for students. The most valuable service we can provide is helping schools and colleges unlock the potential of their learners.

www.edexcel.com/students

Training

A programme of professional development and training courses, covering various aspects of the qualification and examination, will be arranged by Edexcel. Full details can be obtained from our website: www.edexcel.com.

Part A: Qualification content

Introduction

The qualification content is set out in detail in Topics 1 to 9. The content has taken the following points into account, that:

- coverage should touch the main subject areas that are appropriate at this level – the natural environment, resources and production, population and settlement – as well as the related topics of globalisation, human welfare and sustainability
- emphasis should be placed on the relationship between people and the environment
- geography should be recognised as a dynamic discipline in continuous change
- content should be specified in such a way that students can explore the geography of their own countries
- case studies are used to exemplify key ideas
- students are required to undertake fieldwork and other practical exercises to underpin knowledge and understanding, as well as to illustrate the key ideas
- students should become competent in the use of a range of skills and techniques.

Information for Edexcel centres

Changes to content from Edexcel IGCSE 2009 (4GE0) to this qualification

The table below sets out the relationship between the legacy **IGCSE** qualification (4GE0) to this qualification.

Topic	Title	Amended content
1	River environments	River channel changes downstream. Case study: physical features of drainage basin.
2	Coastal environments	Case study: two geologically contrasting coastlines. Sand dune and saltmarsh ecosystems.
3	Hazardous environments	Scale of disaster and level of development. Consequences of hazards. Case study: river flooding or coastal retreat management.
4	Economic activity and energy	De-industrialisation case study.
5	Ecosystems and rural environments	Farm as a system. Biome case study.
6	Urban environments	Case study: managed v. unmanaged shanty towns.
7	Fragile environments	International attempts to tackle global warming/climate change.

Topic	Title	Amended content
8	Globalisation and migration	None
9	Development and human welfare	Aid agency case studies : aid projects in LICs.

Changes to assessment from Edexcel IGCSE 2009 (4GE0) to this qualification

Other changes to assessment between the new qualification and the legacy 2009 qualification:

- Total mark for paper increased from 150 to 180 marks
- Examination length increased from 2¾ hours to 3 hours
- Fieldwork now assessed as separate 25 mark questions in a distinct Section C of the paper which links to the complete investigation process
- Candidates are now required to answer 7 rather than 5 questions
- Section A and B questions shortened from 30 to 25 marks
- Assessment objectives weightings adjusted with 10-20% of total marks being switched from recall (AO1) to application (AO2)
- The verb *'Discuss'* introduced as a higher-order command word to stretch and challenge candidates on the 9-mark question finale items
- Some subtle clarifications to content.

Information for centres starting the Edexcel International GCSE for the first time

- Our new International GCSE in Geography qualification offers contemporary content and a global futures strand, combined with a high degree of guidance, support and focus, as well as a single examination paper.
- The examination paper is untiered so students, and centres, will find it easier to manage. All questions in Sections A to C have equal weighting with each one carrying 25 marks. Section D questions each carry 30 marks.
- Fieldwork has a high priority but does allow for some virtual fieldwork.
- The latest World Bank economic classification of countries has been used. These are HIC – High income country, MIC – Medium income country, LIC – Low income country.

Part B: Assessment

Assessment overview

The table below gives you an overview of the assessment for this course.

We recommend that you make this information available to students to help ensure they are fully prepared and know exactly what to expect in each assessment.

Paper	Percentage	Marks	Time	Availability
Paper 1 (4GE0/01)	100	180	3 hours	June First assessment: June 2014

Assessment Objectives and weightings

		% in International GCSE
AO1:	recall, select, and communicate their knowledge and understanding of places, environments and concepts	10-20%
AO2:	apply their knowledge and understanding in familiar and unfamiliar contexts	45-55%
AO3:	select and use a variety of skills, techniques and technologies to investigate, analyse and evaluate questions and issues	30-40%
	TOTAL	**100%**

Assessment summary

- Externally-assessed through a 3 hour examination paper, set and marked by Edexcel.
- Availability: June series.
- First assessment: June 2014.
- The single tier of entry will contain a variety of question types, such as multiple-choice questions, short and extended answer questions, graphical and data questions and practical enquiry questions.
- The total number of marks available is 180.

The paper will be a question and answer booklet and candidates have to answer:

- two questions from a choice of three in Section A
- two questions from a choice of three in Section B
- two questions; one question from a choice of two related to Topics 1 to 3 and one question from a choice of two related to Topics 4 to 6 in Section C
- one question from a choice of three in Section D.

Each question in Sections A, B and C is worth 25 marks; each question in Section D is worth 30 marks.

Examination questions

The paper for this qualification will accommodate the full ability range and will include a variety of question types from short answer to extended writing. All questions will open with stimulus material, and early tasks within questions will involve direct responses. Questions will be structured with an incline of difficulty. Differentiation of ability will be largely through outcome. Each question will end with a nine-mark task requiring an extended-writing answer and will not be very different in style to those on the existing papers. Thirteen questions will be set on each paper with students answering seven questions in 3 hours. Questions will have either a 25 or 30 mark maximum. Questions assessing the fieldwork aspects of Topics 1 to 6 will appear in Section C of the paper. Each of these questions will include items on any stage of a fieldwork investigation from planning through to concluding and evaluating.

Using the mark scheme

The mark scheme gives the responses we are expecting from students. Indicative answers are provided but, during the examiner standardisation process, the mark scheme is expanded to take account of unexpected, but correct, student responses.

The examination will follow the same format as the sample assessment materials. Within the mark scheme two types of marking strategy will be used: points marking and levels marking.

1 Points marking

Students are credited for each valid point they make. The wording of the question is used to determine the validity of the points made. It is most likely to be used where students are, for example, directed to 'define', 'describe', 'identify', 'label' or 'complete' a table. Students are advised to adhere strictly to these command or action words when giving their answers.

2 Levels marking

This is used where questions require explanation rather than description. For example, a question requiring 'reasons for' would not get full marks if only one reason is given in depth, some breadth would be needed. The mark scheme identifies the distinctive features of the different levels of attainment. Not all points mentioned for each level need to be met for an answer to start scoring at that level. Students can achieve a score through either the depth or breadth of their answer. Three levels of response will be used to mark the nine-mark final question parts where the "*discuss*" will be used. High level answers to the "*discuss*" command will, for instance, require students to present the importance and arguments for and against a situation. Movement through the levels should involve a 'gear shift' in the quality of the work.

The answers suggested in the mark scheme are for guidance only. In many cases, it will be possible for students to offer valid, plausible alternatives. Examiners will use their professional judgement, together with standardisation involvement, to decide whether a given answer is acceptable. If in doubt, the examiner will refer the 'answer' (ie valid, plausible alternatives) to either the team leader or chief examiner.

Where appropriate, annotated diagrams are acceptable as a substitute for text and can gain full marks if they meet the requirements of the mark scheme.

Other criteria for success include:

- the use of geographical language. Students should be encouraged to use appropriate technical terms, including those not stated in the Specification
- full reasons, not merely stated factors, of processes developed into an explained mechanism.

Students will need to be familiar with a range of diagrammatic presentational techniques, for example dot maps, chloropleths, bar charts, scattergraphs.

Part C: Planning and teaching

The content of the qualification is both concept- and issues-based, and is divided into:

- two traditional Sections A and B, each sub-divided into three topics that build on three key ideas. These sections include recommended fieldwork opportunities and practical skills allied to the content included
- one Practical Geographical Enquiry Section C, which assesses candidates abilities in fieldwork and practical investigation
- one global issues Section D that addresses three issues of the modern world. Each issue is presented as a topic focusing on a single key idea.

This section of the Teacher's Guide will help you to put together a course that covers at least 13 of the 21 key ideas in the Specification. Students need to study at least two of the topics from Section A of the Specification, two of the topics from Section B, develop their practical geographical enquiry skills identified in Section C and study at least one of the topics from Section D.

It is important to remember that some teaching time should be set aside for the practical geographical enquiry skills development and fieldwork activities. Please refer to Part D of this Teacher's Guide for more information and guidance on these activities.

The qualification is designed to be delivered as a two-year programme. In terms of teaching, there is no reason why all the five topics covered and practical skills should not receive approximately equal treatment. One term could be allocated to teaching each topic if :

- the whole course is to be covered over five terms, with the short sixth term used for revision
- there will be at least one-and-a-half hours of lessons and one piece of homework per week.
- Each bulleted line of essential content in the topic grid should be afforded about one week. This should allow time within the one term to also cover the three case studies and two fieldwork investigations flagged within each topic.

Teaching more than five topics may ensure a greater and more balanced, awareness and understanding of the unifying concept of sustainability, and would give students more question choice in the examination. This will obviously impact on the `topic-a-term' plan described above.

The course planner overleaf may not suit all centres or all students – you can adapt the guidance to suit the needs of your students and your centre.

Course Planner

Two possible ways of organising the teaching programme are given below.

1 Using a linear approach (for example following the order set out in the Specification document or similar.)

Term	Content	Examples
Year 1 Term 1	Section A – The Natural Environment First topic	eg Topic 1 – River environments
Year 1 Term 2	Section A – The Natural Environment Second topic	eg Topic 2 – Coastal environments
Year 1 Term 3	Section B – People and their environments Third topic	eg Topic 6 – Urban environments
Year 2 Term 1	Section B – People and their environments Fourth topic	eg Topic 5 – Ecosystems and rural environments
Year 2 Term 2	Section D – Global Issues Fifth topic	eg Topic 8 – Globalisation and migration
Year 2 Term 3	Examination preparation and revision	eg Topics 1, 2, 5, 6 and 8

2 Using a linked approach

It is possible to link some of the content of Section D (*Global Issues)* topics to the more traditional geographical concepts in Sections A and B.

For example:

- Topic 4 – Economic activity and energy and Topic 8 – Globalisation and migration have linked aspects eg TNCs
- desertification and drought from *Topic 7 – Fragile environments* could be taught alongside aspects of *Topic 1 – River environments* eg hydrographs and flooding.
- aspects of *Topic 6 – Urban environments* eg shanty towns would benefit from coverage of aspects of *Topic 9 – Development and human welfare* eg local development gaps; quality of life indicators
- ecosystems are covered in Topic 2 – Coastal environments, Topic 5 – Ecosystems and rural environments, and Topic 7 – Fragile environments

There are strengths and weaknesses in this linked approach vis-à-vis the more straightforward linear approach. Adoption of a linear approach does not prevent centres from referring back to prior learning in Section A and B topics when delivering their chosen Global Issues topic.

Designing a programme of study

You can design your own teaching programme and scheme of work to cover the required qualification content. Avoiding 'content overload' is a key consideration. The *'essential content'* column in the Specification should help you to avoid this, whilst at the same time encouraging a wide-ranging approach to the subject. The *'required case studies'* column, whilst providing general guidance as to how you can exemplify aspects of the essential content, do enable you to choose your own case studies (three per topic in Sections A and B four per topic in Section D). Local case studies and in-depth study are encouraged. The "recommended fieldwork opportunities and practical skills" column is addressed in Part D of this Teacher's Guide. Programme design will need to take account of the emphasis on fieldwork. Centres are advised to develop an overall programme-wide strategy in order to meet the demands of their eight chosen fieldwork investigations.

General guidance with regard to five key geographical characteristics

1 Interrelationships

Physical-human interrelationships will be examined, so students should be prepared to explain both physical influences on human activity, and the human impact on and/or response to the physical environment.

2 Named examples

Students are expected to be able to locate the examples they quote (for example, a simple sketch map) and to use their detailed knowledge to support their answers. Case studies should be used to illustrate the key points identified in the relevant column of the Specification. The Specification identifies 30 case studies (three per topic in Sections A and B and four per topic in Section D) and allows you to choose your own examples. Students should specify their choices on the examination paper. Case studies could be used for more than one topic, where appropriate. By studying the required number of topics students will cover 16 case studies.

3 Geographical skills

Practical geographical enquiry skills will be assessed in Section C of the examination. The `recommended fieldwork opportunities and practical skills' column needs to be read in conjunction with Section C of the Specification where a range of geographical skills are listed. Students should be made aware of and practise these skills. The skills needed to interpret map extracts and photographic images are part of this list, and you should be aware of this when preparing students for examination.

4 Sustainable development

This encourages students to consider the future world as well as current issues. The concept of sustainability or durable development is a unifying theme in this qualification. It underpins all nine topics. Below are examples from each topic where the concept is likely to be highlighted.

Topic 1 – Flood control. Water quality.

Topic 2 – Coastal biodiversity. Coastal protection and conservation

Topic 3 – Hazard impact and response

Topic 4 – Scarce energy and renewability

Topic 5 – Food production. Sustainable villages.

Topic 6 – Cities for the future eg urban planning, shanty towns.

Topic 7 – Deforestation, desertification and global warming

Topic 8 – Sustainable tourism. Global transport.

Topic 9 – Overpopulation. Divided world.

Students should appreciate that development is not real progress unless resources are used wisely and the environment is not degraded. When teaching this qualification you need to address how the needs of people today can be met without impacting on the needs of future generations.

5 Categories of country

The qualification adopts the latest World Bank classification.

Classification	Example
High income countries (HIC)	USA, Canada, some countries of the European Union, Japan, Australia, New Zealand
Middle income countries (MIC) (including newly industrialised countries (NIC))	Brazil, Venezuela, Argentina, Libya, Malaysia, Taiwan, South Korea, Mexico, Russia
Low income countries (LIC)	Most of Africa; some of South America
Oil-rich countries	Libya, Kuwait, Venezuela

Part D: Practical Geographical Enquiry

Throughout their course, learners need to acquire a range of geographical skills through fieldwork and linked practical exercises.

Fieldwork and enquiry skills in readiness for assessment must include:

- pre-fieldwork planning — designing a fieldwork investigation, as per the qualification content. This may include a degree of planning research.
- primary field skills — undertaking a field investigation; the need for sampling, data collection and recording techniques.
- presentation, analysis, conclusions and evaluation skills — using the range of data presentation techniques; analysis of data and drawing conclusions; evaluating the techniques used and the conclusions drawn.

Fieldwork and practical enquiry-based learning should also support wider practical skills. In particular:

- **analysis of information** — reviewing data and other information, to see if they are accurate, suitable for the purpose or misleading
- **atlas skills** — using an atlas wherever relevant to the course (book or electronic)
- **data analysis skills** — simple descriptive statistics, such as lines of best fit, means, medians, modes; also measures of central tendency if relevant/possible
- **graphical skills** — compiling graphs and flow lines; using proportional symbols; annotating maps; diagrams and photographs
- **map skills** — with particular reference to maps (including digital maps/Geographical Information Systems): using grid references; understanding scales; recognising symbols; identifying landforms and human features of the landscape
- **photo-interpretation skills** — reading vertical and oblique aerial photographs and satellite images
- **problem-solving skills** — identifying the views of interested people (stakeholders), recognising that stakeholders may have different views on specific issues
- **sketching and photographing skills** — communicating ideas through simple sketch maps, field sketches and annotated photographs
- **spatial awareness** — identifying the relative locations and relationships between features.

Fieldwork Support

The fieldwork support in this Teacher's Guide for is divided into the following sections:

1 Overview: Suggested fieldwork opportunities
2 Generic sources of information to help contextualise the fieldwork and research
3 Virtual fieldwork
4 Fieldwork opportunities by Specification Topic
5 Planning and developing an integrated fieldwork strategy
6 Using Geographical Information Systems (GIS).

(1) Overview: Suggested fieldwork opportunities

	Topic	Suggested fieldwork opportunities
SECTION A	1. River environments	Measuring water quality Measuring channel characteristics
	2. Coastal environments	Measuring beach profiles and sediment characteristics Investigating the conflicts between development and conservation on a stretch of coastline
	3. Hazardous environments	Measuring and recording weather data Investigating people's views on the management of a hazard event (river flooding, coastal retreat, tropical storms, drought or tectonic events)
SECTION B	4. Economic activity and energy	Investigating the location factors of factories or services Investigating people's conflicting views on the use and impacts of renewable and non-renewable energy
	5. Ecosystems and rural environments	Investigating a small-scale ecosystem or rural aid project Investigating how a farm works as a system
	6. Urban environments	Investigating change in environmental quality survey Investigating change in land use

(2) Generic sources of information to help contextualise fieldwork and research

A number of these sources may have information to help contextualise the fieldwork and add relevance to the issue/topic being studied. useful

Websites

www.field-studies-council.org	The Field Studies Council have a useful website which includes a range of specialist identification guides (eg fold out charts) valuable for many of the fieldwork topics in the Specification.
geographyfieldwork.com	This website has useful information from the Barcelona Field Studies Centre.
www.rgs.org	The Royal Geographical Society have a directory of international field centres ('World Register').
www.bbc.co.uk	The local pages of the BBC website often have reactions to particular issues.
www.youtube.com	YouTube may provide video clips of documentaries as well as uploaded local videos.

Other support materials

Geofile and *Geofactsheet.* These publications of a range of topics that may be relevant to particular topic. Although aimed at the AS/A2 audience, they can provide some useful background reading to contextualise a topic area.

Newspapers and Magazines

TopicEye Geography

Geography Review

WideWorld

Independent

The Guardian

Telegraph

The Times

local newspapers for a more in-depth focus on local issues (especially editorial sections)

The Economist

The Ecologist

The New Scientist

Other virtual media

Twitter.com

RSS feeds.

The Topic schemes within the published Specification contain recommended fieldwork opportunities and practical skills which give ideas as to the pre- and post-fieldwork and activities that could be undertaken in each particular environment. Many of the references are generic. They do not form an exhaustive list of fieldwork that must be done, but a list of commonly used fieldwork linked to each Topic focus.

(3) Virtual Fieldwork

Virtual fieldwork, in the context of this qualification, is a term that refers to either:

Pre- and post-fieldwork that supports the main focus of fieldwork opportunities. This might include Google Maps and Google StreetView for instance, as tools used to select appropriate sites. Photographs and/or video from past field visits (when conditions were different) may demonstrate particular features/landscapes/processes etc. Websites of uploaded audio/visual content may be useful in this respect. Virtual fieldwork may also be used as a tool to help teach field-skills before the visit, or, for example, preparing a risk assessment.

In may be necessary to conduct a simulation exercise, for example, in the event of constrained circumstances, candidates are unable to collect first hand data in the field. In this instance alternative data will need to be sourced (see page 12 of the Specification).

It should be stressed that virtual fieldwork is not to be used as a way of short-cutting or bypassing the original fieldwork opportunities which are central to the delivery of the course. Whilst virtual fieldwork may offer a workable, practical and satisfactory alternative to real fieldwork, this approach does tend to have limitations, for example:

- virtual trips cannot replicate real objects (eg rocks, plants, smells and noises) – only visual aspects (eg views of landscapes) can easily be simulated
- students may treat a virtual field trip as similar to a computer game and not develop the analytical approaches or problem-solving skills needed in the same way as when they are confronted by the 'real thing'
- a virtual environment cannot recreate the challenges of doing an enquiry in an unfamiliar setting which develops self-reliance
- it can't recreate the social benefits of fieldwork, especially the value of residential experiences
- it is difficult to develop embed the skills and experiences associated with real fieldwork (which form part of the assessment).

There are many examples of virtual fieldwork tours on the internet, eg British Ecological Survey www.britishecologicalsociety.org/educational/fieldwork/virtual_tours.php. Here, users are able to select an environment to investigate and then to see individual transects where data was collected. Detailed photography allows a realistic simulation of the data collection process, through a systematic sample.

The Digital Explorer website digitalexplorer.com/ge/adf/advanced-google-earth-manual.pdf – has a section on virtual fieldwork in the context of Google Earth.

(3) Fieldwork opportunities by Specification Topic

Topic 1 — River environments

Fieldwork focus: (1) Measuring water quality, and (2) channel characteristics

Activity	Fieldwork opportunities	Pre and post fieldwork
Planning	Locating the study area (maps/GIS etc). Designing an investigation: • Identification of a question and aims linked to geographical theory • Fieldwork equipment considerations to ensure accuracy and reliability • Discussion of health and safety.	Contextualising the study wider significance of the topic area etc. • Research into relevant background information, eg internet, magazines and articles • Use of past data to understand scale • Fieldwork design – where and how many sites (justified). Possible development/customisation of recording sheets.
Fieldwork techniques	**Water quality** – range of indicators eg pH, turbidity/colour, nitrates, odour. Also kick sampling to determine invertebrates. **Channel characteristics** – eg width, depth, discharge , gradient, bedload etc.	Discussion of methods to measure and record data with reference to secondary data and field sketches of the data collection sites using secondary resources.
Data presentation	Data presentation using a range of graphs, diagrams and annotations. Data must be collated prior to presentation.	
Analysis of information	Undertaking simple tests of the secondary data, for example calculating the mean velocity at each site (basic statistical tests). Analysing data, drawing conclusions with reference to the aims of the investigation, evaluating the techniques used and the conclusions drawn.	
Conclusions and evaluation	Describing the findings, explaining possible reasons and making links between patterns etc. Students should return to the original predictions/hypotheses. A review of the fieldwork process (including any additional research information). Comments on the accuracy, validity and reliability of the conclusions.	

Additional resources and sources of information	• FSC fold-out key to rivers fieldwork and guide to water quality, see http://www.field-studies-council.org/publications/pubsinfo.aspx?Code=OP114 • BBC Bitesize for a useful introduction to rivers in the landscape http://www.bbc.co.uk/schools/gcsebitesize/geography/riverswater/ • Environment Agency f online GIS maps for water quality http://www.environment-agency.gov.uk/homeandleisure/37793.aspx

Topic 2 – Coastal environments

Fieldwork focus: (1) Sediment and beach profiles, and (2) conflicts along a stretch of coastline

Activity	Fieldwork opportunities	Pre and post fieldwork
Planning	Locating the study area (maps/GIS etc). Designing an investigation: • Identification of a question and aims linked to geographical theory • Fieldwork equipment considerations to ensure accuracy and reliability • Discussion of health and safety.	Contextualising the study wider significance of the topic area etc. • Research into relevant background information, eg internet, magazines and articles • Use of past data to understand scale • Fieldwork design – where and how many sites (justified). Possible development/customisation of recording sheets.
Fieldwork techniques	**Sediment and beach profiles**- transects up the beach (slope gradient), changes in sediment size and shape.	Discussion of methods to measure and record data with reference to secondary data and field sketches of the data collection sites using secondary resources.
	Development vs conservation conflicts – views of different stakeholders, questionnaires, conflict matrices, photographic evidence.	
Data presentation	Data presentation using a range of graphs, diagrams and annotations. Data must be collated prior to presentation.	
Analysis of information	Undertaking simple tests of the secondary data, for example calculating the mean pebble size at each site (basic statistical tests). Analysing data, drawing conclusions with reference to the aims of the investigation, evaluating the techniques used and the conclusions drawn.	
Conclusions and evaluation	Describing the findings, explaining possible reasons and making links between patterns etc. Students should return to the original predictions/hypotheses. A review of the fieldwork process (including any additional research information). Comments on the accuracy, validity and reliability of the conclusions.	

Additional resources and sources of information	• FSC Coastal fieldwork website – particularly useful for fieldwork in relation to coasts http://www.geography-fieldwork.org/coastfieldwork/index.htm • Environment Agency Shoreline management plans http://www.environment-agency.gov.uk/research/planning/104939.aspx • BBC Bitesize - coastal management http://www.bbc.co.uk/schools/gcsebitesize/geography/coasts/coastal_management_rev1.shtml

Topic 3 – Hazardous environments

Fieldwork focus: (1) Recording weather data, and (2) views on hazard management

Activity	Fieldwork opportunities	Pre and post fieldwork
Planning	Locating the study area (maps/GIS etc). Designing an investigation: • Identification of a question and aims linked to geographical theory • Fieldwork equipment considerations to ensure accuracy and reliability • Discussion of health and safety.	Contextualising the study wider significance of the topic area etc. • Research into relevant background information, eg internet, magazines and articles • Use of past data to understand scale • Fieldwork design – where and how many sites (justified). Possible development/customisation of recording sheets.
Fieldwork techniques	**Weather data** – recording local weather data, eg pressure, temperature, rainfall etc; microclimate variability. Use of internet. **Views on hazard management** – questionnaire design to various stakeholders; past record and evidence.	Discussion of methods to measure and record data with reference to secondary data and field sketches of the data collection sites using secondary resources.
Data presentation	Data presentation using a range of graphs, diagrams and annotations. Data must be collated prior to presentation.	
Analysis of information	Undertaking simple tests of the secondary data, for example calculating the mean temperature at each site (basic statistical tests). Analysing data, drawing conclusions with reference to the aims of the investigation, evaluating the techniques used and the conclusions drawn.	
Conclusions and evaluation	Describing the findings, explaining possible reasons and making links between patterns etc. Students should return to the original predictions/hypotheses. A review of the fieldwork process (including any additional research information). Comments on the accuracy, validity and reliability of the conclusions.	

Additional resources and sources of information	• XC weather for live weather feeds http://www.xcweather.co.uk/ • Weather underground as an alternative source of live feeds http://www.wunderground.com/wundermap/ • Royal Horticultural Society – the factors that can influence microclimate http://apps.rhs.org.uk/advicesearch/Profile.aspx?pid=689

Topic 4 – Economic activity and energy

Fieldwork focus: (1) Locations of factories/services, and (2) views on renewable vs non renewable

Activity	Fieldwork opportunities	Pre and post fieldwork
Planning	Locating the study area (maps/GIS etc). Designing an investigation: • Identification of a question and aims linked to geographical theory • Fieldwork equipment considerations to ensure accuracy and reliability • Discussion of health and safety.	Contextualising the study wider significance of the topic area etc. • Research into relevant background information, eg internet, magazines and articles • Use of past data to understand scale • Fieldwork design – where and how many sites (justified). Possible development/customisation of recording sheets.
Fieldwork techniques	**Locations services/factories** – visits, interviews, questionnaires, distributions Focus may be single service eg banks in a town.	Discussion of methods to measure and record data with reference to secondary data and field sketches of the data collection sites using secondary resources.
	Views on energy – questionnaires to various groups plus internet/newspaper search.	
Data presentation	Data presentation using a range of graphs, diagrams and annotations. Data must be collated prior to presentation.	
Analysis of information	Undertaking simple tests of the secondary data, for example calculating the mean responses for each type of energy (basic statistical tests). Analysing data, drawing conclusions with reference to the aims of the investigation, evaluating the techniques used and the conclusions drawn.	
Conclusions and evaluation	Describing the findings, explaining possible reasons and making links between patterns etc. Students should return to the original predictions/hypotheses. A review of the fieldwork process (including any additional research information). Comments on the accuracy, validity and reliability of the conclusions.	

Additional resources and sources of information	• Report: attitudes and knowledge about renewables by the public http://webarchive.nationalarchives.gov.uk/+/ http://www.berr.gov.uk/files/file15478.pdf • Energy efficiency/awareness questionnaire http://www.york.ac.uk/biology/energy/BaseQuestionnaireResponse.pdf

Topic 5 — Ecosystems and rural environments

Fieldwork focus: (1) Investigating a small scale ecosystem, and (2) how a farm works as a system

Activity	Fieldwork opportunities	Pre and post fieldwork
Planning	Locating the study area (maps/GIS etc). Designing an investigation: • Identification of a question and aims linked to geographical theory • Fieldwork equipment considerations to ensure accuracy and reliability • Discussion of health and safety.	Contextualising the study wider significance of the topic area etc. • Research into relevant background information, eg internet, magazines and articles • Use of past data to understand scale • Fieldwork design – where and how many sites (justified). Possible development/customisation of recording sheets.
Fieldwork techniques	**Small scale ecosystem** – eg pond, sand dune, salt marsh, healthland, scrubland etc – transects, soil, species diversity etc.	Discussion of methods to measure and record data with reference to secondary data and field sketches of the data collection sites using secondary resources.
	Farm system – interviews, land use/crop maps (including historical), soil characteristics surveys,	
Data presentation	Data presentation using a range of graphs, diagrams and annotations. Data must be collated prior to presentation.	
Analysis of information	Undertaking simple tests of the secondary data, for example calculating the mean percentage frequency of vegetation at each site (basic statistical tests). Analysing data, drawing conclusions with reference to the aims of the investigation, evaluating the techniques used and the conclusions drawn.	
Conclusions and evaluation	Describing the findings, explaining possible reasons and making links between patterns etc. Students should return to the original predictions/hypotheses. A review of the fieldwork process (including any additional research information). Comments on the accuracy, validity and reliability of the conclusions.	

Additional resources and sources of information	• School grounds ecosystem survey instructions http://www.geographyteachingtoday.org.uk/fieldwork/info/local-learning/fieldwork-in-the-school-grounds/school-grounds-ecosystems-study/ • FSC urban ecosystems website http://www.field-studies-council.org/urbaneco/ • Farm business survey for background information http://www.farmbusinesssurvey.co.uk/regional/GOR.asp

Topic 6 — Urban environments

Fieldwork focus: (1) Investigating environmental quality, and (2) changes in land use.

Activity	Fieldwork opportunities	Pre and post fieldwork
Planning	Locating the study area (maps/GIS etc). Designing an investigation: • Identification of a question and aims linked to geographical theory • Fieldwork equipment considerations to ensure accuracy and reliability • Discussion of health and safety.	Contextualising the study wider significance of the topic area etc. • Research into relevant background information, eg internet, magazines and articles • Use of past data to understand scale • Fieldwork design – where and how many sites (justified). Possible development/customisation of recording sheets.
Fieldwork techniques	**Environmental quality**: transect through two areas, various EQAs and photos. **Land use:** systematic transect from outer to inner CBD recording changes at intervals.	Discussion of methods to measure and record data with reference to secondary data and field sketches of the data collection sites using secondary resources.
Data presentation	Data presentation using a range of graphs, diagrams and annotations, eg land-use map, gain-loss graphs for environmental quality. Data must be collated prior to presentation.	
Analysis of information	Undertaking simple tests of the secondary data, for example calculating the mean environmental quality at each site (basic statistical tests). Analysing data, drawing conclusions with reference to the aims of the investigation, evaluating the techniques used and the conclusions drawn.	
Conclusions and evaluation	Describing the findings, explaining possible reasons and making links between patterns etc. Students should return to the original predictions/hypotheses. A review of the fieldwork process (including any additional research information). Comments on the accuracy, validity and reliability of the conclusions.	

Additional resources and sources of information	• Neighbourhood statistics for population data http://www.neighbourhood.statistics.gov.uk/dissemination/ • UpMyStreet for geo-demographic data • FSC fold-out key to CBD fieldwork http://www.field-studies-council.org/publications/pubsinfo.aspx?Code=OP114 .

(5) Planning and developing an integrated fieldwork strategy

It is strongly recommended that centres plan their fieldwork opportunities as part of an integrated two year strategy, making clear the links between the fieldwork and the knowledge/understating of the Specification content in Sections A and B. In that respect, the order of teaching topics should largely dictate the programme of fieldwork (or vice-versa).

Schools must provide opportunities for at least 2 Topics from Section A and two Topics from section B. It is recommended, however, that schools will choose to cover all fieldwork Topics (three from Section A and three from Section B) thereby ensuring choice and flexibility in the exam.

The table below (Model 1) illustrates one example programme of fieldwork that might be used to fulfil the requirements of the Specification and to **allow a choice of questions – all Topics are covered**.

In this example, the school is located in Shrewsbury, Shropshire, UK. Typically each taught Topic has about a ½ to 1 day of fieldwork (including any travel). Each fieldwork session is a stand-alone activity, with follow-up (relevant data presentation, analysis etc) completed in lessons or as homework after the trip. This is often done as a group activity, with shared outcomes available via the school intranet. In this way the teams can work together to produce work that is then reviewed and shared in preparation for assessment.

Pre-fieldwork planning has been used in each case to contextualise the geography of the location and the fieldwork that will be undertaken, in some instances using GIS (eg Google Earth and Google Maps) and supporting video material.

Model 1 – a detailed example of 'days-out' fieldwork. Covers all topics.

Topic focus	Example location (UK)	Time of year
River Environments	(1 & 2) Cardingmill Valley, Long Mynd, South Shropshire	Yr 10 September/October
Hazardous environments	(1) School, grounds (weather)	Variable – in Yr 10 when there is a depression to track
Urban Environments	(1 & 2) Shrewsbury, Shropshire	Yr 10 June/July
Ecosystems and rural environments	(2) Ynylas, West Wales	Yr 10 June/July
Ecosystems and rural environments	(1) Walford Agricultural College, Baschurch, Shrewsbury AND/OR visit to a local parent's farm	Yr 10 June/July
Coastal Environments	(1 & 2) Borth (nr Barmouth), West Wales.	Yr 11 September/October
Economic Activity and Energy	(1) Telford (Ricoh), Shropshire	Variable – in Autumn term of Yr11
Hazardous environments	(2) Shrewsbury, Shropshire (flood focus)	Variable – in Spring term of Yr11

Topic focus	Example location (UK)	Time of year
Economic Activity and Energy	(2) CAT Centre, Machynlleth, Mid Wales	Variable – in Spring term of Yr11

Note – the numbers in brackets relate to the Topic focus in the Specification.

Model 2 – a detailed example of a residential trip, supported by additional top-ups. Covers all Topics.

In this second example (Model 2), a longer 3-day residential trip is used to cover several of the Topics. In the example shown, the school have travelled to Nettlecombe Court (a Field Studies Council fieldwork centre), in Somerset. One of the key advantages that the residential trip has (two nights away in this example) over Model 1 is that evening following-up time can be used to close the route to enquiry or prepare for the next day's activity. Residential trips can also be more cost effective in terms of reducing travel costs between field sites.

Topic focus	Example location (UK)	Time of year
Urban Environments	(1 & 2) Shrewsbury, Shropshire	Yr 10 September/October
River Environments	(1 & 2) Local stream adjacent to field centre	Residential – March Yr 10
Ecosystems and rural environments	(2) Saunton Sands, Barnstaple, Devon	Residential – March Yr 10
Coastal Environments	(1 & 2) Porlock and Minehead, North Somerset	Residential – March Yr 10
Hazardous environments	(1) Field centre, grounds (microclimate)	Residential – March Yr 10
Ecosystems and rural environments	(1) Walford Agricultural College, Baschurch, Shrewsbury	Yr 10 June/July
Economic Activity and Energy	(1) Telford (Ricoh), Shropshire	Yr 10 June/July
Hazardous environments	(2) Shrewsbury, Shropshire (flood focus)	Yr 11 Sept/Oct
Economic Activity and Energy	(2) CAT Centre, Machynlleth, Mid Wales	Variable – in Spring term of Yr11

Note – the numbers in brackets relate to the Topic focus in the Specification.

Note 2 – shading indicates Topics completed at the field centre

Model 3 – Overseas example. Uses virtual fieldwork to supplement some of the Topics.

Model 3 is based on a school in Hong Kong. It is sequenced in such that the fieldwork is undertaken during a two year course.

Topic focus	Example location (Overseas – Hong Kong)
Urban Environments	(1 & 2) Hong Kong Island and Kowloon
River Environments	(1 & 2) Virtual Fieldwork – data from UK Field Centre
Ecosystems and rural environments	(2) Woodland fieldwork – New Territories
Coastal Environments	(1) Virtual fieldwork – data from a field centre based in Cyprus
Coastal Environments	(2) Discovery Bay and remote areas of Lantau Island

Topic focus	Example location (Overseas – Hong Kong)
Hazardous environments	(1) Transect up onto The Peak (microclimate)
Ecosystems and rural environments	(1) Visit to an intensive poultry unit, Ting Kau, Hong Kong.
Economic Activity and Energy	(1) Visit to the container port and new airport
Hazardous environments	(2) Hong Kong Island – Tropical storm focus
Economic Activity and Energy	(2) Hong Kong Island – study of solar thermal potential in residential districts.

Note – the numbers in brackets relate to the Topic focus in the Specification.

Note 2 – shading indicates Topics that were completed using virtual fieldwork. All other aspects of the route to enquiry remain the same.

Model 4 – Example covering minimum fieldwork Topics only. This may yield no choice of question in the exam.

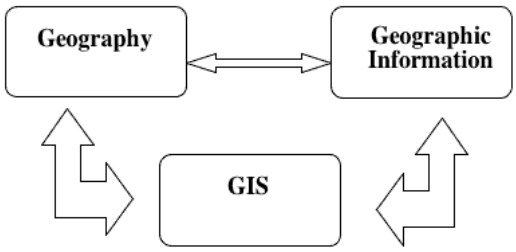
It is possible to reduce the number of fieldwork Topics from 6 to 4 within each Section. This would mean that there were 8 fieldwork opportunities in total. Model 4 indicates how this might work in three different 'Routes'. Note schools must undertake Topics where they can complete both suggested fieldwork opportunities.

	Route 1	Route 2	Route 3
Section A	Rivers + Coasts	Rivers + Hazards	Hazards + Coasts
Section B	Economic/energy + Urban	Economic/energy + Ecosystems	Ecosystems + Urban

(6) Using Geographical Information Systems (GIS)

GIS or Geographical Information Systems are becoming an important part of a 21st century way of life. GIS has evolved into a technology that is used by many industries and agencies to help plan, design, engineer, build and maintain information infrastructures that effects our everyday lives. There is no limit to the type of data that can be included in a GIS. Consequently, GIS can be used in a huge range of geographical contexts, and is increasingly being used in real time disaster management, to quickly map areas of damage, identify services, locate possible refugee sites etc.

The aim of this section is to provide teachers with some background information relating to GIS, as well how the technology fits within different parts of the Specification.

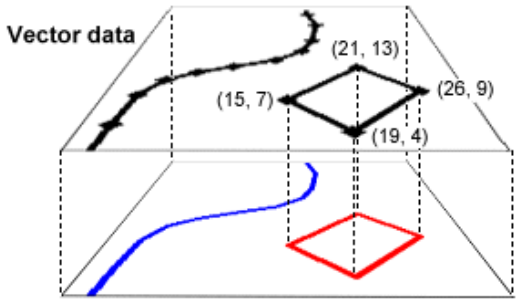


Source RGS http://www.gis.rgs.org/0.html

GIS Basis – the system

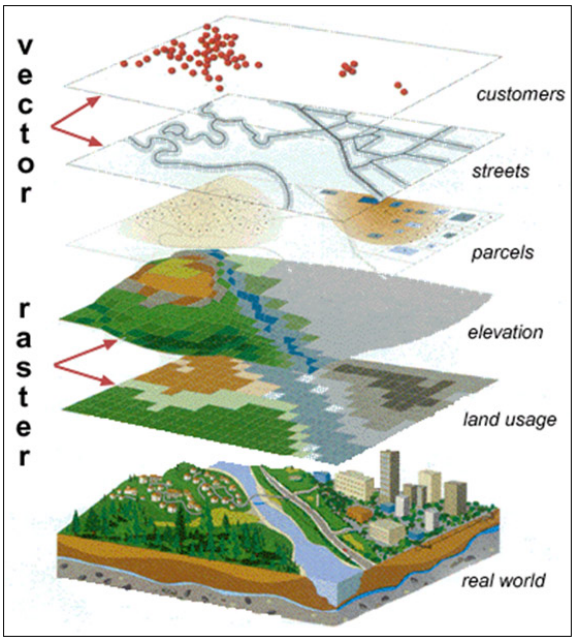
Geographic information is simply a digitally-coded description of the location of objects and/or features. It relates to the distribution of any physical and human features that are found on the Earth's surface. Types of geographic information are varied including socio-economic and demographic data as well as physical and environmental data. The data can expressed as points, lines or areas, eg 'vectors' or 'polygons'. This is commonly called attribute data, which is coded into coordinates.

A **point** is defined by a single pair of coordinate values. A **line** is defined by a sequence of coordinate pairs defining the points through which the line is drawn. An **area** is defined in a similar way, only with the first and last points joined to make a complete enclosure.



Source Ordnance Survey http://www.ordnancesurvey.co.uk/oswebsite/gisfiles/section1/page5.html

GIS systems work as a set of layers that the user can turn on and off. This is the great advantage of GIS since users can customise maps and areas to suit their own needs and demands. Maps, can for instance just show physical information such as elevation, rivers, geology etc. Alternatively the human 'footprint' on the landscape can be overlaid, eg settlement patterns, transport nodes and networks, land use etc. GIS has the advantage in that the user turns off or on the layers that they want to see, either adding complexity or simplifying the map.



One of the most useful (but more complex aspects of GIS) is that it can be used to perform network analysis. Network analysis is the mathematical processing of the shape of a link/node layer, enabling the identification of all possible routes around that network, along with the distances and times involved. This means that, using an accurate road data layer, the software can identify possible routes between two locations and calculate the shortest. This is how, for example, a 'sat-nav' device works. The technology is very important in the logistics and distribution services.

The table below provides some examples of how GIS can be used in a variety of situations.

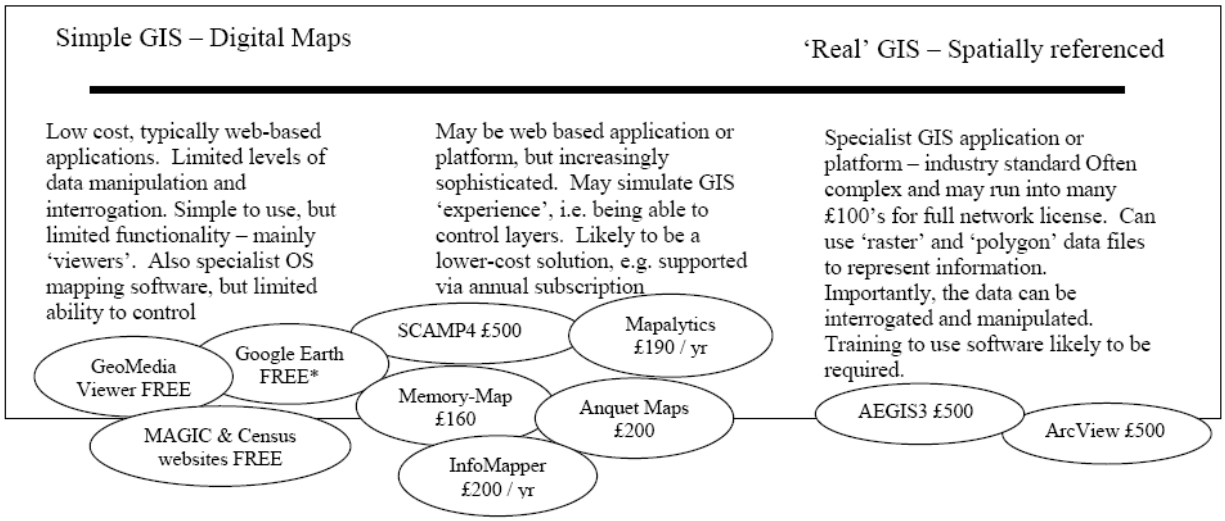
Example overlay	**Application**
Population density	Flood risk; pollution from particular point sources
Maps of crime	Crime 'hotspots'; links to people's perception of crime
Roads	Ambulance/police/fire to find quickest route (network)
Disease maps	Monitoring/modelling and predicting disease outbreaks, eg swine-flu
Town retail catchments	To help with the location of a new shopping centre or supermarket

Overall, the use of modern GIS offers many advantages over paper maps:

- Can cope with larger amounts of data
- Can cover large study areas (the whole world if necessary)
- Can conveniently select any sub-study area
- Can cope with unlimited and frequent edits and changes
- More robust and resistant to damage
- Faster and more efficient
- Requires less person time and money.

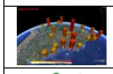
GIS spectrum

The idea behind the GIS spectrum is that there are different types of GIS systems that vary in terms of their complexity, sophistication and flexibility to do tasks. Simple examples of GIS are Google Earth, Google Maps, Microsoft Bing etc and then more sophisticated including Anquet Maps, Infomapper, Aegis and ArcMapper. Refer to the 'GIS spectrum' diagram.

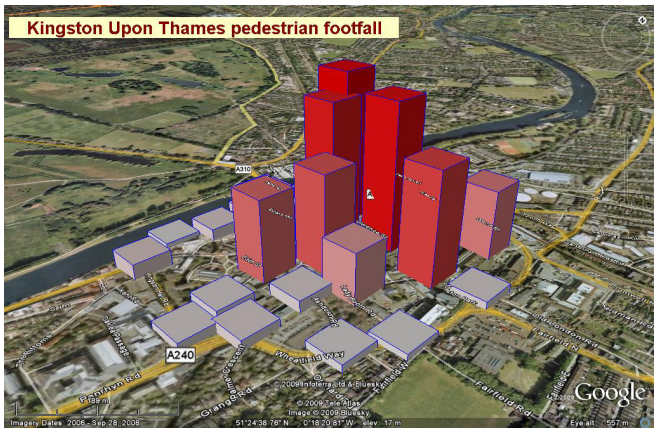


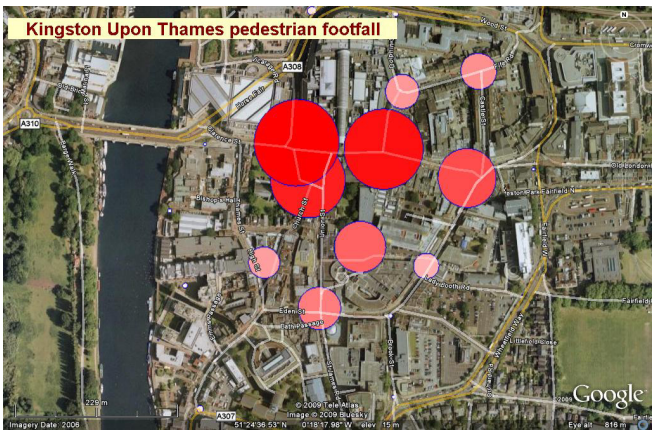
Free + low cost web-based GIS and digital maps

Virtually all students studying AS Geography will have already used a GIS system, because Google Earth and Google Maps are both GIS systems, although they are web based. The table below suggests some of the sites that could be used as examples.

Mapping and web-based GIS websites	
multimap.com	Online maps for everywhere. Change scales and also view by air photo. www.multimap.co.uk. This is still a 'standard' source for many maps, but the site is often cluttered with adverts.
Google Local UK BETA	http://maps.google.co.uk/ Google Local also provides maps. Can select particular items to search for, e.g. "Indian restaurant restaurants in SY1". Clever stuff! Creating your own login ID allows users to customise their own maps
Windows Live Local powered by Virtual Earth Beta	http://local.live.com/ this website allows you to get maps and air photos at high resolution for locations in UK. Use postcode search. Better resolution than G. Earth for rural locations. An experimental site www.flashearth.com brings together Google Local and Windows local. Clever stuff.
quikmaps beta	Draw pictures and label things on a Google map using simple clicks and drags. Easily move the map to anywhere in the world. www.quikmaps.com The user-friendly nature of the site makes it ideal for students to create maps of their local or personal geographies and fieldwork activities.
FLASH EARTH	Flash Earth www.flashearth.com lets you select the best resolution air photo / satellite image from a range of sources. This is good for detail in rural areas.
Google Earth	http://earth.google.com - A visually stunning 3D interface on the planet. Download the 11MB programme (for free) and watch it go. You will need a fast internet connection. Interesting overlays can be found at http://www.googleearthhacks.com , e.g. live weather feeds, earthquakes etc
OS Ordnance Survey	The OS website – our link takes you direct to the 'get a map' section where you can download any 1:50000 or 1:25000 map extract for the UK ("Get a Map" function). Very useful in c – try important / inserting into MS Word www.ordnancesurvey.co.uk
	It is possible to add graphs as 'kml' overlays to Google Earth using another free application – 'GeGraph'. There is a free download available for this at http://www.sgrillo.net/googleearth/gegraph.htm (it is now compatible with the latest version of Google Earth.
CHCC	CCG Online GIS Atlas – is an interactive web based visualization tool giving access to 88 key census variables from 1971 -2001. It aims to deliver a simple mechanism for mapping statistics from GB census – information is displayed as a cartogram. http://www.ccg.leeds.ac.uk/teaching/chcc/index.html
old-maps .co.uk	Providing access to Britain's most extensive digital historical map archive. Maps are generally 1900. Copy and paste. www.old-maps.co.uk. Can be used to look at changes in the shape and form of settlements for example.
	'Where's the path' (http://wheresthepath.googlepages.com/wheresthepath.htm) is a really top-draw site that allows the user to select and compare different types of map / satellite imagery side-by-side. The only problem is that the OS have limited the number of hits to 30,000 which means the site does work well in the afternoons!
	Open source postcodes http://dev.openstreetmap.org/~random/postcodes/ Does as it says on the tin – interactive map where the user can find postcodes. Good for sphere of influence type surveys, i.e. plotting how far people have come from.
MAPPER	http://www.umapper.com/ Umapper is the first web-based universal map authoring tool. The user can create their own GIS maps (I think more powerful than Google maps). A range of tools are provided for students' use.

One of the benefits of web-based GIS technology is that overlays can be added, eg using GeGraphs – see examples immediately below.





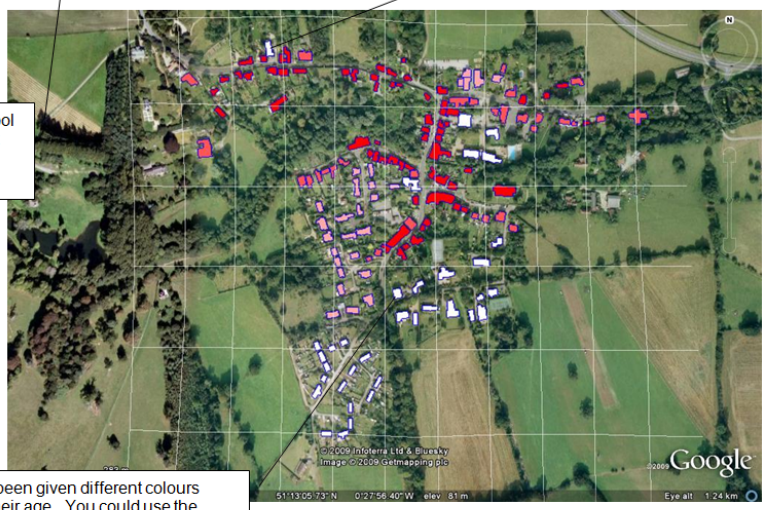
Source FSC Juniper Hall

Simple GIS has been unwittingly used by students for many years now – the example on the left shows how Google Maps for example has been used in the legacy coursework to locate an area. Below is an extract from the Edexcel GCSE B Geography workbook, indicating the use of placemarks and overlays.

Google Earth and Google Maps allow users to create their own 'placemarks' and 'overlays'. This could be used in your controlled assessment to showing the location and ages of different types of housing for instance, or you may choose to add labels to the map to provide reasons for choosing a particular site.

This is the 'add polygon' tool found in Google Earth that allows you to put shapes onto a base map

Each shape is a different house included within the survey. They have been created using the 'add polygon' tool



Houses have been given different colours according to their age. You could use the same process, for example to create a land-use map of a town

Map created by Jason Lock / FSC Juniper Hall. Google map derived.

There are a range of specialist software products that can support GIS usage in schools. The most commonly used application is AEGIS3 http://www.advisoryunit.org.uk/ . This is a specialist schools based product which comes with a range of free data.

The leader in professional platforms is ESRI who have products such as ArcView and ArcInfo which are now widely used in some schools.

http://www.esriuk.com/. Other examples of GIS systems are available and are listed by the Ordnance Survey – see extract http://www.ordnancesurvey.co.uk/oswebsite/education/mappingnews/previouseditions/33/p38-39.pdf Paid-for packages have greater flexibility and sophistication than their web based counterparts, but they are more complex, often requiring specialist training for teachers and students. You can find out more about GIS also from the Geographical Association who have a support book http://www.geography.org.uk/shop/shop_detail.asp?ID=575&section=4

Linkage to GIS within the Edexcel geography Specifications

Both the Geographical Association http://www.geography.org.uk/gtip/thinkpieces/gis/#top and the RGS have recognised the importance of GIS in school education http://www.rgs.org/OurWork/Schools/Resources/GIS/Getting+started+with+GIS.htm. In fact , GIS is specifically mentioned with in new Geography Manifesto:

"GIS can be the source of innovative teaching approaches, both inside and outside the classroom".

Edexcel has embraced the importance of this new technology and so it has become a recognised component of both the new GCSE's (2009-2011) and A' Level (2008).

Web links and additional resources

Ordnance Survey GIS pages http://www.ordnancesurvey.co.uk/oswebsite/GISfiles/

GIS for the Curious http://gge.unb.ca/Resources/GISForTheCurious/

USGS web poster http://erg.usgs.gov/isb/pubs/GIS_poster/

GIS.com http://www.GIS.com/whatisGIS/index.html

ESRI GIS basics http://www.esri.com/industries/k-12/basicGIS.html

GeoExplorer - what is GIS? http://www.geoexplorer.co.uk/sections/GIS/GIS_explained.htm

Resources

Please note that while resources are correct at the time of publication, they may be updated or withdrawn from circulation. Website addresses may change at any time.

It is hoped that students will gain their knowledge and understanding, and develop their skills, from using a variety of sources, such as atlases, topographic maps, newspapers, magazines, CD-ROMs, the internet, videos/DVDs, field trips etc.

The Geographical Association publishes the quarterly journal 'Teaching Geography'. This journal frequently contains articles and ideas for using ICT in teaching geography and also contains a software review page and advertisements for new geographical computer software. The Geographical Association also organises an annual three-day conference during the Easter vacation.

The Geographical Association can be contacted as follows:

160 Solly Street
Sheffield
S1 4BF

Telephone: +44 (0) 114 2960088
Website: www.geography.org.uk
Email: ga@geography.org.uk

Textbook

Witherick, M and Milner S - *Edexcel IGCSE Geography Student Book* (Pearson, 2010) ISBN 978-0-435016-95-1

General websites

These websites may be useful. The list represents a small number of the sites available.

www.actionaid.org	Actionaid
www.news.bbc.co.uk	BBC news
www.brazil.org.uk	Brazilian Embassy
www.defra.gov.uk	Department for Environment, Food and Rural Affairs
www.fao.org/	Food and Agricultural Organisation
www.nelsonthornes.com	Geoactive
www.greenpeace.org	Greenpeace
www.geography.learnontheinternet.co.uk	Internet Geography
www.ordsvy.gov.uk	Ordnance Survey
www.oxfam.org.uk	Oxfam
www.peopleandplanet.org.uk	Student action on world poverty
www.environment-agency.gov.uk	The Environment Agency
www.metoffice.com	The Met Office
www.un.org	United Nations
www.panda.org	World Wildlife Fund

Geography-specific websites

These websites may help with some aspects of the Specification.

www.geography.btinternet.co.uk/biome.htm	Biomes
www.geography.btinternet.co.uk/coasts.htm	Coasts
www.curriculum-press.co.uk/a-level/geography/factsheets.htm	Geo Factsheets and GCSE Questionbank
www.nidi.knaw.nl/web/html/pushpull/index.html	Push/Pull Factors of International Migration
www.census.ac.uk	UK Census Data
www.nhc.noaa.gov	US National Hurricane Centre
http://volcano.oregonstate.edu/	Volcano World
www.philipallan.co.uk/wideworld/index.htm	Wideworld (GCSE magazine)
www.rainforestweb.org/	World Rainforest Information Portal

Internet sites constantly change and new sites appear. At the time of publication these websites are active. There are too many appropriate websites to list but you and your students are encouraged to use a search engine to find other useful websites, including those related to virtual fieldwork study.

CD-ROMs and videos/DVDs

Anglia Multimedia - *British Coastlines From the Air*

BBC - *various* (www.bbc.co.uk)

Channel 4 - *various. Contact Channel 4 School Publications* (for example Virtual Rainforest CD ROM)

Microsoft - *Encarta 2000*

Nelson Thornes - The *Physical World*

Nelson Thornes - *Weather World*

Publications Code UG031039 February 2012