

# Contents

## GCSE in Geography A Teachers' Guide

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# 1. INTRODUCTION

The WJEC GCSE Geography A specification was 'strengthened' for delivery from September 2012. The specification can be delivered and assessed in centres throughout the UK. In Wales the specification is available as a unitised specification but in England as linear only.

This Guide is one of a number of ways in which the WJEC provides assistance to teachers delivering the new specification. Also essential to its introduction are the Specimen Assessment Materials (question papers and marking schemes) and professional development (CPD) conferences.

Future provision which you will find useful:

- Examiners' reports on each examinations series.
- Free access to past question papers via the WJEC secure website.
- Easy access to the specification and other key documents on the main website.
- Itemised feedback on outcomes for candidates at question level.
- Access to candidate responses and assessment commentaries on the Online Exam Review website at <http://oer.wjec.co.uk>
- Access to free digital geography resources at <http://resources.wjec.co.uk/>
- Regular CPD delivered by subject experts.
- Easy access to both the Subject Officer and to administrative sections.

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## 1.1 Aims and Rationale

The specification already contains guidance in the many examples of teaching and learning approaches given in Column 3 of the specification (pages 12 -19). The approaches and examples given are not mandatory but they do provide a possible starting point for the construction of a teaching/learning programme. This guide extends the examples of approaches and illustrations that could be used to deliver the specification.

The guide includes examples of how to approach the specification by addressing:

- key features of the specification;
- the organisation of the whole educational programme over two years;
- possible approaches to the themes which, when taken as a whole, incorporate the variety of topics, issues, learning experiences and skills required by the specification, including those of fieldwork;
- examples of exercises and activities that could be used for learning and formative assessment.

Because geography is a dynamic subject, it goes without saying that teachers will be expected to update their supporting examples and case studies as and when new case studies are published or appear in the media. Teachers should be encouraged to deal with the contemporary rather than the historic when developing case studies.

### The new specification

- delivers geography relevant to those whose life will span much of the twenty-first century;
- focuses on the dynamic nature of the world we live in;
- enables the students to understand, interpret and react to the constantly changing environments and apply their understanding to complex issues of concern affecting the world and their own lives;
- provides a thematic framework that will allow flexibility for teachers to select specific content and learning experiences;
- encourages an enquiry approach to issues associated with core and optional themes and place specific contexts;
- emphasises the importance of fieldwork as an essential element of an integrated approach to teaching and learning.

## 1.2 Overview of the Specification

### SUMMARY OF ASSESSMENT GEOGRAPHY (A)

#### SUMMARY OF ASSESSMENT

<b>Unit 1: Core Geography (40%)</b> <b>Written Paper: 1 hour 45 minutes (F/H)</b> <b>90 marks (80 UMS)</b>
Six short compulsory structured data response questions, one question from each of the core themes. These questions will each have an element of extended prose.
<b>Unit 2: Options Geography (35%)</b> <b>Written Paper: 1 hour 15 minutes (F/H)</b> <b>60 marks (70 UMS)</b>
Three in depth structured data response questions with extended writing – one physical, one human and one other selected from the three physical and three human optional themes.
<b>Unit 3: Geographical Enquiry: (25%)</b> <b>Controlled Assessment</b> <b>100 marks (50 UMS)</b>
An enquiry based on fieldwork (10%) and a problem solving decision-making exercise (15%)

#### AVAILABILITY OF ASSESSMENT AND CERTIFICATION

	Entry Code		June 2010	June 2011 and each year thereafter
	Subject	Option*		
Unit 1	4231	01 or W1 (F)	✓	✓
	4231	02 or W2 (H)	✓	✓
Unit 2	4232	01 or W1 (F)		✓
	4232	02 or W2 (H)		✓
Unit 3	4233	01 or W1		✓
Subject Award	4230	01 or W1		✓

\* Option Codes: English Medium 01, Welsh Medium W1

Qualification Accreditation Number: 500/4596/9

- Unit 1 Core Geography provides a broad foundation to key aspects of changing environments.
- All three units build upon the foundation of Key Stage 3 by reinforcing concepts and skills at increasing levels of depth and complexity and by developing a framework of spatial awareness from the local through to the global scale.
- Unit 1 encourages progression to Option Geography in Year 11 and into the post-16 phase of education.
- All three units ensure learning outcomes that help students to develop a personal interest in why geography matters and to develop their responsibilities as global citizens who can play an important part in sustainable development.
- Classroom work can be reinforced by out-of-class activities in the field and research which will be assessed through controlled assessment which replaces coursework.
- All three units provide opportunities for breadth of study and more in-depth optional choices. One of the option choices focuses on changes in the Welsh economy and offers an opportunity for students to develop learning as part of the Intermediate Welsh Baccalaureate.
- The specification encourages an appreciation of alternative viewpoints and the reasons why people might hold certain views.
- Both Units 1 and 2 provide the learning opportunities for fieldwork and research that are integral to the enquiry-based student-centred learning for Unit 3: Geographical Enquiry assessed by controlled assessment that replaces coursework.

Assessment of Units 1 and 2 will be based on the Key Questions and their associated Enquiry Questions in the first two columns of the specification content. Teachers are free to select appropriate examples of places or topics to support these questions and are advised to ensure that the examples chosen in terms of scale and location are placed in a context of wider spatial awareness. Centres are advised not to repeat examples from earlier key stages but to widen spatial awareness and engage students through the use of new and exciting content.

A synoptic view of the world can also be achieved through the controlled assessment where centres are encouraged to select two linked tasks from the same theme.

### **1.3 Changes to the specification for delivery in September 2008**

Please [click here](#) to open the attachment window.  
Then open the file "*Changes to the new spec A.pps*"

## 2. DELIVERING THE SPECIFICATION

### 2.1 Pathways through the specification

**Model A - Unitised Entries in June Years 10 and 11 (only available in Wales)**

TIME OF ASSESSMENT	UNIT
June Year 10	Unit 1: Core Geography
June Year 11	Unit 2: Option Geography Unit 3: Geographical Enquiry – Controlled Assessment
<b>Advantages:</b>	Concentrated focus on a limited area of teaching and learning. Candidates able to concentrate revision on one unit. Allows a resit in Year 11. Allows a change of tier if candidates resit in Year 11.
<b>Disadvantages:</b>	Maturation by June 2010 may disadvantage some candidates. Teaching time taken up by focus on assessment. Less opportunities for initial phases of controlled assessment during the teaching/learning programme for Unit 1.

**Model B - Linear Entry in June in Years 11 (the only model available to Centres in England)**

TIME OF ASSESSMENT	UNIT
June Year 10	No assessment
June Year 11	Unit 1: Core Geography Unit 2: Option Geography Unit 3: Geographical Enquiry – Controlled Assessment
<b>Advantages:</b>	Less disruption for the centre/department. Candidates are assessed when they are theoretically at their most mature. Candidates have developed a more synoptic understanding. The controlled assessment process can be more easily integrated into the teaching/learning programme
<b>Disadvantages:</b>	Greater revision pressures. No resit opportunities. No opportunity to change tier through resit in Year 11.

A significant teaching and assessment change from the existing WJEC GCSE Specification A is the change from coursework to controlled assessment. The key decision for centres will be in establishing the best strategy for incorporating the fieldwork and problem-solving tasks into the teaching programme for Units 1 and 2. These tasks can be integrated into the teaching and learning programme for the chosen themes or carried out after candidates have sat Unit 1. Although centres are encouraged to build enquiry tasks into the teaching and learning programme throughout the key stages, those submitted for controlled assessment may be carried out over the two years of the cycle or exclusively during Year 11. In all cases, the specific tasks must be those selected for the submission Year 11 and changed on an annual basis. The requirement to change will be monitored through the moderation report issued to centres each year. Centres are advised to plan ahead from September 2009 for first submission in 2011.

## 2.2 Examples of Approaches

*The notes below are not intended to be a definitive elaboration of the Unit 1 specification. Teachers are encouraged to develop their own approaches to the specification that best suit the needs of themselves, the students and the location of the centre. The paragraph numbers relate to the Enquiry Questions in Column 2 of the specification.*

### UNIT 1 – The Core A – The Physical World

#### Theme 1 – Water

#### ***What are river processes and what landforms do they create?***

##### 1.1 What processes are associated with rivers?

Students should have a basic knowledge of river erosion, transportation and deposition.

The key words associated with erosion are solution, hydraulic action, corrosion/abrasion and attrition.

The key words associated with transportation are solution, suspension, saltation and rolling/traction.

The link between these processes and the amount of energy in a river should be understood.

Students will also need to have an understanding of water movement and storage within a drainage basin.

##### 1.2 What landforms result from these processes?

Specific landforms are not named in the specification but students must be aware that processes shape landforms.

Students should also understand that there are factors other than erosion and deposition that contribute to the formation of some landforms, notably rock type and structure.

Suggested examples of landforms that could be studied are waterfalls and gorges, meanders and ox-bow lakes, floodplains and levees.

- 1.3 How do these landforms and processes affect the lives of people living along rivers?

The actual content will vary according to the case studies investigated but candidates are expected to have knowledge of specific places.

Examples could include flood events, the growth of settlements on floodplains or within meander necks and the development of tourism.

The consequences of flooding could be investigated so that social and economic impacts are identified.

### ***How should rivers be managed?***

- 2.1 How successful are different management approaches to the problem of flooding?

Learning should cover strategies such as technological developments, prediction, preparation and land use planning and their effectiveness in managing the flood hazard. Candidates need to have knowledge and understanding of at least one major river management scheme and assess its physical and social impacts.

- 2.2 Should we change our approach to river and floodplain management in the future?

Students should be aware that there are conflicting opinions.

Some people feel that nature should be allowed to take its course and those areas prone to flooding should be allowed to flood. Naturally, people who live and work in these areas disagree and want increased protection despite the expense and constant maintenance.

The possible consequences of climate change – Theme 2 – could be explored.

## **Theme 2 – Climate Change**

### ***What are the causes and evidence for climate change?***

- 1.1 What is the greenhouse effect and how have people's actions affected this process?

Students should appreciate that the greenhouse effect is a natural process and that an enhanced greenhouse effect occurs when the amount of greenhouse gases (carbon dioxide, methane, nitrogen oxide and CFCs) increases. Scientists argue that this is almost certainly the result of human activity such as the burning of fossil fuels in power stations. The roles of transport, farming and deforestation in creating greenhouse gases could be studied.

- 1.2 How conclusive is the range of evidence for climate change?

There is a minority who believe that global warming is caused by natural processes, not human activity. However, the Intergovernmental Panel on Climate Change believes that the evidence for climate change as a result of human activity is overwhelming. Students can therefore consider the validity of a range of evidence used to demonstrate climate change. The evidence includes the increase in global temperatures, glacier retreat, the melting of the Arctic ice and extreme weather events.



**What are the alternative futures?**

## 2.1 What would the possible effects of climate change be in MEDCs and LEDCs?

Students should appreciate the physical and human impacts of climate change in MEDCs and LEDCs using relevant and up to date exemplar material. Physical impacts should include rising sea levels, the increased incidence of storms, droughts and flooding and changing ecological patterns. Human effects should include the effects on agriculture, changing patterns of insect borne disease and the migration of refugees. Students should also appreciate that Africa is the continent that is the most vulnerable to climate change but has the most limited ability to respond to it because of poverty.

## 2.2 How can technology be used and people's lifestyles changed to reduce the impact of climate change?

Students should have knowledge and understanding of the strategies available to address climatic change. The strategies chosen will vary with the exemplar material chosen but may include energy saving in the home, developing efficient public transport and the use of renewable energy. An understanding of how these strategies operate at different levels – individual, local and national government and international – is needed.

**Theme 3 – Living in an Active Zone****Why are plate margins hazardous?**

## 1.1 What are plate margins and how does plate movement generate a variety of landforms?

Students should have knowledge of the major plates and their location. Specific tectonic landforms are not named but examples that could be studied are volcanoes, ocean ridges, ocean trenches, island arcs and fold mountains. Tectonic processes operating at constructive and destructive plate margins should be understood. These boundaries can be effectively studied through appropriate examples such as the Mid Atlantic Ridge and the subduction zones.

## 1.2 What are the primary and secondary hazards associated with volcanoes and earthquake zones?

The hazards associated with tectonic activity are many and varied and it is recognised that the difference between primary and secondary can be blurred and there is no requirement for a classification on this basis. The hazards associated with earthquakes are ground shaking (primary), liquefaction, landslides and tsunamis. The hazards associated with volcanoes are lava flows, pyroclastic flows, ash fall (primary), lahars and mudflows. The impacts of tectonic hazards should also be studied using relevant case studies.

## 1.3 Why do people continue to live in hazard zones?

Tectonic hazards can be seen as positive, in particular volcanoes, as they provide economic opportunities such as tourism, geothermal energy, mineral exploitation and highly fertile soils for agriculture. Examples can be studied from Iceland, New Zealand and Sicily.

**How can the risks associated with volcanic and earthquake zones be reduced?**

2.1 How are volcanoes monitored and what does this tell us about their state?

Active tectonic zones are monitored carefully by scientists in the hope that they can predict volcanic eruptions.

Candidates need to be aware that volcanoes give clues and warning signs and can be monitored using technology. The use of seismometers, tilt meters and gas readings could be studied in relation to Etna or Soufriere Hills, Montserrat.

2.2 How might the effects of volcanic eruptions and earthquakes be reduced in MEDCs and LEDCs?

Various strategies to overcome the effects of tectonic hazards should be understood. Examples of short-term responses include aid in LEDCs, evacuation of people in Montserrat and channelling lava flows on Etna.

Longer-term responses include preparation, adaptation and land use planning.

California and Japan could be used as case studies to cover improved emergency procedures, building design and hazard mapping.

Candidates need to be aware that MEDCs are able to cope much better than LEDCs with earthquakes and volcanic eruptions.

**UNIT 1 – The Core  
B – A Global World**

**Theme 4 – Changing Populations**

***Where do people live?***

1.1 Where do people live in the world and why do they live there?

Candidates should be able to describe and explain the global variations in population distribution and density.

Both physical and human factors need to be considered.

Students also need to appreciate that over three billion people live in towns and cities and thus need to examine the global patterns of urbanisation.

1.2 What are the push / pull factors that produce rural-urban migration in LEDCs and urban-rural migration in many MEDCs?

The world's fastest growing cities are in LEDCs and much of this growth is fuelled by rural-urban migration. Rural poverty and food shortages are major push factors. Perceived opportunities such as jobs, better housing and healthcare are the pull factors.

On the other hand, counter-urbanisation continues to draw people out of cities in MEDCs because of the perceived better quality of life in rural areas.

These patterns can be studied using case studies.

### ***What will happen to the world population?***

#### 2.1 What are the factors that influence birth and death rates?

Students are expected to identify and explain different factors that influence birth rates and death rates in MEDCs and LEDCs. They need to appreciate that in certain countries social and cultural factors have an important impact.

It is important that candidates understand the importance of age structure in determining death rates.

#### 2.2 How do differences in birth and death rates affect population numbers and structures in South Asia, sub-Saharan Africa and Western Europe?

Candidates need to be aware that population change depends mainly upon the balance between the birth rate and the death rate and that the rate of natural increase and life expectancy affect the population structure of a country.

Using at least one example of a country in South Asia, sub-Saharan Africa and Western Europe students need to understand how population pyramids reflect population structure in different parts of the world at different stages of economic development.

#### 2.3 How may these differences change in the future?

Students need to understand that the age and sex structures of a country can change in the future.

Possible examples that could be studied include the impact of HIV/AIDS in Sub-Saharan Africa, increased access to family planning and improved education in South Asia and the effects of pro-natal policies and migration in Western Europe.

### **Theme 5 – Globalisation**

#### ***What is globalisation?***

#### 1.1 How have changes in business and technology allowed increased interdependence between MEDCs and LEDCs?

Globalisation can be defined as 'the growing economic interdependence of countries worldwide'. Students should study the factors encouraging globalisation, in particular, the role of communications technology, transport technology, the media and TNCs. As TNCs have grown, cultural globalisation has followed.

#### 1.2 What are the benefits of globalisation and why do some see it as a threat?

Students should consider the positive and negative impacts of globalisation. Opportunities include the creation of wealth and jobs and the exchange of information. Drawbacks include growing inequality, loss of national identity and the dominance of TNCs. Students should be encouraged to consider current world affairs and to appreciate the transitory nature of global events.

**What are the impacts of globalisation on countries at different levels of development?**

2.1 What have been the social and economic impacts of the enlargement of the EU?

Candidates must be aware that the EU has an 'open border' policy for both trade and people. Eight new member states – the A8 countries – acceded to the EU in 2004. Migration to the UK from A8 countries has been a significant issue. The costs and benefits of A8 migration could be an effective case study.

2.2 How have newly industrialised countries such as India and China benefited from globalisation?

India and/or China must be studied but other examples could be used to enhance understanding. Benefits include investment from TNCs, industrialisation, and an increasing share of world trade and the shift to an urban economy. Candidates, however, need to realise that society as a whole has not benefited from globalisation and that these countries face problems such as rural poverty, the growth of shanty towns, child labour and pollution.

2.3 How have patterns of trade hindered economic progress in the least developed LEDCs?

Students need to be aware that world trade is dominated by MEDCs and that they have achieved this by creating trade barriers. Trading groups or blocs have also been formed to protect the interests of member states. Strategies to create a more equal world could then be examined. Strategies include Fair Trade, ethical trade and trade reform.

**Theme 6 – Development**

**How are global patterns of development identified?**

1.1 How is economic and social development measured and what are the global patterns?

Students need to be aware that development can be measured using economic and social indicators and their effectiveness can be compared. Economic indicators include GNP and GDP. Social indicators include health, life expectancy and the Human Development Index. These can then be mapped so that the global patterns of development emerge.

1.2 What are the regional patterns of economic and/or social development in **one** LEDC?

Many countries have a worse HDI score today than in 1990 – most in sub-Saharan countries. Regional inequalities in one LEDC could therefore be effectively studied from this part of the world.

**What progress is being made towards achieving the Millennium Development goals?**

- 2.1 What are the Millennium Development Goals (MDGs) and how are governments and non-governmental organisations addressing them?

The Millennium Development Goals are eight targets that 192 United Nations member states have agreed to try to achieve by the year 2015 to help raise development standards. Candidates need to know that these goals relate to the reduction of poverty, improving access to clean water, achieving universal primary education and reducing gender inequality. These targets can be achieved by reducing debt, increasing aid and encouraging Fair trade.

- 2.2 What progress is being made by South Asian countries towards the MDGs?

- 2.3 What progress is being made by sub-Saharan African countries towards the MDGs.

LEDCs are being given grants and loans to reach these targets. Students have to measure the relative progress of countries in South Asia compared to countries in sub-Saharan Africa.

## 2.3 Core Themes

The core themes are an opportunity to deliver a breadth of knowledge and understanding to GCSE geography students. It is anticipated that the core themes will be delivered in the first year of either a two or three year GCSE course. This means that approximately 12 – 15 hours of teaching time is available for each theme. The optional themes allow the students to develop more depth of knowledge and understanding in the chosen themes. It is anticipated that most departments will deliver the optional units in the second year of a traditional two year key stage 4 course.

### UNIT 1 – The Core A – The Physical World

Key questions	Enquiry questions	Key terms*	Possible teaching and learning
<b>Theme 1: Water</b>			
1. What are river processes and what landforms do they create?	1.1 What processes are associated with rivers?	abrasion attrition hydraulic action lateral erosion solution suspension traction	Enquiry questions 1.1 and 1.2 are ideally suited to outdoor learning. Opportunities for outdoor learning include field sketching, photographic interpretation, and data collection including measuring cross sections and velocities of streams. Classroom based activities might include physical modelling of streams and sediment transport or the use of one of many DVDs that are commercially available.
	1.2 What landforms result from these processes?		No specific landforms are prescribed by the specification. However, it is anticipated that centres will take into account the progression that students will make from key stage 3. So, students might draw annotated diagrams to show how meanders change over time or might consider alternative models for waterfall formation. The NGfL Cymru website has an animation that explains the formation of hanging valleys and their resultant waterfalls at <a href="http://www.ngfl-cymru.org.uk/hanging_valleys">http://www.ngfl-cymru.org.uk/hanging_valleys</a>  Students might be asked to describe and explain the relative importance of erosion and deposition in the formation of a pair of contrasting landforms such as meanders and waterfall.  Use of internet aerial photography and OS mapwork could form the basis for identifying river landforms in class. The NGfL Cymru website has a number of useful lessons which include animations. For example animations of meander formation can be found at <a href="http://www.ngfl-cymru.org.uk/vtc/meanders_floodplain/eng/Introduction/default.htm">http://www.ngfl-cymru.org.uk/vtc/meanders_floodplain/eng/Introduction/default.htm</a>

	1.3 How do these landforms and processes affect the lives of people living along rivers?	discharge hydrograph impermeable Infiltration lag time overland flow through flow	<p>A case study of development of tourism at a waterfall or outdoor leisure activities such as gorge walking, kayaking or white water rafting which are conducted at a named river site. Gulfoss waterfall is covered in Hodder's WJEC Core text.</p> <p>The NGfL Cymru website has an interactive activity on flood plains and flooding that includes video stimulus material and OS map work. This can be found at: <a href="http://www.ngfl-cymru.org.uk/vtc/ngfl/2007-08/geog/irf24/index.html">http://www.ngfl-cymru.org.uk/vtc/ngfl/2007-08/geog/irf24/index.html</a></p> <p>Plot hydrographs of flood events and analyse lag times / peak discharge. Investigate the factors that determine lag times (eg rock types, urban expansion on floodplains. River discharge data for UK rivers can be found at <a href="http://www.nwl.ac.uk/ih/nrfa/webdata/index.html">http://www.nwl.ac.uk/ih/nrfa/webdata/index.html</a></p>
2. How should rivers be managed?	2.1 How successful are different management approaches to the problem of flooding?	dredging gabion hard engineering soft engineering	<p>Case study of a recent flood management scheme. Both Shrewsbury and Bewdley on the River Severn have had a combination of permanent and demountable flood defences built since 2004. Flood defences in Boscastle (completed in 2008) combine both soft and hard engineering. This case study is available in Hodder's WJEC Core text.</p> <p>The River Restoration Centre has case studies of rivers where soft engineering has been used to restore a river to a more natural course. This includes the Afon Ogwen in Wales. Details can be found at <a href="http://www.therrc.co.uk/">http://www.therrc.co.uk/</a></p>
	2.2 Should we change our approach to river and floodplain management in the future?		<p>Use an internet GIS to investigate areas at risk of flooding. Students can do this by using the Environment Agency website which has a postcode-driven search engine on their home page <a href="http://www.environment-agency.gov.uk/">http://www.environment-agency.gov.uk/</a> Alternatively, go to this link to search by area <a href="http://maps.environment-agency.gov.uk/wiyby/mapController">http://maps.environment-agency.gov.uk/wiyby/mapController</a> . See Dartmouth Flood Observatory <a href="http://www.dartmouth.edu/~floods/">http://www.dartmouth.edu/~floods/</a> where you can view floods by year and location.</p>

\* Key terms are not prescribed by the specification. The list suggests the kind of terms that might be used during the course and which would build on, and provide progression from, a key stage 3 course.

Key questions	Enquiry questions	Key terms*	Possible learning and teaching
<b>Theme 2: Climate Change</b>			
1. What are the causes and evidence for climate change?	1.1 What is the greenhouse effect and how have people's actions affected this process?	Carbon cycle Climate change Emissions Global warming Greenhouse effect	Students will need a simple understanding of the carbon cycle. Visual learners will find this most accessible in the form of diagrams. Sorting and matching exercises can be an effective way of reinforcing learning about this topic, for example, matching statements about carbon emissions to cause and effect.
	1.2 How conclusive is the range of evidence for climate change?	Extreme weather Glacials Glacier retreat Ice cores Interglacials Keeling Curve	<p>Students could be asked to weigh up the validity of a range of evidence including: ice core evidence; CO2 emissions; freak weather events; melting ice; changes to ecosystems or migrations of wildlife. This type of evidence is explored in Hodder's WJEC Core text.</p> <p>If students have access to an ICT suite they can conduct a phenology enquiry using the following site: <a href="http://www.naturescalendar.org.uk/">http://www.naturescalendar.org.uk/</a>. This site collects data on events in nature (first frog spawn, first blackberry etc) that herald the arrival of spring or autumn. Students can collect and upload their own data to the site or access data (in map and graph form) that has been submitted by others. In this way students can investigate the evidence for changing seasonal patterns.</p> <p>If the school has a weather station then students can compare the weather records they collect to seasonal averages so they can appreciate that no one weather event constitutes climate change.</p> <p>Clips from Al Gore's film, "An inconvenient Truth" could be used to prompt discussion: is the film presented in a factual and unbiased way? If not, why not?</p> <p>A series of graphical and decision making activities designed for A level teaching are available at NGfL Cymru. Many of these, with appropriate support, would be accessible to higher tier GCSE candidates. They can be found at: <a href="http://www.ngfl-cymru.org.uk/vtc - a as - geography - g1 climate change">http://www.ngfl-cymru.org.uk/vtc - a as - geography - g1 climate change</a></p>



<p>2. What are the alternative futures?</p>	<p>2.1 What would the possible effects of climate change be in MEDCs and LEDCs?</p>	<p>Cyclone Environmental refugee Hurricane Sea level rise</p>	<p>Short term effects such as increased incidence of storms, droughts and flood, changing business opportunities including for agriculture. Long term effects such as rising sea levels, changing patterns of insect borne disease, and migration of environmental refugees. Students should weigh the positive effects against the negative ones.</p> <p>Students could build up a case study of how climate change is likely to affect a developing country and compare this to how the UK is likely to be affected by climate change. Hodder's WJEC Core text includes a case study of change in Sub-Saharan Africa in general, and Mali in particular.</p> <p>Lots of videos and websites feature examples of extreme weather. See the Meteorological Office website at <a href="http://www.metoffice.gov.uk/climate/uk/extremes/index.html">http://www.metoffice.gov.uk/climate/uk/extremes/index.html</a> extreme weather section. Also see <a href="http://www.metoffice.gov.uk/climate/uk/index.html">http://www.metoffice.gov.uk/climate/uk/index.html</a> which gives 'expected' climate which is useful when looking at weather anomalies.</p> <p>There are lots of useful clips at Youtube, e.g. <a href="http://www.youtube.com/watch?v=zzjOcOcQ90U">http://www.youtube.com/watch?v=zzjOcOcQ90U</a></p>
	<p>2.2 How can technology be used and people's lifestyles changed to reduce the impact of climate change?</p>	<p>Biofuels Energy efficiency Carbon capture and storage Carbon neutral Renewable technologies</p>	<p>This topic lends itself to independent research. Students should be encouraged to research topics which include both technological and lifestyle change. Technology might include solar furnaces, wind energy, electric cars and carbon capture and storage. Lifestyle changes might include energy saving in the home, use of public transport and restricting aviation.</p> <p>An alternative approach would be to encourage role play / discussion and debate. Students could take on the role of various groups (such as energy providers, car manufacturers, house builders, tour reps) and discuss how their group might contribute to a carbon neutral future.</p>

\* Key terms are not prescribed by the specification. The list suggests the kind of terms that might be used during the course and which would build on, and provide progression from, a key stage 3 course.

Key questions	Enquiry questions	Key terms*	Possible learning and teaching
<b>Theme 3: Living in an Active Zone</b>			
1. Why are plate margins hazardous?	1.1 What are plate margins and how does plate movement generate a variety of landforms?	Constructive Destructive Ocean trench Plate margin Subduction	No specific landforms are prescribed by the specification. Visual learners will enjoy drawing annotated diagrams of the plate margins. Students could contrast the processes and landforms typically associated with constructive and destructive plate margins such as shield and volcanoes, ocean trenches, rift valleys.
	1.2 What are the primary and secondary hazards associated with volcanoes and earthquake zones?	After shock Ash Earthquake Glacial floods Lahar Lava flows Liquefaction Pyroclastic flow Tsunami	<p>A case study of one major tectonic event e.g. earthquakes: Boxing Day Tsunami (2004), Pakistan / Kashmir (2005), China (2008), Italy (2009); or recent volcanic eruptions at Etna (Sicily), Soufriere Hills (Montserrat) or Grimsvotn (Iceland). The Hodder WJEC Core text includes case studies of China (2008), and Grimsvotn.</p> <p>The Montserrat Volcano Observatory (MVO) has a website that students should find informative and accessible at <a href="http://www.montserratvolcanoobservatory.info/">http://www.montserratvolcanoobservatory.info/</a> Follow links from their home page to recent photos of pyroclastic flows.</p> <p>The Icelandic Met Office has an excellent site (most of which has an English translation) which can be found at <a href="http://en.vedur.is/">http://en.vedur.is/</a>. Follow the link to 'earthquakes' for an updated map which shows the epicentre of all earthquakes in the last 48 hours. Students could plot these on a base map over a few days and use these to describe the shape of the plate boundary as it passes through Iceland.</p>
	1.3 Why do people continue to live in hazard zones?		<p>A case study of the value of volcanoes might include tourism, geo-thermal power, mineral exploitation, or highly fertile soils. Iceland and Etna are covered in various text books.</p> <p>If students have access to an ICT suite they will find this site interesting: <a href="http://gullhver.os.is/website/hpf/orkustofnun_english/viewer.htm">http://gullhver.os.is/website/hpf/orkustofnun_english/viewer.htm</a> The site uses a GIS to map tectonic and river features in Iceland. Various layers to the map can be toggled on and off. The 'geology' and 'geothermal' maps (selected on the upper right of the screen) are particularly useful and can be used to map active volcanoes, hot springs and zones where geothermal energy is produced.</p>

2. How can the risks associated with volcanic and earthquake zones be reduced?	2.1 How are volcanoes monitored and what does this tell us about their state?	Radar Seismometer Thermal image Tiltmeter	Students could take on the role of volcanologist and write a diary entry describing their day working at the Montserrat Volcano Observatory. Students will first need to research the technology used to monitor volcanic activity such as seismometers, tilt meters and gas readings e.g. Soufriere Hills, Montserrat. The MVO website has an excellent description of various forms of monitoring that are conducted by the scientists working in Montserrat. Go the home page at <a href="http://www.montserratvolcanoobservatory.info/">http://www.montserratvolcanoobservatory.info/</a> and follow the link to 'Science@' and then 'Monitoring'.
	2.2 How might the effects of volcanic eruptions and earthquakes be reduced in MEDCs and LEDCs?	Emergency planning Hazard mapping Land use planning	Students could produce a poster in which short term measures are contrasted with longer term measures. Shorter term - evacuation of people, channelling lava flows, aerial bombing. Longer term - hazard mapping, new building technology, improved emergency planning, e.g. Japan and California.  The Montserrat Volcano Observatory website has a hazard map on its home page that is constantly updated with the latest level of threat <a href="http://www.montserratvolcanoobservatory.info/">http://www.montserratvolcanoobservatory.info/</a> These maps and threat levels are explained fully in the education section of their site.

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**UNIT 1 – The Core  
B – A Global World**

Key questions	Enquiry questions	Key terms*	Possible teaching and learning
<b>Theme 4: Changing Populations</b>			
1. Where do people live?	1.1 Where do people live in the world and why do they live there?	Distribution Population density Rural Urban	This enquiry question provides opportunities for atlas work. Students could examine the factors that influence world distribution of population such as climate, relief soils and minerals. Since 2000 the world population has become predominately urban. Students could use data and an atlas to plot the location of the world's largest cities.
	1.2 What are the push / pull factors that produce rural – urban migration in LEDCs and urban-rural migration in many MEDCs?	Counterurbanisation Economic migrant Quality of life Poverty Refugee Seasonal (circular migration)	Hodder's WJEC Geography A Core textbook includes case studies of counter-urbanisation in Shropshire and rural – urban migration in South Africa. The discussion of push/pull factors presented in this or other text books could be used as part of a decision making exercise in which students have to advise a migrant whether or not they should move.  The National Statistics website is an official UK government site for the UK census. The data has all sorts of population data and includes population pyramids for many regions of the UK. This part of the site is found at: <a href="http://www.statistics.gov.uk/census2001/pyramids/pages/uk.asp">http://www.statistics.gov.uk/census2001/pyramids/pages/uk.asp</a> . Students could compare pyramids for different urban and rural parts of the UK, or use the pyramids to identify areas of the UK that are popular for retirement.
2. What will happen to the world population?	2.1 What are the factors that influence birth and death rates?	Endemic disease Family planning Primary health care	If your students have access to an ICT suite, the Worldmapper website has a large collection of world maps which could be useful when studying theme 4 (and also theme 6). The site can be accessed at <a href="http://www.worldmapper.org/index.html">http://www.worldmapper.org/index.html</a> . The maps have been drawn so that each country is in proportion to the data that is displayed. Students can use the maps to investigate causes of death in different parts of the world.  It is not necessary to teach the demographic transition model to meet this enquiry question. However, the NGfL Cymru website has a lesson which address this model and which features population pyramids, You can access the lesson at: <a href="http://www.ngfl-cymru.org.uk/vtc/demographic_trans/eng/Introduction/default.htm">http://www.ngfl-cymru.org.uk/vtc/demographic_trans/eng/Introduction/default.htm</a>

	2.2 How do differences in birth and death rates affect population numbers and structures in South Asia, sub-Saharan Africa and Western Europe?	Age-sex pyramid (or population pyramid)	Students could be encouraged to research three case studies, one from each of the regions. Birth rates are falling in nearly all countries but poor families in LEDCs still often choose to have larger families. Hodder's WJEC Geography A Core textbook includes a case study which examines variations in fertility in India. Students can use this case study to examine how varying levels of poverty and female education are influencing birth rates. In Sub-Saharan Africa the main issue to investigate would be reasons for the relatively high death rate (especially amongst infants). Hodder's WJEC Geography A Core textbook includes a case study of malaria in Malawi.
	2.3 How may these differences change in the future?	Ageing (or greying) population	If your students have access to an ICT suite, the Population Action website has an excellent feature called 'The Shape of Things to Come Interactive Database'. The site includes an interactive map showing the age structure of the world population in 1975, 2005 and 2025. It can also be used to display population pyramids for contrasting countries, or countries in 1975, 2005 and 2025. The site can be found at: <a href="http://www.populationaction.org/">http://www.populationaction.org/</a>

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Key questions	Enquiry questions	Key terms*	Possible teaching and learning
<b>Theme 5: Globalisation</b>			
1. What is globalisation?	1.1 How have changes in business and technology allowed increased interdependence between MEDCs and LEDCs?	Globalisation Interdependence Trade	<p>Students need to consider the role of Trans National Companies (TNCs) and technology in creating closer interdependence: technology, including the internet; growth of air travel; growth in global media and sharing of culture.</p> <p>Encourage students to share their experience of the interdependent world by sharing information on the origin of their mobile phones, batteries, SIM cards etc. Hodder's WJEC Geography A Core textbook includes a case study of Nokia and traces the 'world in your phone' by examining the global nature of the components of the average mobile phone.</p> <p>If your students have access to ICT then they could use the interactive GIS available on the Eurostat website to collect secondary data on growth of internet, mobile phone use. The site is easy to use. Go to the home page at <a href="http://epp.eurostat.ec.europa.eu/">http://epp.eurostat.ec.europa.eu/</a> and click on the thumbnail map of Europe (or follow the link to 'country profiles')</p>
	1.2 What are the benefits of globalisation and why do some see it as a threat?	Digital divide Free trade	<p>Students could debate opposing attitudes on issues such as: dominance of US media and culture; global security; loss of national identity.</p> <p>The NGfL Cymru website has a series of lessons which address patterns of world trade. The lessons can be accessed at <a href="http://www.ngfl-cymru.org.uk/cardinal-newman-world_trade-2">http://www.ngfl-cymru.org.uk/cardinal-newman-world_trade-2</a></p>
2. What are the impacts of globalisation on countries at different levels of development?	2.1 What have been the social and economic impacts of the enlargement of the EU?	Economic migrant Racism Trade bloc	<p>Enlargement of the European Union in 2004 from 15 to 25 countries allowed mass migration from countries such as Poland and Lithuania into Western Europe and the UK. The addition of Romania and Bulgaria to the EU further added to the migration debate. The economic recession and strength of the Euro have seen a reversal of these flows since 2008. Students could use data to plot migration flows across the EU. They could use articles from the BBC news website to identify the social and economic impacts and also to identify the reasons for both positive and negative opinions about migration.</p> <p>Hodder's WJEC Geography A Core textbook includes a case study of Tata, the Indian owner of Land Rover, Jaguar and Tetley Tea, and manufacturer of the world's cheapest car. A commercially available DVD examines Coca Cola and the opposition to this TNC by some anti-globalisation protesters and environmentalists in India. Students can see the company's point of view by visiting their website at <a href="http://www.coca-colaindia.com/">http://www.coca-colaindia.com/</a></p>
	2.2 How have newly industrialised countries such as India and China benefited from globalisation?		
	2.3 How have patterns of trade hindered economic progress in the least developed LEDCs?	Import quotas Subsidies Trade partnerships	<p>Students need to be familiar with protectionist policies including tariffs, subsidies and quotas. Hodder's WJEC Geography A Core textbook includes a case study of EU trade patterns with Ghana which have included the practice of dumping heavily subsidised products such as tomatoes grown in the EU in West African markets.</p>

Key questions	Enquiry questions	Key terms*	Possible teaching and learning
<b>Theme 6: Development</b>			
1. How are global patterns of development identified?	1.1 How is economic and social development measured and what are the global patterns?	Gross National Income Infant Mortality Life expectancy	If your students have access to an ICT suite, the Worldmapper website has a large collection of world maps which could be useful when studying theme 6. The site can be accessed at <a href="http://www.worldmapper.org/index.html">http://www.worldmapper.org/index.html</a> The maps have been drawn so that each country is in proportion to the data that is displayed.
	1.2 What are the regional patterns of economic and/or social development in <b>one</b> LEDC?	Regional inequality	Students could research a case study to illustrate regional patterns of development. Hodder's WJEC Geography A Core textbook includes a case study of Ghana.  The South African census is available in an easily accessible GIS at the following website <a href="http://www.statssa.gov.za/census2001/digiAtlas/index.html">http://www.statssa.gov.za/census2001/digiAtlas/index.html</a> Students can choose to display data from a variety of criteria by clicking on the 'select map type' menu. These include useful measures of regional inequality such as energy source for cooking and lighting. Maps can then be displayed at national, provincial or municipal scale. Students can investigate the hypothesis that urban areas such as Guateng have a better quality of life than rural areas such as Limpopo.

2. What progress is being made towards achieving the Millennium Development goals?	2.1 What are the Millennium Development Goals (MDGs) and how are governments and non-governmental organisations addressing them?	Bilateral aid Development aid Emergency aid Multilateral aid NGOs	<p>The following NGOs have development aid projects in Mali and Niger:  <a href="http://www.oxfam.org.uk">www.oxfam.org.uk</a>  <a href="http://www.trickleup.org">www.trickleup.org</a>  <a href="http://www.wateraid.org.uk">www.wateraid.org.uk</a></p> <p>Students could use these or other sites to prepare a brief report on a long term aid programme to either Mali or Niger. Students could include: how different groups of people (eg children, women, farmers) benefit from the aid as well as facts that could be used to evaluate the success of the project.</p> <p>The world has pledged to reduce by half the proportion of people without sustainable access to safe drinking water and basic sanitation. Hodder's WJEC Geography A Core textbook includes contrasting case studies of water projects in South Africa and Lesotho. One scheme is the government backed Lesotho Water Management Project. The other is a grass roots / community project which aims to use simple (and sustainable) water harvesting technologies. Students could be asked to compare and contrast the impacts of these or similar projects.</p>
	2.2 What progress is being made by South Asian countries towards the MDGs?	Gender inequality Literacy	<p>In South Asia one of the most challenging targets is to improve education for girls at secondary school level. In 2008 South Asia had the lowest rate of female literacy among all regions with only 63 percent of young women and 46 percent of adult women being able to read and write. Students could research the case study of Kerala, in India, which has successfully improved female education.</p> <p>A number of websites allow students to plot the progress towards the Millennium Development Goals (MDGs). The World Bank website displays such data in the form of interactive world maps. It can be found at <a href="http://devdata.worldbank.org/atlas-mdg/">http://devdata.worldbank.org/atlas-mdg/</a></p>
	2.3 What progress is being made by sub-Saharan African countries towards the MDGs?	HIV Malaria Poverty	<p>Millennium Development Goal 6 has set the target of reversing the spread of HIV, malaria and other diseases by 2015. This is a particularly challenging target in Sub-Saharan Africa. Students could use data from the Avert website at <a href="http://www.avert.org">www.avert.org</a> to collect and then process data on HIV prevalence rates in sub-Saharan Africa. The UN AIDS site, which can be found at <a href="http://www.unaids.org">http://www.unaids.org</a> is another useful source of data. Follow the link on the home page to 'Country Responses' and then choose either 'countries' or 'regions' to find up to date statistics and reports.</p>

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## 2.4 Optional Themes

The optional themes allow the students to develop more depth of knowledge and understanding in the chosen themes. It is anticipated that most departments will deliver the optional units in the second year of a traditional two year key stage 4 course.

### UNIT 2 A – Physical Options

Key questions	Enquiry questions	Key terms*	Possible teaching and learning
<b>Theme 7 Our Changing Coastline</b>			
1. What are coastal processes and what landforms do they create?	1.1 What processes are associated with the sea?	abrasion attrition backwash constructive (& destructive wave) hydraulic action fetch longshore drift slumping solution swash	Explanation of marine processes associated with erosion, transport and deposition. The NGfL Cymru website has a number of useful lessons which include animations of key processes such as longshore drift. This particular set of lessons could be used at KS3 but would provide a suitable starter activity for GCSE students to revisit this important process. <a href="http://www.ngfl-cymru.org.uk/vtc/transport_deposit/eng/Introduction/default.htm">http://www.ngfl-cymru.org.uk/vtc/transport_deposit/eng/Introduction/default.htm</a>
	1.2 What landforms result from these processes?	arch (or sea arch) bay cave dune headland spit stump tombolo wavecut platform	No specific landforms are prescribed by the specification. However, it is anticipated that centres will take into account the progression that students will make from key stage 3.  Understanding of the development of landforms could be developed through fieldwork, field sketching, photographic interpretation, OS map work, or DVD analysis to show effects of processes on landforms such as headlands, bays, cliffs, beaches, spits. Students might draw annotated diagrams to show the development of a stack from a headland.  The NGfL Cymru website has a useful lesson based on the spit in the Mawdach estuary. The lesson develops student understanding of the landform using an OS map extract and related aerial photograph. The lesson can be found by following this link: <a href="http://www.ngfl-cymru.org.uk/vtc-ks4-geography-sand_spit_mawddach_estuary">http://www.ngfl-cymru.org.uk/vtc-ks4-geography-sand spit mawddach estuary</a>

2. How are coasts managed?	<p>1.3 How do these landforms and processes affect the lives of people living along the coast?</p> <p>2.1 What are the advantages and disadvantages of hard and soft engineering strategies used to manage our coasts?</p>	<p>coastal retreat leisure activities storm surge tourism</p> <p>groyne hard engineering managed retreat nourishment replenishment rip-rap soft engineering</p>	<p>The social and economic impacts (positive and negative) could be examined through the development of case studies using DVD, internet or textbook. Alternatively students could collect opinions of local residents during fieldwork. Specific landforms may have encouraged the development of tourism (depositional environments such as beaches and dunes) or the fishing industry (in a natural, sheltered harbour).</p> <p>The processes of erosion, cliff collapse, slumping and retreat may have had negative impacts on specific coastal communities or industries. A number of websites describe the impacts of coastal retreat. One useful site describes the rapid coastal erosion of the cliffs at Happisburgh in Norfolk. The site is accessed at: <a href="http://www.happisburgh.org.uk/">http://www.happisburgh.org.uk/</a>. Teachers may also find the Natural Environment Research Council website useful at <a href="http://www.nerc.ac.uk/">http://www.nerc.ac.uk/</a>. Use the search engine on the home page to search for articles on coastal erosion, which includes a useful one on Happisburgh.</p> <p>Students might conduct research using the internet or newspapers. They could compare the effectiveness of different examples of hard engineering such as sea walls, gabions, or rip rap. These can be compared with beach nourishment or managed retreat. Hodder's WJEC Option text includes case studies of the use of managed retreat in Essex and hard engineering at Lyme Regis in Dorset.</p> <p>Students could be encouraged to discuss or role play these issues to illustrate, for example, the conflicting opinions about the loss of low value agricultural land that occurs when coastlines are allowed to retreat.</p>
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<p>3. How should coastal environments be managed in the future?</p>	<p>3.1 Why are sea levels changing and how will these changes affect people?</p> <p>3.2 What is the most sustainable way to manage our coastline in the face of rising sea levels?</p>	<p>environmental refugees global warming subsidence</p> <p>Shoreline management plan</p>	<p>Students need to build on knowledge / understanding from the Core Physical Theme (Climate Change) and examine the various reasons for sea level change (due to climate change, subsidence of deltas or isostatic adjustment – although this term is not required knowledge).</p> <p>Students could use news websites (the BBC site contains video clips) to investigate the impact that coastal flooding is already having on communities in Bangladesh or various Pacific Islands such as Tuvalu.</p> <p>Students could tackle a decision making exercise based on when might it be appropriate to 'retreat the line' or 'do nothing' rather than 'hold the line' when managing coasts. They could investigate the Essex and Thames estuary coastline and ask whether the existing defences (including the Thames flood barrier) are sufficient in view of expected sea level change here. The plan to develop new housing in this area can be seen as controversial given the likelihood of increased flood risk. A GIS featuring the location of various developments in the Thames Gateway can be accessed at <a href="http://www.gtlon.co.uk/map/">http://www.gtlon.co.uk/map/</a></p>
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Key questions	Enquiry questions	Key terms*	Possible learning and teaching
<b>Theme 8 Weather and Climate</b>			
1. What are the differences in climate within the UK?	1.1 What factors create the variations in weather and climate experienced within and around the British Isles?	altitude aspect climate continentality latitude maritime air polar air relief rainfall synoptic chart weather	<p>Students will need to be able to describe and explain the influence of altitude, aspect, air masses and air pressure in creating temperature and precipitation patterns. They could research climate data for contrasting regions of the UK focussing, for example, on the differences between upland Wales and Eastern England. Climate averages for a large number of weather stations around the UK can be found at the Met Office website at: <a href="http://www.metoffice.gov.uk/climate/uk/averages/19712000/">http://www.metoffice.gov.uk/climate/uk/averages/19712000/</a></p> <p>The NGfL Cymru website has a variety of useful resources on weather observation and the factors that influence weather and climate in the British Isles. These resources can be accessed at: <a href="http://www.ngfl-cymru.org.uk/vtc - factors affecting weather and climate">http://www.ngfl-cymru.org.uk/vtc - factors affecting weather and climate</a></p> <p>If the school has a weather station or weather equipment such as hand held anemometers and thermometers then it would be possible to set up a fieldwork based enquiry. For example, students could collect weather readings from within the school grounds in order to choose the best site for a new area of picnic benches. Alternatively, students could investigate the impact of aspect by measuring temperatures on north and south facing slopes of a valley.</p>
2. How does the weather create hazards for people?	2.1 What are these weather hazards associated with high and low air pressure systems over the British Isles and with tropical storms?	anti-cyclone cyclone depression front (warm / cold) hurricane isobars isotherm storm surge typhoon	<p>Students could study the impact of gales, floods, droughts in the UK. Synoptic charts for Europe have been archived at the following site: <a href="http://www.wetterzentrale.de/topkarten/tkfaxbraar.htm">http://www.wetterzentrale.de/topkarten/tkfaxbraar.htm</a> Use the search facility to find a synoptic chart for any day since February 1998. These may be useful when researching the impacts of specific weather hazards that have affected the UK in the recent past. Students can access summaries of monthly climate or descriptions of extreme weather events from this page: <a href="http://www.metoffice.gov.uk/climate/uk/">http://www.metoffice.gov.uk/climate/uk/</a> The link to actual and anomaly maps is also particularly interesting.</p> <p>Students could use internet and DVD to research and compare the impacts of tropical storms in an LEDC and an MEDC. Hodder's WJEC Option text includes case studies of Cyclone Nargis which crossed the Bay of Bengal and hit the coast of Burma (Myanmar) in May 2008 and Typhoon Morakot which hit Taiwan in 2009.</p> <p>The UK Met Office has a large website that includes an educational section designed to help secondary students. The site includes case studies of hazard events. This can be accessed at <a href="http://www.metoffice.gov.uk/education/">http://www.metoffice.gov.uk/education/</a>. Their case studies include the European heatwave of 2003, Hurricane Katrina (2005) and Boscastle Floods (2004). Hodder's WJEC Core text also includes a case study of Boscastle.</p>

3. Can we manage weather hazards?	2.2 How do weather hazards affect people, the economy and the environment?  3.1 How can technology be used to (i) forecast extreme weather and (ii) to reduce the impact of its effects?	drought environmental refugee flooding      forecast hazard preparedness satellite	<p>Students should be aware of short term effects such as increased incidence of storms, droughts and flood, changing business opportunities including for agriculture. They could also investigate long term effects such as rising sea levels, changing patterns of insect borne disease, and migration of environmental refugees. Students could simply analyse these impacts by sorting positive effects from negative ones.</p> <p>Students could build case studies of how weather hazards affect a developing country and compare this to how an MEDC is affected. Hodder's WJEC Option text includes detail of the affects of extreme weather on a number of countries including Burma (Myanmar), Australia and Iceland. The Australian Met Office has a large site that includes details (including synoptic charts) of recent weather hazards including the drought that has affected Australia since 2003. The site can be accessed at <a href="http://www.bom.gov.au/climate/">http://www.bom.gov.au/climate/</a></p> <p>Students should evaluate examples from MEDCs and LEDCs. They could examine strategies for managing the effects of floods and storms in UK, tropical storms i.e. weather forecasting including satellite technology, building storm shelters, and using natural buffers (such as mangroves or mudflats). They could compare the effectiveness of the technology available in MEDCs and LEDCs. Students could examine the effectiveness of cloud seeding technologies. One useful reference is the North American Interstate Weather Modification Council which has a website at: <a href="http://www.naiwmc.org/">http://www.naiwmc.org/</a></p>
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Key questions	Enquiry questions	Key terms*	Possible learning and teaching
<b>Theme 9 Living Things</b>			
1. What are biomes and how do they differ?	1.1 How does the physical environment interact with living things to produce different large scale ecosystems?	adaptation biome food web nutrient cycle pioneer	Students need to appreciate that ecosystems exist at different scales. The focus here is on large scale ecosystems (biomes). However, an investigation of a local small scale ecosystem (sand dune, woodland, hedgerow) might provide an accessible way in to the topic. Students might use fieldwork to identify and measure some of the living and non-living components.  DVDs could be used to identify the links between living and non-living parts of a large scale ecosystem such as desert or tropical rainforest.
	1.2 How is the global distribution of large scale ecosystems influenced by climate?	desert latitude rainforest taiga tundra	Investigate the influence of temperature, rainfall (both amount and incidence) on large scale ecosystems such as tundra, monsoon rainforest and xerophytic biomes. One useful source that simply describes the characteristics of each biome can be found at the University of California Museum of Palaeontology at <a href="http://www.ucmp.berkeley.edu/exhibits/biomes/index.php">http://www.ucmp.berkeley.edu/exhibits/biomes/index.php</a>
2. How are ecosystems managed?	2.1 In what ways do people use ecosystems?	controlled burning fishing logging tourism	Students could use DVD, textbook and internet resources to build up a case study of the various ways in which one located ecosystem is being used, such as: logging, agriculture, fishing, leisure or tourism. Students could be involved in a role play exercise to debate the conflicting demands over their chosen ecosystem, for example, representing the rights of indigenous people, farmers, agri-businesses or logging companies who have competing demands on a named region of tropical rainforest.
	2.2 How can ecosystems be managed sustainably?	debt-for-nature swap ecotourism selective logging	Students should be encouraged to evaluate strategies such as ecotourism, selective logging, national parks, and the use of fishing quotas.  Debt-for-nature swaps were developed by the World Wildlife Fund and have been used to conserve ecosystems in a number of countries including Costa Rica, Mexico, Madagascar and Ghana. Teachers will find several schemes are described on their website at <a href="http://www.worldwildlife.org/home.html">http://www.worldwildlife.org/home.html</a>

<p>3. What are the likely consequences if ecosystems continue to be damaged?</p>	<p>3.1 What is the evidence that ecosystems are being used unsustainably?</p> <p>3.2 What are the local and global consequences of unsustainable ecosystem use on people and the environment?</p>	<p>biodiversity carrying capacity soil erosion overfishing</p> <p>extinction</p>	<p>Teachers will find that the Millennium Ecosystem Assessment will provide useful resources and background information on such things as the negative impacts of ecosystem degradation on economic activity, water quality, and possible extinctions. Detailed reports can be downloaded from: <a href="http://www.millenniumassessment.org/en/index.aspx">http://www.millenniumassessment.org/en/index.aspx</a></p> <p>The United Nations Environment Programme (home page <a href="http://unep.org/">http://unep.org/</a> ) has a large website which includes a multimedia section which has many short videos that would be useful when teaching this theme. These films include such topics as blast fishing, electric fishing, rainforest destruction and case studies of forest management in India and Kenya. The multimedia section of the site can be accessed at <a href="http://unep.org/newscentre/default.asp?ct=shortfilms">http://unep.org/newscentre/default.asp?ct=shortfilms</a></p> <p>An online GIS containing evidence of tuna fishing can be interrogated at: <a href="http://www.fao.org/fishery/statistics/tuna-atlas/query/en">http://www.fao.org/fishery/statistics/tuna-atlas/query/en</a></p> <p>Students could examine the impacts at local / regional scale such as increased rates of soil erosion, river flooding or desertification. Alternatively, a study of the damage to tropical reefs / mangroves and the potential loss of income from tourism and the increased risk from storm surges.</p> <p><a href="http://www.survival-international.org/">http://www.survival-international.org/</a> is the home page of an organisation that campaigns on behalf of tribal peoples. Their site contains case studies of various tribal groups who have been affected by the degradation of their land. The site includes video clips.</p> <p>At a global scale, students should be aware of the potential impacts of deforestation on climate change and the water cycle.</p>
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**UNIT 2**  
**B – Human Options**

Key questions	Enquiry questions	Key terms*	Possible teaching and learning
<b>Theme 10 Tourism</b>			
1. Why does the nature of tourism differ between one place and another?	1.1 What are the factors, both physical and human, that affect the nature of tourism?	accessibility climate seasonality	<p>Students could assess the factors that affect the nature of tourism for two or more contrasting locations. These factors might include: landscape, climate, distinctive flora and fauna, availability of accommodation, visitor attractions (museums, entertainment, theme parks etc) and accessibility.</p> <p>Iceland's Tourist Board has a useful website at <a href="http://www.icetourist.is">http://www.icetourist.is</a> which includes video clips. Students could use this site to identify the physical and human factors that affect the nature of tourism in Reykjavik compared to a more remote region such as the West Fjords.</p> <p>A suitable contrast to Iceland might be Belize. The official website of the Belize Tourism Board can be accessed at <a href="http://www.travelbelize.org/">http://www.travelbelize.org/</a> Follow the link to 'Media Centre' to find videos, podcasts and still images.</p> <p>Students can use an interactive GIS map of South Africa to investigate the factors that attract tourists to this country by following this link: <a href="http://www.southafrica.net/sat/content/en/za/home">http://www.southafrica.net/sat/content/en/za/home</a> Students can vary the importance of various factors including adventure and sport, wildlife and safari, culture and heritage, natural and scenic. The results are plotted on a map with sites that match the user's preferences. Follow the link to 'research' to find up to date tourist arrival figures for South Africa.</p>



	1.2 In what ways and why is tourism changing?	grey pound heritage site long haul short haul	<p>Students could be set enquiry questions, or, better still, phrase enquiry questions of their own. Use statistical data to investigate recent and current trends in visitor numbers, modes of travel, type of accommodation etc. How is tourism changing: type of holidays taken e.g. activity, cruise, self-catering, long-haul, more short breaks. Students might investigate the projected growth of air travel. How will this impact on the environment (new runway at Heathrow and carbon emissions) and the economy. This would make a suitable topic for role play or debate with students representing different groups eg Airport authorities, Airline businesses, local residents and pressure groups such as Plane Stupid.</p> <p>Up to date tourism figures for the Caribbean can be found at <a href="http://www.onecaribbean.org/">http://www.onecaribbean.org/</a> and tourism statistics for Nepal can be found by following the link for 'downloads' from the home page <a href="http://www.welcomenepal.com">http://www.welcomenepal.com</a></p> <p>Teachers should be aware that there are a number of factors that affect the growth or decline in tourism: increased leisure time, greater affluence, cheaper flights, internet booking. Alternatively, there are reasons for decline such as recession, flu pandemic, changing exchange rates or conflict / instability. Students could investigate the impact of peace / conflict on tourist numbers by studying recent visitor numbers to a country such as Lebanon, where the recent period of stability has encouraged a rapid growth in tourist arrivals. The Lebanese Ministry of Tourism website can be found at <a href="http://www.destinationlebanon.gov.lb">http://www.destinationlebanon.gov.lb</a></p>
2. What are the impacts of tourism?	2.1 What are the impacts of the development of tourism on: • people and the economy? • the environment? in one MEDC region and one LEDC region?	carbon footprint carrying capacity enclave honeypot site	<p>Students could outline costs / benefits of the impact of tourism on an LEDC and on an MEDC. These might include a consideration of problems / advantages of new buildings, roads, increased employment. Students might also discuss the effects on local agriculture (increased demand / loss of land) greater demand for water, loss of local culture, traffic congestion. Students could role play the differences in opinion between conflicting groups over such issues as increasing carbon footprint of travel; impact of tourism on low paid workers or indigenous peoples; or the purchase of second homes in national parks.</p> <p><a href="http://www.tourismconcern.org.uk/">http://www.tourismconcern.org.uk/</a> is the home page for an organisation that fights against exploitation in the tourism industry.</p>

<p>3. How can tourism be developed in a sustainable fashion?</p>	<p>3.1 How may tourism be developed in a sustainable way?</p>	<p>conservation eco-tourism heritage sites</p>	<p>Students could use local research (or DVD / internet research of a distant place) to build a case study. They might examine how one of the following strategies has been used: extension of holiday season using built environments (eg Centre Parks), eco-tourism (eg in Belize or Costa Rica); tourist management in UK National Parks; diversification of the economy in rurally isolated communities.</p> <p>Teachers may find the International Centre for Responsible Tourism website useful for research by following the link to <a href="http://www.icrtourism.org/index.shtml">http://www.icrtourism.org/index.shtml</a> Follow their 'resources' link to find a very comprehensive list of weblinks.</p>
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\* Key terms are not prescribed by the specification. The list suggests the kind of terms that might be used during the course and which would build on, and provide progression from, a key stage 3 course.

Key questions	Enquiry questions	Key terms*	Possible learning and teaching
<b>Theme 11 Retail and Urban Change</b>			
1. In what different ways are European city centres being renewed?	<p>1.1 How are European city centres changing?</p> <p>1.2 What are the effects of city centre changes on their day time and night time geographies?</p>	<p>gentrification pedestrianisation waterfront development</p> <p>anti-social behaviour commuting road pricing traffic congestion</p>	<p>Students might use the internet or DVD to build up a case study of city centre change in a city such as Barcelona, Bilbao (redevelopment of the old city and dock area including the Guggenheim) or Berlin.</p> <p>Students could evaluate the success of sporting events such as Manchester Commonwealth Games or London Olympics to provide a lasting legacy of sporting and community services.</p> <p>Numerous opportunities for field work in a UK (or a European) city to investigate recent changes such as waterfront development (eg Cardiff, Newport, Barcelona), gentrification, pedestrianisation schemes, cycle lanes, urban parks and squares (eg Brixton) etc.</p> <p>Students should examine the social and economic advantages and disadvantages of regeneration of city centres and/or inner urban areas. This might include: changing social and demographic characteristics that are a result of gentrification; traffic congestion (and its solutions) caused by commuting; or the rise in anti-social behaviour / crime in the evening in depopulated city centres.</p> <p>Numerous opportunities for fieldwork, for example:</p> <ul style="list-style-type: none"> <li>• Comparison of traffic or pedestrian flows in mid-morning to early evening.</li> <li>• Questionnaire surveys of city centre residents or office workers about their perception of the city.</li> <li>• Land use mapping to identify entertainment districts of the city which would be frequented at night. Analysis of secondary data (eg from the Neighbourhood Statistics site of the National Statistics Office) on population size and characteristics of these city centre districts.</li> <li>• Mapping and evaluation (using bi-polar analysis) of features that are designed to make the city safer: street lighting, CCTV cameras, traffic-free zones, alcohol-free zones, cycle ways etc.</li> </ul> <p>Teachers could arrange a visit from planners, police or inner city businesses to present their points of view about the issues faced by a local town or city centre. Alternatively, students could take on the role of various stakeholders (police, planners, local residents, businesses etc) and discuss an issue in order to examine conflicting points of view.</p>

<p>2. What are the current patterns of retailing in European cities?</p>	<p>2.1 Where does retailing occur in the city?</p> <p>2.2 How is retailing changing and what effects does this have upon people and the environment?</p>	<p>central business district (CBD) retail park urban-rural fringe</p>	<p>Use of fieldwork to identify types of goods / services provided by retailers in different urban locations (city centre, neighbourhood / local shopping centres, urban fringe retail parks). Alternatively, use of internet and or GIS to map retail land use in a city.</p> <p>Students could use DVD, text book or internet sites to develop a case study of a recent major inner city retail development such as Liverpool One, Cabot Circus in Bristol, or Westfield in London. Each of these retail developments has its own website.</p> <p>Students could use questionnaire analysis (of other students, parents or staff) to investigate the impacts of internet shopping on high street shops (perhaps for specific goods such as books, music or clothes).</p> <p>Students might interview local traders and shoppers to ascertain their views on issues such as pedestrianisation schemes, park-and-ride, parking restrictions etc. Students could then outline and explain the positive and negative opinions in a presentation to the rest of the class.</p>
<p>3. How do changes in European consumer choice have a global impact?</p>	<p>3.1 What are the impacts of increasing consumer choice on people in developing countries, and on the global environment?</p>	<p>fair trade food miles free trade trade bloc</p>	<p>Students should be aware of the impact that consumers in MEDCs have on the people and environment of distant places in the globalised economy. Students could use text books, DVD and internet to investigate, for example:</p> <ul style="list-style-type: none"> <li>• Food miles and the carbon footprint of selected goods. Tesco became the first UK supermarket to use carbon footprint labels on some products in 2009. Teachers can find an explanation of the labels on the Carbon Trust website at <a href="http://www.carbon-label.com">www.carbon-label.com</a>. Tesco measured their own carbon footprint and have published their findings on their website at <a href="http://www.tesco.com/climatechange/carbonFootprint.asp">www.tesco.com/climatechange/carbonFootprint.asp</a></li> <li>• The impact of consuming out-of-season fruit and vegetables</li> <li>• Ways in which consumers can shop ethically and responsibly</li> <li>• Trends in demand for Fair Trade goods and the benefits that this has e.g. impact of Fair Trade cocoa in Ghana.</li> </ul> <p>Students could use a questionnaire survey in class to investigate consumer attitudes towards food miles or fair trade amongst students and their parents.</p>

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Key questions	Enquiry questions	Key terms*	Possible learning and teaching
<b>Theme 12 Economic Change and Wales</b>			
1. What are the current types of employment in Wales?	1.1 How do we classify work and employment?	Knowledge intensive services Primary Private sector Public sector Secondary Tertiary	Teachers should be aware that jobs can be classified in more than one way, for example: primary / secondary / tertiary: formal / informal; paid / voluntary; public / private sectors.  Students could photograph local places of work and / or people at work or collect photos from the internet. They could then produce a poster in which these jobs are classified, preferably using more than one type of classification (eg primary / secondary / tertiary <b>and</b> formal / informal)
	1.2 Is there an areal pattern to this classification of work?	Distribution location	Students could use data of employment structures in the local authorities of Wales to produce choropleth maps or annotated maps of the distribution of key sectors such as agriculture and manufacturing.  Teachers will find that statistics at this level are available at: <a href="http://new.wales.gov.uk/topics/statistics/">http://new.wales.gov.uk/topics/statistics/</a>
2. What is the future of employment in Wales?	2.1 How and why are these patterns of work changing?	Deindustrialisation Mechanisation Multi-national (or trans-national) companies Positive multiplier	Students could conduct local research into changing patterns of work. This might involve building a case study of the rise / fall of local employment in a particular public or private sector industry. Students will need to be aware of the national and global context of that change, for example: the rise in internet retailing that explains the growth of employment in call centres or distribution warehouses (such as Amazon in Swansea); or the global restructuring of multi-national companies that result in the opening or closure of factories in Wales (such as the closure of Hoover in Merthyr Tydfil in 2009).

	<p>2.2 What may be the impacts of these changes?</p>	<p>Unemployment Repossession</p>	<p>Teachers should be aware of the changing levels of skills that are associated with changing patterns of employment for example: de-skilling when manufacturers close and are replaced by low level service sector jobs; and the increasing reliance on knowledge intensive jobs eg the growth of medicinal research / technology in south Wales.</p> <p>Students could hypothesise about the future of, for example, remote rural areas of Wales. They could examine the attitudes of younger people towards marginal farming and recent diversification of upland farms. What are the possible impacts on the environment and economy? What are the social impacts of an ageing or declining population?</p> <p>Students might also investigate the impacts of de-industrialisation in the Welsh Valleys, and the closure of some factories including multi-national companies such as Hoover, Sony or LG. Students might investigate the attitudes towards these closures by researching reports on news sites (eg BBC) or weblogs. They might investigate what is being done to regenerate these communities.</p> <p>Students could use an online GIS such as <a href="http://www.poverty.org.uk/">http://www.poverty.org.uk/</a> to investigate patterns of low pay or unemployment in different regions of Wales.</p>
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<p>3. What changes are likely to take place in energy supply and demand in Wales?</p>	<p>3.1 How does Wales supply its current energy needs?</p> <p>3.2 What future changes may take place in energy sources and in demand?</p> <p>3.3 What conflicts of opinion are these changes to supply likely to introduce?</p>	<p>fossil fuels non-renewables renewables</p> <p>bio-fuel carbon neutral low carbon (future)</p>	<p>Students could use the 'Atlas of Wales' published by Oxford to investigate distribution of power stations in Wales: annotating an outline map with different types of power stations. They could produce a report (or PowerPoint presentation) represent energy data using two or more appropriate graphical techniques eg pie charts to show renewable / non-renewable sources, or line graphs to show trends over time.</p> <p>Students could use questionnaires to establish opinions of students and local residents on various new energy sources (such as wind power, tidal schemes or nuclear expansion) compared to making energy savings as a result of better energy efficiency or changing lifestyles (such as car share, cycling to work, scrapping all internal flights, road pricing etc).</p> <p>Teachers could invite planners or energy efficiency officers from the local authority to come into school to explain how local government is attempting to reduce demand for energy / carbon emissions.</p> <p>Hodder's WJEC Option text includes decision making exercises about both off-shore wind farms and various Severn Barrage proposals. There are opportunities for students to debate or role play so they can examine conflicting opinions. Students could research and represent the views of various groups such as CPRW, RSPB, Greenpeace, energy producers, local residents etc. when discussing the development of a wind farm and/or a tidal barrage across the Severn.</p>
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## 3. CONTROLLED ASSESSMENT

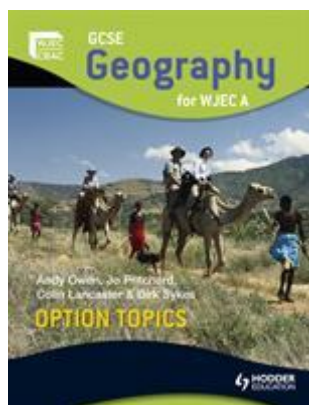
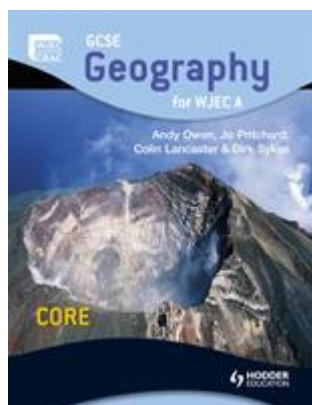
[Click here](#) to open the document “[A Practical Guide to Controlled Assessment](#)”

([Click this link](#) to download and save the Guide to Controlled Assessment document)

## 4. SUPPORT FOR TEACHERS

Several resources will support the new specification:

Firstly, there will be the production of two dedicated textbooks, one for Unit 1, Core Geography, and the other for Unit 2, Optional Geography. The Option book is to be available by end of May 2010.



This Teacher's Guide is meant to provide direct support to teachers by providing new resource material and will inform teachers of other developments in related documentation. This booklet is 'dynamic' and will not, therefore, be available as a hard copy. It will be updated and added to regularly.

### 4.1 National Grid for Learning - Cymru

This is a particular source of resources and support for teachers of WJEC GCSE Geography A.

<http://www.ngfl-cymru.org.uk>

Teachers will find a wide range of supporting materials.

Much of this material is intended to be downloaded so that it can be edited by teachers to suit the needs of their own candidates and centres.

The list of websites is comprehensive and the links are checked regularly to ensure that they are still live and of use to teachers. Please contact NGfL Cymru if you become aware of new and useful sites.

Please keep returning to this site as new materials become available. It is hoped that teachers will be willing to contribute their own work and ideas to this site for the benefit of colleagues in other centres.



## **4.2 Generic Resources for the Specification as a whole**

Existing centres were sent a CD Rom with details of the new specification in November 2008. This is still available for anyone who did not receive a copy.

More information will be added to this section in due course.

## **4.3 General Websites**

[www.wjec.co.uk](http://www.wjec.co.uk)

The WJEC Website offers recent information on courses and Continuing Professional Development.

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