

Cambridge Pre-U Teacher Guide

Cambridge International Level 3
Pre-U Certificate in
GEOGRAPHY

Cambridge
Pre-U

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Teacher Guide

Geography (9768)

Cambridge International Level 3
Pre-U Certificate in Geography (Principal)

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Cambridge International Level 3 Pre-U Certificate

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Introduction

The aim of Pre-U Geography is to enable candidates to study selected geographical themes in greater depth than would usually be possible in the sixth form. The principal intention, as with all Pre-U syllabuses, is to provide sixth-form students with a good academic grounding in the subject which will enthuse and prepare students thoroughly for university.

Essentially, four themes will be studied in Year 12 and four in Year 13. Teachers should ensure that the themes chosen represent a sound cross-section of the geography curriculum; although there are areas of complementarity, these should be seen as opportunities to build upon the knowledge base rather than an opportunity for reiteration.

Various routes can be plotted through the course, for example: a physical geography course based upon Tectonic Hazards, Coastal Environments and Temperate Grasslands and Forest Environments would enable students to acquire a good understanding of earth, geomorphological and ecological processes, while in human geography, Spatial Inequality and Poverty, Migration and Urban Change and The Provision of Food, for example, would provide a sound foundation of contemporary social and economic spatial challenges and would enable students to identify synoptic themes across the syllabus such as between Temperate Environments and the Provision of Food.

Physical geography themes:

Paper 1: Geographical Issues	Paper 2: Global Environments	
Section A	Section A	Section B
Tectonic Hazards	Arid and Semi-Arid Environments	Tropical Environments
Hazardous Weather	Glacial and Periglacial Environments	Temperate Grassland and Forest Environments
Hydrological Hazards	Coastal Environments	The Atmospheric Environment

Human geography themes:

Paper 1: Geographical Issues	Paper 3: Global Themes	
Section B	Section A	Section B
The Geography of Crime	Migration and Urban Change	Energy and Mineral Resources
Health and Disease	Trade, Debt and Aid	The Provision of Food
Spatial Inequality and Poverty	The World of Work	Tourism Spaces

Paper 1: Geographical Issues

The topics in Section A should be familiar to other geography specifications and these are well covered by existing GCE A Level literature. The detail required, especially in relation to physical processes, is in more depth than would previously have been required, in keeping with the ethos of the Pre-U, so some reference to undergraduate texts is appropriate. There is also a wealth of video and DVD material available to support teaching and learning on Tectonic Hazards, Hazardous Weather and Hydrological Hazards. Accordingly, only brief suggestions are given below on teaching and learning for this section.

Section B, however, breaks new ground in 16-19 geography. Spatial Inequality and Poverty brings together a number of concepts and ideas from across current A Level specifications, and aspects of Health and Disease are covered in other publications (cited below), but The Geography of Crime is a new theme at this level. Consequently, greater detail will be provided below to support less familiar areas. Candidates will need to study two topics from Section A and two from Section B.

SECTION A

General Resources for Section A:

- Bishop, V. (2nd edition, 2001) *Hazards and Responses*, Collins: London
 Bishop, V. & Prosser, R. (1997) *Landform Systems*, Collins: London
 Bryant, E. (2004) *Natural Hazards*, CUP: Cambridge
 Collard, R. (1988) *The Physical Geography of Landscape*, Collins: London
 Frampton, S., McNaught, A., Hardwick, J., & Chaffey, J. (2000) *Natural Hazards*, Hodder: London
 Gillett, J. & M. (2003) *Physical Environments, A case study approach to AS and A2 Geography*, Hodder: London
 Goudie, A. (4th edition, 2001) *The Nature of the Environment*, Blackwell: Oxford
 Holmes, D. & Warn, S. (2008) *Natural Hazards & Disasters*, Philip Allan: Deddington, Oxfordshire
 International Federation of Red Cross and Red Crescent Societies, *Annual World Disaster Reports*
 Kovach, R. & McGuire, D. (2003) *Guide to Global Hazards*, Philips: London
 Nagle, G. (1998) *Hazards*, Nelson: Walton-on-Thames, Surrey
 Skinner, M. (2003) *Hazards*, Hodder: London
 Smith, K. (1992) *Environmental Hazards, Assessing Risk and Reducing Disaster*, Routledge: London
<http://earthobservatory.nasa.gov/NaturalHazards/> reports on various natural hazards.
www.geographyatthemovies.co.uk

Tectonic Hazards

Main themes	Specified content	Suggested teaching and learning
Classification and distribution patterns	<p>The main tectonic hazards and their global distribution:</p> <ul style="list-style-type: none"> - Volcanoes - Earthquakes 	<p>Mapping of hazardous zones at global level. See: http://core2.gsfc.nasa.gov/dtam/ It could be useful to examine the depth patterns of earthquakes at different boundaries. See: http://earthquake.usgs.gov/regional/world/seismicity</p>
Causes of distribution pattern	<p>The evidence in support of plate tectonic theory:</p> <ul style="list-style-type: none"> - Continental drift and the 'jigsaw' fit of continents - Geological and fossil records - Palaeomagnetism <p>The mechanisms, directions and rates of plate movement.</p> <p>The processes operating and the landforms created at different types of plate margin:</p> <ul style="list-style-type: none"> - Constructive: sea floor spreading, mid-ocean ridges, rift valleys, volcanic activity - Destructive: subduction zones, earthquakes, deep ocean trenches, island arcs, fold mountains - Conservative: faults, earthquakes - Hot spots - Supervolcanoes 	<p>Observation and evidence for 'jigsaw' fit – possible group work on different strands of evidence.</p> <p>Add directions of drift to map of hazards; study of migration of Britain through geological time.</p> <p>Detailed diagrams of each type of plate margin – possibility of 3-D model-making or use of computer-generated images.</p> <p>It is important that the link between process and landform is clearly understood.</p>
Change over time	<p>The changes that occur in tectonic areas over differing timescales:</p> <ul style="list-style-type: none"> - Very long-term change: ancient volcanic chains - Medium-term change: growth of volcanic islands - Short-term change: immediate post-eruptive landscapes 	<p>Comparison of changes using different examples such as: Long-term: Andes, Himalayas; Medium-term: Krakatoa, Surtsey; Short-term: Mount St Helens, Monserrat.</p>

<p>Consequences and impacts of tectonic activity</p>	<p>A range of primary and secondary impacts of tectonic activity on the landscape, people and the built environment, with examples to explain the nature of the volcanic hazard:</p> <ul style="list-style-type: none"> - Types of eruption and their products - Pyroclastic flows (nuées ardentes), lava flows, tephra, ash falls, lahars, jökulhlaups, toxic gases <p>A range of primary and secondary impacts of tectonic activity on the landscape, people and the built environment, with examples to explain the nature of the earthquake hazard, variations in level of magnitude and their outcomes:</p> <ul style="list-style-type: none"> - Ground-shaking - Liquefaction - Landslides - Tsunami <p>The short-term and long-term consequences of tectonic hazards and how these may differ according to the level of development.</p>	<p>This forms a significant part of this option. Students need a detailed understanding of each of these features; a range of contrasting case studies would emphasise the impacts of both volcanoes and earthquakes in places at different levels of development.</p> <p>A possible route through may be to study the consequences and impacts of each event alongside the management strategies (see below). It is expected that students will be familiar with the most recent events.</p> <p>Students should build up a file of volcanic and earthquake events from which they can draw more general conclusions.</p>
<p>Management</p>	<p>A range of mitigation strategies for tectonic hazards at different scales, including:</p> <ul style="list-style-type: none"> - Prediction and prevention, risk identification, analysis and minimising risk by environmental modification - Protection, control and reduction of impacts during the event by planning - Rescue and recovery, including insurance and aid 	<p>This is best approached by comparison of preparedness and response in countries at different levels of development.</p>

Additional Resources:

Francis, P. & Oppenheimer, C. (2003) *Volcanoes*, OUP: Oxford

Gillett, J. & Gillett, M. (2003) *Physical environments*, Hodder: London

Redfern, M. (2003) *The Earth, A Very Short Introduction*, OUP: Oxford

www.usgs.gov offers numerous case studies of tectonic hazards in all areas of the world.

Hazardous Weather

Main themes	Specified content	Suggested teaching and learning
<p>Classification and distribution patterns</p>	<p>The definition of an atmospheric hazard and methods of classification:</p> <ul style="list-style-type: none"> - By scale (regional/local) and frequency - By nature of the hazard (wind, precipitation, temperature) - By scale of intensity for wind hazards (Saffir-Simpson and Fujita) - By wind speed for wind hazards (depressions, tropical disturbance, tropical depression, tropical storms, tropical cyclones) <p>The distribution of atmospheric hazards at different scales, with examples of extreme and record-breaking events, and their location.</p>	<p>Students could keep a log of major weather events – these could be tracked by regular reference to www.metoffice.co.uk and www.noaa.gov</p> <p>Global and national mapping of vulnerable locations.</p>
<p>Causes of the distribution pattern and the formation of regional scale atmospheric hazards</p>	<p>Regional scale atmospheric hazards (tropical storms and cyclones).</p> <p>The causes of the global distribution of regional scale atmospheric hazards linked to the global energy budget:</p> <ul style="list-style-type: none"> - Vertical transfers of energy: conduction, convection, radiation and latent heat - Horizontal transfers of energy: global atmospheric circulation (tri-cellular model) and ocean currents - The role of the Coriolis force <p>The structure and characteristics of tropical storms and cyclones.</p> <p>The formation of tropical storms and cyclones, including the role of the Coriolis force and the Bernoulli effect.</p> <p>The seasonality of regional scale atmospheric hazards.</p> <p>The changing nature of the regional scale atmospheric hazards: patterns of intensity, periodicity and clustering of hazards and the changing nature of tropical cyclones in recent years.</p>	<p>A traditional approach to teaching the macro-scale workings of the atmosphere may be an appropriate starting point. Alternatively, students may build models of atmospheric circulation.</p> <p>A vertical route through regional hazards may be advisable, dealing with the distribution, causes, consequences and management implications of tropical storms (hurricanes or cyclones). As the syllabus suggests, these should be covered in considerable detail.</p>

Causes of the distribution pattern and the formation of local scale atmospheric hazards	<p>Local scale atmospheric hazards: tornadoes, hail, blizzards, fog and lightning.</p> <ul style="list-style-type: none"> - Tornadoes: the structure, characteristics, processes of formation, (including super-cell formation), distribution pattern and causes of it - Hail: the formation of hail, distribution pattern and causes of it - Blizzards: the formation of snow, conditions leading to blizzards, distribution pattern and causes of it - Fog: the processes of fog formation, radiation fog, advection fog, distribution pattern and causes of it - Lightning: the formation of lightning, solar wind and neutralisation of the ionosphere, weather conditions associated with lightning, different forms of lightning: cloud to ground, cloud to cloud, ball and mega-lightning, the properties of the ground in determining the frequency and intensity of lightning, distribution pattern and causes of it 	<p>Tornadoes, hail, blizzards, fog and lightning may also be taught by considering the distribution, causes, consequences and management responses to each in turn.</p> <p>They should be exemplified by reference to real events wherever possible.</p>
Consequences and impacts	<p>The primary and secondary impacts and the social, economic and environmental impacts of regional scale and local scale atmospheric hazards with examples from a variety of places.</p> <p>Variations in impact which can occur between countries and areas at contrasting levels of development and between different regional and local scale atmospheric hazards in terms of the nature, scale and intensity of the impacts.</p>	<p>They should be exemplified by reference to real events wherever possible.</p> <p>A possible route through may be to study the consequences and impacts of each event alongside the management strategies (see below).</p>
Management	<p>Management of atmospheric hazards at different scales with examples from a variety of places at different levels of development:</p> <ul style="list-style-type: none"> - Modifying the risk: monitoring, prediction, prevention - Modifying the hazard: preparation, protection and reduction of impacts - Modifying the loss: rescue, relief and recovery including insurance and aid 	<p>Students could monitor the severe weather warning system operated by the Met Office, relating this to the preparations made by local authorities and individuals and outcome.</p>

Additional Resources:

Henson, R. (2002) *The Rough Guide to Weather*, Rough Guides: London

Nagle, G. (2002) *Climate and Society*, Hodder: London

Zebrowski, E. (1998) *Perils of a Restless Planet: Scientific Perspectives on Natural Disasters*, CUP: Cambridge

www.noaa.gov – National Oceanic & Atmospheric Administration, US Department of Commerce.

www.metoffice.gov.uk/education/higher – for case studies and detailed explanation of weather hazards.

Smaller scale hazards may be found in serial publications such as Lane, S. N. (2008) 'Climate change and the summer 2007 floods in the UK', *Geography*, 93, 2: 91-97.

A number of websites also focus on smaller scale hazards, such as:

www.tornadoproject.com/

www.torro.org.uk/

Hydrological Hazards

Main themes	Specified content	Suggested teaching and learning
<p>Classification and distribution patterns</p>	<p>The movement of water through the hydrological cycle using a systems approach.</p> <p>Definitions of key terms:</p> <ul style="list-style-type: none"> - Transfers: interception, infiltration, percolation, stemflow, throughfall, overland flow/surface runoff, throughflow, groundwater flow/ baseflow, evaporation, transpiration, condensation and precipitation - Stores: atmosphere (clouds), vegetation (interception and through roots), surface (channel, lake, ocean), soil, ground/ bedrock <p>The meaning of the terms permeable, impermeable, pervious and porous in relation to both soils (clay, silt, sand) and rock types (granite, limestone, chalk, sandstone, clay). Water table, springs and springlines.</p> <p>The patterns of precipitation at global and national scales and the impact of these on annual water budgets at the local or regional scale.</p> <ul style="list-style-type: none"> - River regimes - Storm hydrographs 	<p>Complete flow diagram with key terms.</p> <p>Look up and learn definitions.</p> <p>Illustrate permeability using rock and soil samples.</p> <p>Fieldwork on infiltration on slopes, and measuring throughfall and stemflow, precipitation.</p> <p>Examples of storm hydrographs and river regimes (annual hydrographs) in contrasting drainage basins and climates.</p>
<p>Causes of the distribution pattern</p>	<p>Hazards occur at different points in the hydrological cycle due to both natural and human causes. These hazards can include either excess or deficit of water and its existence in different states.</p> <p>Floods:</p> <ul style="list-style-type: none"> - Natural causes: prolonged rainfall, snowmelt, intense storms leading to flash flooding, storm surges, and monsoon rainfall - Human causes: changing land-use, river mismanagement, dam failures <p>Water deficit:</p> <ul style="list-style-type: none"> - Meteorological causes: seasonal variation or longer-term climate change - Human causes: depleting aquifers and surface water resources by inappropriate agricultural, urban and industrial abstraction <p>People modify the hydrological cycle by agriculture, deforestation or afforestation, urbanisation, water abstraction and flood management.</p>	<p>It might be productive to take a vertical route through causes, consequences and management in the context of specific case studies of flooding and water deficit.</p> <p>Internet search of news websites for flooding and drought events.</p> <p>Identification of different causes and contribution of human activity to severity or abatement of hazard.</p> <p>Study of longer-term climate records (using records on Met Office website, for example).</p> <p>Studies of aquifer depletion such as Ogallala, USA (http://www.npwr.org/new_page_2.htm) and London Basin.</p> <p>Identification of means of modifying regional hydrology at different points in the cycle.</p>

Consequences and impacts	There are both short-term and long-term impacts and consequences of flooding and of water shortages and these may differ according to level of development.	Assessment of impacts of flooding and drought events in countries at different levels of development. E.g. compare Mississippi with Brahmaputra (floods), Australia with Sudan (drought).
Management	There is a range of mitigation strategies for flooding and water shortage at different scales and different levels of development: <ul style="list-style-type: none"> - Emergency responses - Hard engineering solutions - Soft engineering solutions - Managed retreat and 'do nothing' options 	Evaluation of full range of strategies from 'do nothing' to major hard engineering and comparison of preparedness and response in countries at different levels of development using cost benefit analysis.

Additional Resources:

Barry, R. G. & Chorley, R. J. (7th edition, 1998) *Atmosphere, Weather & Climate*, Routledge: London

Cathcart, B. (2002) *Rain*, Granta: London

Henson, R. (2002) *The Rough Guide to Weather*, Rough Guides: London

Hordern, B. (2006) *Rivers and Coasts*, Philip Allan: Deddington, Oxfordshire

Nagle, G. (2003) *Rivers and Water Management*, Hodder: London

Waugh, D. (3rd edition, 2000) *Geography: an integrated approach*, Nelson: Walton on Thames, Surrey

www.metoffice.gov.uk/education/higher – for case studies and detailed explanation of hydrological hazards.

SECTION B**General Resources for Section B:**

Cohen, R. & Kennedy, P. (2000) *Global Sociology*, Palgrave Macmillan: Basingstoke

Pain, R., Barke, M., Fuller, D., et al (2001) *Introducing Social Geographies*, Arnold: London

www.wds.worldbank.org/ – produces annual reports on different aspects of development under the heading *World Development Reports*

<http://hdr.undp.org/en/reports/global/> – also produces annual reports on world development

<http://hdr.undp.org/en/statistics/> – produces annual statistics for the countries of the world on different development measures.

The Geography of Crime

Main themes	Specified content	Suggested teaching and learning
Classification and distribution patterns	<p>The definition of crime.</p> <p>Types of crime and their spatial characteristics:</p> <ul style="list-style-type: none"> - International: terrorism, drug trafficking, illegal migration and people smuggling - Crimes against people: violence, slavery, racial crimes and child prostitution - Crimes against property: burglary, car crime, graffiti, animal theft - Employment crimes: corporate crime, gang masters - Anti-social crime: vandalism, alcohol and drug-induced crime - Environmental crimes: fly tipping and pollution spills <p>The types and locations of crime and perpetrators of crime may overlap.</p> <p>Distribution patterns can vary:</p> <ul style="list-style-type: none"> - Spatially: internationally, nationally, locally (city centre, inner city, suburbs, rural areas) - Temporally: day versus night, match days and special events, seasons <p>Patterns of some crimes will distinguish the home location of the criminal and the place where criminality took place; suburbs, and office, outer estate and leafy suburb.</p>	<p>Look up dictionary definitions; distinguish between crimes against the person and damage to or theft of property. Crimes may be grouped by severity, such terms being: felonies (US and previously UK), indictable offences (UK), misdemeanors (US and previously UK) and summary offences (UK). Patterns of crime show three features: a small number of offenders commit a large number of crimes; a small number of victims suffer a large number of crimes; and a small number of areas suffer a disproportionate amount of crime (Pain et al, 2001). Discussion of this versus people's perception of crime is recommended.</p> <p>Throughout this section it is important that students understand the spatial element of crime by identifying 'hotspots' and the interconnections between environment, criminal and victim. The spatial patterns of crime need to be examined at different scales, from local to international.</p> <p>The list of types of crimes is best regarded as a case study list and internet news sources will provide good material. Students could take responsibility for researching one or more themes and sharing their findings with the class. Annotated maps or short reports would be an appropriate format.</p> <p>These themes could follow through to subsequent sections of this option by looking at the consequences of these types on crime and the strategies employed to tackle them. International terrorism could focus not only on Al Qaeda but also Basque separatism. Fly tipping could provide the basis of a field investigation to locally 'favoured' sites noting the nature of the waste. Similarly local surveys would reveal 'hot-spots' for graffiti and vandalism.</p>

<p>Causes of crime</p>	<p>The causes of crime can be understood in terms of the relationship between the victim, the criminal and their environment.</p> <p>Causes of crime:</p> <ul style="list-style-type: none"> - Vulnerability of the victim: gender, ethnicity, household/ family structure, socio-economic circumstances, household occupation, accommodation type, location of housing and housing tenure - Socio-economic characteristics of the criminal: spatial disparities (at a variety of scales), marginalisation and social inequalities, including poverty and illiteracy <p>The characteristics of the physical and built environment may promote vulnerability to crime: street layout and lighting, building height and density, presence of vegetation and the amount of open space, and building design.</p>	<p>The best way into this section would be to study the local area using students' local knowledge and perception of crime and its causes.</p> <p>http://www.crimestatistics.org.uk/output/Page1.asp has information on past records but is now replaced with the Home Office site: see http://www.homeoffice.gov.uk/rds/crimeew0607.html for a copy of <i>Crime in England and Wales 2006/07</i> (or a more recent version) which is a summary of crime statistics with useful graphs and maps to generate class discussion. There are also Excel files of statistics and regional and local crime reports at county level and comparisons of crime levels in specified locations against national rates. http://www.statistics.gov.uk/CCI/nscl.asp?ID=5685 also provides breakdowns of types and incidence of crime, victims and offenders. These data are generally at the regional level but may be compared with census data identifying areas of deprivation. The index of deprivation may also be useful here: http://www.communities.gov.uk/communities/neighbourhoodrenewal/deprivation/deprivation07/</p> <p>http://www.findaproperty.com/crimefacts.aspx also provides local crime statistics for particular types of crime. Local police forces give details of crimes by month and district; see, for example, http://www.nottinghamshire.police.uk/</p> <p>Local newspapers can provide a valuable and relevant source of information: many reports identify the crime, the location of the crime and the location of the resident's home. This can provide fertile ground for group work, mapping of patterns and subsequent attempts to explain these patterns. Further information can be found in standard sociology texts (such as Haralambos & Holborn), although the more theoretical approach makes these texts less suitable for student use.</p> <p>Characteristics of the environment may be studied through fieldwork and local knowledge; detailed small area studies may identify safe and less safe areas – risk assessment provides an appropriate framework.</p> <p>GIS is increasingly being used in crime prevention to identify crime hotspots; see, for example, the work in Sandwell in the West Midlands to combat graffiti (website below).</p>
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Consequences and impacts of crime	<p>The consequences of high criminal activity with regard to:</p> <ul style="list-style-type: none"> - The social impacts on communities - The economic impacts on communities - The physical impacts on the natural and built environments <p>Perception of the crime hazard and the influence of the media and politicians on people's perception.</p>	<p>A questionnaire survey would be a useful exercise to measure people's perception of crime – this could be extended by use of mental maps, or shading of local street maps, to indicate areas thought to be more or less safe by respondents. Surveys would also enable mapping of measures used to protect against crime – CCTV, burglar alarms, gates, guard dogs, etc. Social and economic impacts would best be revealed by reference to news sources and sociological texts – use of 'neighbours from hell' type TV programmes may also be useful to generate discussion.</p>
Management	<p>Strategies designed to minimise the risk, or perception of risk, of crime and reduce the amount of crime at different scales:</p> <ul style="list-style-type: none"> - International scale initiatives: border control, airport security, role of passports and identity cards, terrorism databases, role of international media, co-operation between countries, repatriation - National scale initiatives: 'secured by design', increased visibility and CCTV (closed circuit television), privatisation of public space including shopping centres and gated communities, increased policing on the streets, strategies to alleviate socio-economic deprivation, drug rehabilitation schemes - Local scale initiatives: philosophy of 'defensible space', designing out crime, target-hardening, mobilisation of communities, Neighbourhood Watch, securing farm premises and equipment 	<p>At the local scale, a decision-making approach could be adopted, e.g. suggesting ways a local hot-spot might be improved. Possible liaison with local police (community officer) or other community representatives. Use of private sector security firms to patrol commercial, industrial sites, etc. National scale: Home Office website for policy approaches, charities targeting drug users, homeless, etc. Identity card debate – discuss issue of security versus privacy. Investigation of role of MI5, MI6, CIA, Interpol, and other intelligence networks. Examination of different approaches to issues such as extradition. Experience of airport security. Much of this section can be covered by independent investigation and debate.</p> <p>See also the CIA World Factbook: https://www.cia.gov/library/publications/the-world-factbook/</p>

Additional Resources:

- Chainey, S. & Ratcliffe, J. (2005) *GIS and Crime Mapping*, Wiley: New Jersey
- Crawford, A. (1998) *Crime Prevention and Community Safety*, Longman: London
- Dent, B. D., Turnbull, L. S. & Hendrie, E. H. (2000) *Atlas of Crime: Mapping the Criminal Landscape*, Greenwood: Westport CT
- Donnellan, C. (ed). (2002) *Crime and Disorder*, Independence: Cambridge
- Evans, D. T., Fyfe, N. R. & Herbert, D. T. (eds) (1992) *Crime, Policing and Place*, Routledge, London
- Evans, D. J. & Herbert, D. T. (eds) (1989) *The Geography of Crime*, Routledge: London
- Haralambos & Holborn (7th edition, 2008) *Sociology: Themes and Perspectives*, Collins: London
- Muncie, J. & McLaughlin, E. (eds) (1996) *The Problem of Crime*, Sage: London
- Pain, R., Barke, M., Fuller, D., et al (2001) *Introducing Social Geographies*, Arnold: London; Chapter 11: 'Crime, space and inequality' – **this is a good text for students.**
- Smith, S. J. (1986) *Crime, Space and Society*, CUP: Cambridge
- http://www.bapcojournal.com/news/fullstory.php/aid/188/Hand_held_devices_to_map_%91Grot_Spots%92_in_Sandwell.html

Health and Disease

Main themes	Specified content	Suggested teaching and learning
Classification and distribution patterns	<p>The definition of key terms to include: epidemic, pandemic, endemic, contagious, infectious, viral, bacterial, parasitic, death rate, infant mortality rate, life expectancy and attack rate (with reference to age-sex pyramids).</p> <p>The means of transmission of disease.</p> <p>The anthropogenic, environmental, lifestyle and living conditions influencing health, welfare, mortality, and the spread of disease including level of development, socio-economic status and employment, housing conditions, diet and access to clean water, ecological transmitters and climate change, pollution, traffic accidents, lifestyle choices (such as binge drinking).</p> <p>Examples of plagues and famines to illustrate the spatial element in the occurrence of ill health.</p>	<p>Look up dictionary definitions of key terms.</p> <p>Discuss understanding of transmission perhaps in light of hospital deep cleaning, cleanliness measures used. Might be useful to start with historical case study: Snow's study of cholera, or village of Eyam (bubonic plague).</p> <p>The impact of lifestyle choices on health could form a detailed investigation – see http://www.communityhealthprofiles.info/ for statistics at County, District, Unitary and London Borough level related to population profiles and lifestyles.</p> <p>These data may be related to housing and socio-economic status (using census data).</p> <p>The Youth Information website covers health and traffic accidents - http://www.youthinformation.com/ - see also http://www.statistics.gov.uk/CCI/nscl.asp?ID=8094 for breakdown of traffic statistics. http://www.rospa.com/ may also be useful.</p> <p>At the international scale, map work on diet, access to potable water and sanitation, and use of websites such as www.wateraid.org/uk and http://www.worldmapper.org/ should build up understanding of issues.</p> <p>The WHO has data on principal causes of death, e.g. for comparison of high, middle and low income countries, see http://www.who.int/mediacentre/factsheets/fs310/</p> <p>See also the CIA World Factbook: https://www.cia.gov/library/publications/the-world-factbook/</p>

<p>Causes of spatial variation in health</p>	<p>The geographical variation in the prevalence of disease and its human and environmental causes. The ways in which diseases spread, patterns of diffusion, and the work of early epidemiologists. The spread of emergent diseases such as HIV/AIDS, SARS, Ebola fever and "bird 'flu".</p> <p>The geographical causes of variation in health:</p> <ul style="list-style-type: none"> - Sources of radiation: geological and anthropogenic (power sources) - Industrial diseases such as silicosis associated with mining - The influence of transnational corporations (TNCs) in exploiting weak legislation and unprotected markets - Effect of variations in affluence on diet and health, linked to obesity, osteoporosis, coronary heart disease and deficiency diseases - The incidence of water-based diseases such as cholera, typhoid, malaria, and dysenteric diseases - The potential for spread of diseases such as HIV/AIDS and tuberculosis (TB) with the increase in international migration 	<p>An excellent though out-of-print book is G Melvyn Howe's <i>Man, Environment and Disease in Britain</i> (Pelican, 1976 – available second hand), or even Dudley Stamp's <i>The Geography of Life and Death</i> (1964), for a historical perspective. Project work on emergent diseases (presentations of information leaflets) would be an appropriate approach.</p> <p>Lloyd (2002) and Witherick (2002) are the obvious texts for student use, and cover most of these topics, though students should be encouraged to research each topic in greater depth.</p> <p>The geographical causes of variation in health need to be worked through fairly systematically but a vertical approach – incorporating consequences and responses – would be advisable. See Dorling (2005) for a useful discussion and exercise on causes of death in the UK.</p> <p>Reference to specific charities (e.g. National Osteoporosis Society), lobbying organisations (e.g. http://www.revolt.co.uk/new/links.php campaigns against pylons) Defra covers radiation sources in the UK. http://www.hse.gov.uk/statistics/causdis/coal.htm for the HSE covering industrial diseases.</p> <p>WaterAid and the World Health Organization (WHO) provide much information at the international scale.</p>
<p>Consequences and impacts of disease</p>	<p>The demographic, social and economic impacts of disease, famine and illness with reference to:</p> <ul style="list-style-type: none"> - Population structure - Socio-economic status - Migration patterns - Local and national economies <p>Examples of such impacts at international and national scales, with reference to both historic incidences of disease and famine, as well as to newly emergent diseases such as HIV/AIDS.</p>	<p>Comparison of regional and national data on longevity and population structure (population pyramid work) and socio-economic status. Debate on relationship between international migration and disease transmission (e.g. HIV/AIDS, TB).</p> <p>Short studies of regions or countries to exemplify contrasting impacts. Alternatively, consequences could be studied in relation to different types of disease, such as malaria, heart disease, HIV/AIDS.</p>

Management	<p>Differences in welfare and health care provision can be and have been improved through:</p> <ul style="list-style-type: none"> - Increasing the number of doctors, nurses and hospitals - Greater awareness of the importance of good diet - Extending access to clean water - Industrial and environmental welfare provision (in terms of protective legislation) - Use of vaccinations to eradicate diseases such as measles, whooping cough, polio, TB, smallpox - The role of the World Health Organization (WHO) - The role of government, such as in facilitating and encouraging family planning - The role of non-governmental organisations such as Médecins Sans Frontières, charities such as WaterAid and Comic Relief and events such as Live8 	<p>Map work on distribution of healthcare – see http://ucAtlas.ucsc.edu/health/physicians/physicians.html and http://www.nationmaster.com/graph/hea_nur-health-nurses for example.</p> <p>Food supply data are in the <i>Philip's Modern School Atlas</i> – international comparisons will broaden the debate beyond the junk food issue though students should also consider government attempts to improve children's diets via school meal provision and other national health campaigns – vaccination programmes (e.g. MMR).</p> <p>Consideration of pro-and anti-natalist policies in outline are appropriate but investigation of family planning programmes should go beyond the one-child policy to consider international action by organisations such as Interact – http://www.interactworldwide.org/ – and the debate that engenders.</p> <p>Research role of charities in raising awareness and targeting areas of need.</p> <p>There should be reference to the relevant UN Millennium Development Goals.</p>
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Additional Resources:

- Archer, M. (1991) *Development and Health*, Hodder: London
- Archer, M. (1995) *European Regional Inequalities*, Hodder: London
- Bell, D. & Valentine, G. (1997) *Consuming Geographies: we are where we eat*, Routledge: London
- Dorling, D. (2005), *Human Geography of the UK*, Sage: London; Chapter 7
- Gillett, J. (2005) *Population*, Hodder: London
- Lloyd, J. (2002) *Health and Welfare*, Hodder: London
- Meade, M. & Earickson, R. (2000) *Medical Geography*, The Guildford Press
- Nagle, G. (2005) *Development*, Hodder: London
- Witherick, M. and Warn, S. (2001) *Farming, Food and Famine*, Nelson: Walton-on-Thames, Surrey
- Witherick, M. (2002) *States of Health and Welfare*, Nelson Thornes: London
- www.who.int – World Health Organization site containing statistics and articles

Spatial Inequality and Poverty

Main themes	Specified content	Suggested teaching and learning
Classification and distribution patterns	<p>Concepts of inequality and poverty (absolute and relative), deprivation and social exclusion.</p> <p>Measuring poverty and inequality: composite indices, such as Human Development Index (HDI), Physical Quality of Life Index (PQLI), Human Poverty Index (HPI): single criterion indices, such as GNP per person, adult literacy rate, infant mortality rate.</p> <p>Patterns of inequality and poverty at different scales:</p> <ul style="list-style-type: none"> - Global patterns: the validity of the North/South divide; the development continuum - Regional patterns: core and peripheral areas within countries - Intra-urban patterns: areas of social exclusion; inner city and peripheral areas of poverty 	<p>Look up dictionary definitions of key terms.</p> <p>HDI data are in <i>Philip's Modern School Atlas</i> and can be used for graphical and statistical exercises correlated against other variables such as GNP, literacy, IMR. The HPI can be found at http://hdr.undp.org/en/statistics/indices/hpi/</p> <p>The PQLI can be calculated (see below for formula).</p> <p>Use choropleth mapping to reveal patterns.</p> <p>Investigation of different ways of dividing the world, through First, Second and Third World, Brandt's North/South, MEDC/LEDC, to the development continuum considering the validity of use of clusters such as NICs, RICs, BRICs, OPECs, LLEDCs, etc.</p> <p>Regional and local patterns can be investigated using UK data such as the Index of Deprivation (Google with local place name or via http://www.communities.gov.uk/archived/general-content/communities/indicesofdeprivation/216309/)</p>
Causes of poverty and inequality	<p>Global scale:</p> <ul style="list-style-type: none"> - Rostovian and neo-Marxist theories - Colonialism and neo-colonialism - The environmental dimension: long-term environmental disadvantage/degradation; short-term environmental events - Internal and external political influences <p>Regional scale:</p> <ul style="list-style-type: none"> - Friedmann's concept of core and periphery and cumulative causation - The role of economic decline and growth - The environmental dimension: long-term environmental disadvantage/degradation; short-term environmental events - Internal and external political influences <p>Local scale:</p> <ul style="list-style-type: none"> - The concepts of social exclusion and marginalisation 	<p>It may be advisable to work through the theoretical approaches didactically, with located illustrations for each. The historical theories should be critically evaluated, perhaps with reference to post-modern and anti-developmental interpretations (see Potter, et al).</p> <p>Environmental causes may be seen in terms of the impacts of climate change (more or less precipitation, sea level rise), population pressure (reducing land carrying capacity), and urban-industrial degradation of land and water resources.</p> <p>Political conflict, such as in the Middle East, Darfur, The Republic of Congo or Zimbabwe, can be researched through internet news sources.</p> <p>The work of the Social Exclusion Unit in the UK has been archived, see http://archive.cabinetoffice.gov.uk/seu/ For current information on the Social Exclusion Task Force, see http://www.cabinetoffice.gov.uk/social_exclusion_task_force/</p>

<p>Consequences and impacts of poverty and inequality</p>	<p>Global scale:</p> <ul style="list-style-type: none"> - The development gap and its continuation - Poverty in countries at lower levels of economic development and its economic and social consequences: access to employment; access to health and education; mortality and life expectancy; crime and prostitution; social tension <p>National scale:</p> <ul style="list-style-type: none"> - Emergence of regions of economic disadvantage - Out-migration - Access to basic services and amenities <p>Local scale:</p> <ul style="list-style-type: none"> - Emergence of areas of multiple deprivation - The poverty trap - Poor quality housing and lack of basic amenities 	<p>Discuss the concept of the “development gap” versus the development continuum. Compare countries at different stages of development, perhaps one LLEDC, one RIC, one NIC, etc. in terms of employment opportunities, access to health and education, demographic variables, and so forth. The CIA World Factbook will provide most of these data: https://www.cia.gov/library/publications/the-world-factbook/</p> <p>Unemployment statistics, the Index of Deprivation, regional employment structures and population estimates, etc. in the UK can be found at http://www.statistics.gov.uk/</p> <p>Use the Index of Deprivation, available at the local scale for Super Output Areas, to identify places suffering multiple deprivation and see also http://www.communityhealthprofiles.info/ for statistics at County, District, Unitary and London Borough level related to population profiles and lifestyles. News media will provide information on poverty; see also http://www.poverty.org.uk/L04/index.shtml for a European dimension.</p>
<p>Management strategies</p>	<p>The UN Millennium Development Goals.</p> <p>Approaches to reducing poverty and inequality: top-down and bottom-up strategies; international aid; intermediate/appropriate technology.</p> <p>Development strategies at different scales and their impacts:</p> <ul style="list-style-type: none"> - Promotion of economic development: industrialisation, resource exploitation, tourism - Iconic international events (such as sporting events), cities of culture/heritage - Infrastructural investment: transport, health, education, local services. 	<p>http://society.guardian.co.uk/aid/page/0,,1207137,00.html provides a list of useful websites for development and aid plus comment at http://www.guardian.co.uk/society/2004/may/04/internationalaidanddevelopment.comment</p> <p>Comparison of different routes to development with reference to current and historical examples such as Spain, Singapore, Brazil, China, South Korea. Local examples of (re)development can include use of Commonwealth Games (Manchester), Olympics (Barcelona, Sydney, London), Students’ Games (Sheffield), City of Culture (Glasgow, Liverpool). Infrastructural development might involve a study of transport developments (airports, intra-urban rail networks) in different cities.</p>

PQLI calculation: Find Indexed IMR = $(166 - \text{IMR}) \times 0.625$
 Find Indexed Life Expectancy = $(\text{LE} - 42) \times 2.7$
 $\text{PQLI} = (\text{Literacy Rate} + \text{Indexed IMR} + \text{Indexed Life Expectancy}) \div 3$

Additional Resources:

- Black, M. (2nd edition, 2007) *No-nonsense Guide to International Development*, New Internationalist: Oxford
- Hamnett, C. (2003) *Unequal City*, Routledge: London
- Nagle, G. (2005) *Development*, Hodder: London
- Nagle, G. and Spencer, K. (1996) *A Geography of the European Union*, OUP: Oxford
- Pain, R., Barke, M., Fuller, D., et al (2001) *Introducing Social Geographies*, Arnold: London; Chapter 12: 'Geographies of poverty'
- Potter, R. B., Binns, T., Elliott, J. A. & Smith, D. (2nd edition, 2004) *Geographies of Development*, Pearson: Harlow
- Seabrook, J. (2nd edition, 2007) *No-nonsense Guide to World Poverty*, New Internationalist: Oxford
- Shurmer-Smith, P. (2000) *India*, Arnold: London
- Ware, H. (2006) *The No-nonsense Guide to Conflict and Peace*, New Internationalist: Oxford
- Whymark, S. (1995) *Development Issues*, Hodder: London
- www.wds.worldbank.org/ – *World Development Report, 2000/2001, Attacking Poverty*
- <http://hdr.undp.org/en/reports/global/> – *Human Development Report, 2003, Millennium Development Goals. A compact among nations to end human poverty.*

Paper 2: Global Environments

On this paper, students are required to answer two questions, one from Section A and one from Section B.

Section A	Section B
Arid and Semi-Arid Environments	Tropical Environments
Glacial and Periglacial Environments	Temperate Grassland and Forest Environments
Coastal Environments	The Atmospheric Environment

There is the opportunity here to build upon themes studied for Paper 1, for example, by linking Hazardous Weather or Hydrological Hazards with The Atmospheric Environment. There is a small margin of overlap between Coastal and Tropical Environments (mangroves and coral reefs) which may be developed. Otherwise, students may rise to the challenge of studying significantly different themes that will provide them with a broad understanding of geomorphological and environmental processes. Whatever the choice, the depth of study required should take them further than would be required for the traditional A Level course and reference to selected texts aimed at first year undergraduates would be appropriate.

General Resources for Paper 2:

- Chaffey, J. (1997) *Managing Environments in Britain & Ireland*, Hodder & Stoughton: London
- Chenn, P. (1999) *Ecology*, John Murray: London
- Clowes, A. & Comfort, P. (2nd edition, 1987) *Process and Landform*, Oliver & Boyd: London
- Collard, R. (1988) *The Physical Geography of Landscape*, Collins: London
- Goudie, A. & Viles, H. (1997) *The Earth Transformed: An Introduction to Human Impacts on the Environment*, Blackwell: Oxford
- Holden, J. (2004) *Introduction to Physical Geography and the Environment*, Prentice Hall: New Jersey
- Holmes, D. (2006) *Ecosystems & Biodiversity*, Philip Allan: Deddington, Oxfordshire
- Kidd, A. (1999) *Managing Ecosystems*, Hodder & Stoughton: London
- Smithson, P., Briggs, D., Atkinson, K., & Addison, K. (3rd edition, 2002) *Fundamentals of the Physical Environment*, Routledge: London
- Summerfield, M. A. (1991) *Global Geomorphology*, Longman: London
- Woodfield, J. (2nd edition, 2000) *Ecosystems and Human Activity*, Collins: London
- http://www.uwm.edu/People/ehlinger/ecology/terrestrial_ecology_2002.pdf – for useful slides on biomes.
- <http://www.field-studies-council.org/fieldstudies/index.htm> – for free downloads of papers from Field Studies Journal.

SECTION A

Arid and Semi-Arid Environments

Main themes	Specified content	Suggested teaching and learning
Classification and distribution patterns	<p>The meaning of aridity and the current global distribution of arid and semi-arid areas.</p> <p>Past changes in the extent of aridity relating to climatic change: Tertiary and Quaternary deserts and pluvials.</p> <p>Definition of desertification and the global distribution of desertified areas.</p>	<p>This requires a global understanding of the distribution of both arid and semi-arid environments that should be recognisable from a map. Named countries should be inherent in understanding.</p> <p>Clear definitions of aridity are needed and an understanding of the differences between arid and semi-arid environments. The concept of ever-shifting arid regions should be recognised and the concept of shifting climatic conditions mirroring the movement of arid regions.</p> <p>For a good introduction, see: http://www.fao.org/docrep/T0122E/t0122e03.htm</p>
Climate and hydrological cycle	<p>The climatic determinants of arid and semi-arid environments:</p> <ul style="list-style-type: none"> - Pressure and wind systems - Ocean currents - Drought periodicity <p>The characteristics of typical desert climates:</p> <ul style="list-style-type: none"> - Temperature ranges and extremes - Rainfall totals and reliability (including extreme rainfall events) - Evapotranspiration - Winds <p>Climate change and its relationship to desertification.</p> <p>The hydrological cycle and water balance in arid and semi-arid environments:</p> <ul style="list-style-type: none"> - Desert hydrological system and regime - Episodic rainfall, flash floods and sheet and stream floods <p>The role of climate in influencing natural sources of water in arid and semi-arid environments:</p> <ul style="list-style-type: none"> - Drainage patterns, perennial rivers and wadis, salt pans and intense evaporation - Aquifers - Snow and ice and coastal mist and fog. 	<p>Students should develop an understanding of the unique climatic conditions of arid environments by studying examples of differences in local hydrology.</p> <p>See: http://terraweb.wr.usgs.gov/arid.html for GIS images of south-western USA.</p> <p>http://www.waterencyclopedia.com/Da-En/Desert-Hydrology.html is also a useful link.</p> <p>The value of fog and the benefits of the Benguela Current for the Namib Desert, for example, illustrate the importance of different forms of precipitation in extreme arid environments.</p>

<p>The processes shaping arid and semi-arid environments</p>	<p>Weathering processes:</p> <ul style="list-style-type: none"> - Thermal fracture, exfoliation, frost shattering, wetting and drying, chemical weathering, salt weathering <p>Processes of erosion:</p> <ul style="list-style-type: none"> - By wind (abrasion, deflation) - By water (sheet runoff, abrasion) <p>Processes of transportation:</p> <ul style="list-style-type: none"> - Saltation, suspension, surface creep 	<p>Students should be able to recognise how specific lithology and climates favour specific processes and that certain arid landscapes will be susceptible to different processes. They should develop the ability to recognise the processes at work in specific environments using photographic evidence.</p>
<p>Landforms and landscapes of the past and present</p>	<p>The variety of arid and semi-arid landscapes:</p> <ul style="list-style-type: none"> - Mountain deserts, sand deserts, shield deserts, stony deserts, desert rivers and floodplains, desert lake basins <p>The formation of erosional landforms:</p> <ul style="list-style-type: none"> - By wind (deflation hollows, ventifacts, rock pedestals and zeugen, yardangs) - By water (wadis, canyons, mesas, buttes and inselbergs, pediments) <p>The formation of depositional and transportational landforms:</p> <ul style="list-style-type: none"> - By wind (dunes: barchans, seifs, star, and draa) - By water (alluvial fans, bahadas/ bajadas, chotts) <p>Badland landscapes and landforms in semi-arid environments:</p> <ul style="list-style-type: none"> - Relict hills; hoodoos; piping; caves and arches; wadis; debris fans 	<p>A range of case studies and examples should be studied at different scales and should cover a variety of landscapes and environments in different parts of the world (such as the Australian deserts, African deserts, and semi-arid badlands of south-western USA). Students should be encouraged to produce well annotated diagrams of landforms, indicating their formation processes.</p> <p>While there is a clear physical component to much of this, processes, landscapes and landforms should be placed firmly into the real world and worked carefully around case studies and examples at a variety of levels.</p>

<p>The impact of the hot arid and semi-arid environments on human activity and the impact of human activity on these environments</p>	<p>Traditional human interaction with hot arid and semi-arid environments. Opportunities and constraints for human activity and their impact on the physical environment, including their contribution to desertification: The causes to include:</p> <ul style="list-style-type: none"> - Overgrazing, overcultivation and vegetation clearance - Resource exploitation: water collection and storage, irrigation and mineral extraction - Secondary, tertiary and quaternary sectors: manufacturing; tourism; film industry; scientific research; space and defence industries - Urban development - Climate change <p>The consequences to include:</p> <ul style="list-style-type: none"> - Rates of soil degradation and erosion (including salinisation) - Feedback mechanisms: albedo change through denudation, atmospheric dust - People: migration, traditional response and preparation, famine and drought 	<p>Case study materials and examples should be drawn from a range of different locations.</p> <p>The physical component should be inherent in teaching and understanding the human restrictions and opportunities of such environments.</p> <p>These impacts and the challenge of living in arid and semi-arid environments could be studied in tandem with their management using a comparative case study approach.</p>
<p>Management</p>	<p>Management strategies in arid and semi-arid environments illustrated by:</p> <ul style="list-style-type: none"> - The issues associated with settlement and economic development - The issues associated with water supply and demand - The role of sustainable development and intermediate technology 	<p>A great variety of case study material is available here and should be drawn from a wide range of different areas, countries and schemes. The impact of such projects is specific to the local environment concerned and should be treated in this way.</p>

Additional Resources:

Cooke, R. U. and Warren, A. (1973) *Geomorphology in Deserts*, Batsford

Goudie, A. (2005) *The Human Impact on the Natural Environment*, Blackwell: London

Hill, M. (2002) *Arid and Semi-Arid Environments*, Hodder: London

Middleton, N. (1991) *Desertification*, OUP: Oxford

Pickering, T. and Lewis, A. O. (1995) *An Introduction to Global Environmental Issues*, Routledge: London

Press, F. and Siever, R. (1994) *Understanding Earth*, Freeman: New York

Ross, S. (1997) *People and the Physical Environment*, Longman: London

Thomas, D. S. G. (1997) *Arid Zone Geomorphology: Process Form and Change in Drylands*, Wiley: New Jersey

www.unccd.int – United Nations Convention to Combat Desertification.

<http://www.runet.edu/~swoodwar/CLASSES/GEOG235/biomes/intro.html> – for biome distribution and characteristics.

Glacial and Periglacial Environments

Main themes	Specified content	Suggested teaching and learning
Classification and distribution patterns	<p>The meaning of the glacial and the periglacial environments.</p> <p>Recognition of the range of glacial environments (including relict glacial landscapes; ice cap environments; upland and lowland glacial environments).</p> <p>The present distribution of periglacial and glacial environments.</p> <p>The past distribution of periglacial and glacial environments:</p> <ul style="list-style-type: none"> - Climatic change through geological time with particular emphasis on the Quaternary Ice Age (glacial and interglacial cycles and stadial periods) 	<p>This requires a global understanding of past and present distribution as well as an appreciation of its limits in formerly glaciated regions.</p> <p>Students should develop a cartographical knowledge and understanding of past and present ice cover and periglacial distribution associated with the climatic changes.</p> <p>See: http://www.nsidc.org/cryosphere/index.html for an introduction to the cryosphere.</p>
Causes of distribution and glacial movement	<p>The possible causes of global climate change during the Quaternary.</p> <p>The reasons for growth and decline of these environments in the context of the glacial budget.</p> <p>The process of glacial advance and movement:</p> <ul style="list-style-type: none"> - Internal deformation, basal sliding and subglacial deformation; surge conditions; compressional/extensional flow 	<p>A consideration of phases of retreat and advance with reference to the Pleistocene and to the current movement of the Greenland and Antarctic ice sheets as well as Alpine glaciers is required.</p> <p>Students should be aware of the conditions for advance and retreat.</p> <p>Examples of specific glaciers and ice sheets should be included.</p> <p>Students should develop a firm grasp of the climates of past and present with an emphasis on the on-going glacial cycle.</p>
Glacial processes and landforms	<p>The processes of glacial weathering, erosion, transportation and deposition.</p> <p>The formation of erosional landforms:</p> <ul style="list-style-type: none"> - Corries, arêtes, pyramidal peaks, truncated spurs, U-shaped valleys, ribbon lakes, hanging valleys, roches moutonnées, whalebacks, crag and tail, striations, knock and lochan <p>The transportation of moraine (supraglacially, englacially and subglacially).</p> <p>The formation of glacially deposited landforms:</p> <ul style="list-style-type: none"> - Till deposits, erratics, moraine, drumlins <p>The formation of fluvio-glacial landforms of deposition:</p> <ul style="list-style-type: none"> - Outwash plains, varves, kames and kame terraces, eskers, kettles and braided streams 	<p>Students should have a firm grasp of the difference between process and landform.</p> <p>Examples of landforms can be taken from a wide variety of locations – they should not be restricted to one glacial environment.</p> <p>Diagrams are essential in the portrayal of process and landform formations and students should be encouraged to draw annotated diagrams of these features.</p> <p>Landforms should be studied in the context of mapwork and be recognisable from both maps and photos alike.</p> <p>Fieldwork in glaciated and formerly glaciated landscapes, both lowland and upland, would greatly enhance learning.</p>

Periglacial processes and landforms	<p>Permafrost, the active layer and their importance in the formation of specific periglacial landforms.</p> <p>Ground ice formation and landforms associated with it:</p> <ul style="list-style-type: none"> - Involutions; ice lenses; ice wedge polygons; patterned ground; pingos; thermokarst landscape <p>Landforms associated with frost weathering and mass movement:</p> <ul style="list-style-type: none"> - Blockfields, tors, scree slopes, nivation hollows, gelifluction lobes, head and coombe deposits, asymmetrical valleys <p>Landforms associated with water and wind:</p> <ul style="list-style-type: none"> - Water: dry valleys - Wind: loess deposits 	<p>Examples of landforms can be taken from a wide variety of locations – they need not be restricted to one glacial environment. A suggested focus on northern Canada may be advisable as most of the literature is centred here. See, for example: http://gsc.nrcan.gc.ca/permafrost/index_e.php</p> <p>Diagrams are essential in the portrayal of process and landform formations. Landforms should be studied in the context of mapwork and students should be able to recognise them from both maps and photos.</p>
The impact of the glacial and periglacial environments on human activity and the impact of human activity on these environments	<p>Traditional human interaction with glacial and periglacial environments and the impact of modernisation within these societies.</p> <p>The opportunities and constraints of glacial and periglacial environments:</p> <ul style="list-style-type: none"> - Tourism, water supply and energy, agriculture, mining and quarrying and settlement, infrastructural developments - The significance of the active layer - Military, strategic and geopolitical considerations <p>The hazards of glacial and periglacial environments (including avalanches and glacial outburst floods).</p> <p>The role of human-induced climate change in changing glacial and periglacial landscapes.</p>	<p>Case study material can and should stem from a wide range of areas – both upland and lowland.</p> <p>These impacts and the challenge of living in such environments could be studied in tandem with their management using a comparative case study approach.</p> <p>There are good educational resources available on Antarctica which could be used here (see below).</p>
Management	<p>Management issues in glacial and periglacial environments, recognising their fragility and scenic value, as illustrated by:</p> <ul style="list-style-type: none"> - Issues associated with settlement, transport and infrastructural development - Issues associated with economic development, including oil extraction - The role of sustainable development 	<p>Whilst not feeling restricted by the choice of case study material, some of the best examples come from North America – in particular, the Yukon, NWT and Alaska.</p>

Additional Resources:

- Anderson, D. (2004) *Glacial and Periglacial Environments*, Hodder: London
- Benn, I. & Evans, D. J. A. (1998) *Glaciers and Glaciation*, Arnold: London
- Gillett, J. & Gillett, M. (2003) *Physical Environments*, Hodder: London
- Knight, J. (2007) *Glaciation and Periglaciation*, Philip Allan: Deddington, Oxfordshire
- Knight, P. G. (2005) *Changing Geography: Glaciers and Glacial Landscapes*, Geographical Association: Sheffield
- Nesje, A. & Dahl, S. O. (2000) *Glaciers and Environmental Change*, Arnold: London
- <https://intranet.wellingtoncollege.org.uk/resource.aspx?id=21186#284,3,Slide> – for some useful photographic and statistical resource on North Wales.

<http://www.staffs.ac.uk/schools/sciences/geography/staff/harrist/quatuk/quaternaryofwalesday2.htm> for periglacial studies in Mid-Wales.

<http://www.discoveringantarctica.org.uk> and <http://www.antarctica.ac.uk> cover Antarctica well.

Coastal Environments

Main themes	Specified content	Suggested teaching and learning
Factors influencing coastal environments	<p>The range of factors which can influence coastal environments.</p> <p>Temporal variations:</p> <ul style="list-style-type: none"> - Diurnal: tides - Long term: isostatic and eustatic influences on sea level <p>Wind-generated waves:</p> <ul style="list-style-type: none"> - Formation, structure and energy - The shoaling translation; swash, backwash, refraction, reflection - Classification of different wave types, spilling, plunging, surging <p>The tidal wave:</p> <ul style="list-style-type: none"> - The tidal cycle - Rotating tides: amphidromic points and variations in tidal direction and strength - Bi-directional tides in bays and enclosed seas <p>Currents: wave induced, shore normal, long-shore, rip cell circulation, offshore and onshore currents.</p> <p>Temperature and salinity variation within oceans: the North Atlantic Ocean Temperature Conveyor.</p> <p>Processes of marine erosion, transport and deposition:</p> <ul style="list-style-type: none"> - Hydraulic action, wave quarrying, corrasion, attrition, solution - Longshore drift, sediment sorting <p>Sub-aerial processes:</p> <ul style="list-style-type: none"> - Weathering - Mass movements <p>Structure, lithology and coastal morphology:</p> <ul style="list-style-type: none"> - Variation in resistance of coastlines to marine processes - Variation of supply and characteristics of sediment in the marine environment <p>Human influence.</p>	<p>A vertical approach linking process and landform may be taken through this option. Ideally, a wide range of examples of located landforms should be used – both British and elsewhere in the world.</p> <p>Opportunities for practical work would help develop student understanding via fieldwork, or lab work if a wave tank is available.</p> <p>For a useful graphic of water movement around an amphidromic point, see: http://gyre.umeoce.maine.edu/physicalocean/Tomczak/introOc/notes/figures/animations/fig11a0.html</p> <p>For the North Atlantic Conveyor, see: http://www.soc.soton.ac.uk/rapid/sis/atlanticconveyor.php for useful graphics.</p> <p>Website showing time lapse photography of coastal erosion on East Coast: http://www.ifever.org.uk/camera/ http://piru.alexandria.ucsb.edu/~tierney/TRS/lecture10.htm is a very good website for graphics and photographs covering most of this option.</p>

<p>Landforms produced in coastal environments</p>	<p>Coastal landforms as associated with different coastal environments:</p> <ul style="list-style-type: none"> - Macrotidal environment landforms [range above 4 metres]: mudflats, saltmarshes, sand dunes - Microtidal environment landforms [range under 2 metres]: spits, barrier islands <p>Wave induced landforms independent of the tidal environment:</p> <ul style="list-style-type: none"> - Beaches in profile and plan - Cliffs and shore platforms <p>Concordant/Pacific and discordant/Atlantic coastlines</p> <p>Features associated with relative sea level change:</p> <ul style="list-style-type: none"> - Emergent and submergent coastlines - Rias, fjords, estuaries, raised beaches, relict cliff lines 	<p>While examples of most of these landforms can be found around British shores, examples from other countries should be included.</p> <p>Diagrams are essential in the portrayal of process and landform formations and students should be encouraged to draw annotated diagrams of these features.</p> <p>Landforms should be studied in the context of mapwork and students should be able to recognise them from both maps and photos.</p> <p>Field visits are recommended wherever possible, even if only to obtain photos or sketches to annotate. Alternatively, use of photographs in class, see: http://members.aol.com/rhaberin/csmo.htm for photographs of the California coast.</p>
<p>Ecosystems produced in coastal environments</p>	<p>The formation and development of different coastal ecosystems produced within a range of coastal environments.</p> <p>Psammoseres: coastal sand dunes. Haloseres: coastal salt marshes and mangroves. Coral coastlines: coral reefs.</p>	<p>Students should be able to name principal colonising species to illustrate seral stages – these can be related to abiotic conditions using a transect diagram.</p> <p>Coral reefs and mangroves often work symbiotically and so should be studied in tandem with reference to the theories of formation. Students could then examine the natural and human threats to these tropical ecosystems, and their consequences.</p>
<p>The impacts of coastal environments on human activity and the impact of human activity on these environments</p>	<p>The opportunities for and constraints on human activity and the impacts of various economic developments on the coastal environment:</p> <ul style="list-style-type: none"> - Resource exploitation: fishing - Manufacturing and energy industries - The tertiary and quaternary sectors: recreation - Settlement - Military use - Coastal flooding - Rapid coastal erosion - Degradation of marine ecosystems 	<p>Studies of contrasting sections of pressured coastline such as Louisiana/New Orleans (Mississippi delta), the Sundarbans region of India/Bangladesh, and the Great Barrier Reef Marine Park would emphasise the impacts of human activity.</p>

Management	<p>The issues and processes associated with management schemes to be implemented in coastal environments.</p> <p>The contrast of engineering approaches as solutions:</p> <ul style="list-style-type: none"> - Non-intervention - Soft engineering: beach nourishment and sand dune stabilisation - Hard engineering: sea walls, revetments, rip-rap, gabions, breakwaters, groynes, floodgates - Managed retreat <p>Managing coastal environments for sustainability.</p>	<p>Study of coastal management should consider changing management strategies and the development of Shoreline Management Plans and Integrated Coastal Zone Management.</p> <p>Students could compare and contrast the different hard engineering structures used to defend eroding coastlines by constructing a table showing the method, a sketch of the structure, its advantages and disadvantages, its financial cost and approximate lifespan, and an example of where it is in use.</p> <p>www.environment-agency.gov.uk would be a good starting point for many UK examples.</p>
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Additional Resources:

Bird, E. (2000) *Coastal Geomorphology: an introduction*, Wiley: New Jersey

Gillett, J. & Gillett, M. (2003) *Physical Environments*, Hodder: London

Haslett, S. (2000) *Coastal Systems*, Routledge: London

Hill, M. (2004) *Coasts and Coastal Management*, Hodder: London

Hordern, B. (2006) *Rivers and Coasts*, Philip Allan: Deddington, Oxfordshire

Pethick, J. (1984) *An Introduction to Coastal Geomorphology*, Arnold: London

Stiff, P. (2007) *Coasts*, Philip Allan: Deddington, Oxfordshire

Viles, H. & Spencer, T. (1995) *Coastal Problems*, Arnold: London

Warn, S. (2001) *Coral Reefs in Trouble*, Field Studies Council, Shrewsbury

www.environment-agency.gov.uk for shoreline management plans.

www.usgs.gov is the main organisation monitoring coastal change in the USA.

<http://terraweb.wr.usgs.gov/coastal.html> is a site well worth exploring for remotely-sensed images.

SECTION B

Tropical Environments

Main themes	Specified content	Suggested teaching and learning
Classification and distribution patterns	<p>While the focus of this paper is on the tropical rainforest, other environments should be considered by way of an introduction and as an appreciation of the tropical environment as a whole. Different tropical environments and their location today:</p> <ul style="list-style-type: none"> - Tropical lowland evergreen rainforest, tropical semi-evergreen rainforest, the montane rainforest, heath forest, peat swamp forest and freshwater swamp forest; tropical savanna (tree, bush, scrub) 	<p>This requires a global understanding of past and present distribution. Students should know the location of the current rainforest regions including differences in area and composition.</p> <p>For the distribution of rainforest see: http://www.runet.edu/~swoodwar/CLASSES/GEOG235/biomes/rainforest/rainfrst.html</p>
Tropical climates	<p>The role of climate in determining the distribution of tropical environments:</p> <ul style="list-style-type: none"> - Atmospheric circulation in the tropics - Tropical rainfall and tropical storms - Tropical mountain climates 	<p>Understanding distribution in the context of the global atmospheric system. There is a simple exercise for climate graphs using Excel at: http://www.ltscotland.org.uk/images/ClimateGraphs_tcm4-299912.doc or at http://www.geointeractive.co.uk/contribution/wordfiles/ClimateGraphsfortheUK.doc For data, see: http://www.worldclimate.com/ and http://www.metoffice.gov.uk/education/data/climate/index.html</p>

<p>The tropical rainforest ecosystem</p>	<p>The abiotic environment:</p> <ul style="list-style-type: none"> - Plant nutrients and nutrient cycling - The structure and formation of tropical soils - Tropical rainfall, tropical storms, mountain climates, tropical hydrology <p>The biotic environment:</p> <ul style="list-style-type: none"> - Biological diversity and the range of theories explaining biological diversity, methods of coexistence, refugia theory, neutral theory, competition - Forest structure (shade tolerance and altitudinal changes) - Plant life and the factors influencing them (climbers and epiphytes; trees and ground species; seasonal rhythm; pioneer/climax species; gap theory; forest microclimates) - Animal life of the forest (richness and diversity; modes of coexistence; carrying capacity of the forest) - The interconnections between plants and animals (pollination; dispersal; food webs) 	<p>This topic should be considered generically for all rainforest environments alongside individual, local environments.</p> <p>Examples of named species and of particular interactions would be useful here.</p> <p>Students should develop a range of regional examples both of the physical and human elements of the rainforest system.</p> <p>Good detail can be found at http://rainforests.mongabay.com/amazon/rainforest_ecology.html</p> <p>For the Australian rainforest, see: http://rainforest-australia.com/RainforestResearch.htm</p> <p>For general information see: http://www.accessexcellence.org/LC/TL/sly/ni.php</p> <p>This topic does lend itself to practical work such as production of posters, leaflets and even 3D models of trophic levels and stratification.</p>
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<p>Human use of the tropical rainforest</p>	<p>Traditional human interaction with tropical rainforest and the impact of modernisation within these societies:</p> <ul style="list-style-type: none"> - Tribal communities, hunter-gatherers and sustainable interaction <p>Shifting cultivation.</p> <p>The unsustainable use of tropical rainforest:</p> <ul style="list-style-type: none"> - Rates of disappearance - Logging and the timber trade; plantations and intensified tropical agriculture; animal production and utilisation (including ranching); construction (including dams, infrastructure); mineral extraction <p>The impact of unsustainable development on natural cycles and the implications of this for humankind at different scales:</p> <ul style="list-style-type: none"> - Soil erosion and leaching; interruptions to the water cycle; desertification; species loss and extinction; climate change; impacts on society 	<p>Students should investigate at least one detailed case study, for example, of the Yanomani in Brazil or the Iban in Borneo. They should also carry out a detailed investigation of one region or country. Thus there is plenty of opportunity for group work and class presentations, or the chance to build up virtual or paper files of documents as a portfolio or for a report. Local examples of human interaction and the implication of human interference should be included.</p> <p>http://www.grida.no/Climate/ipcc/regional/014.htm – for the impact of climate change on rainforest.</p> <p>http://www.geog.leeds.ac.uk/research/trobit/biome.html – for detailed work on tropical biomes.</p> <p>http://www.whrc.org/southamerica/index.htm – for the pressures on the Amazon forest.</p>
<p>Management</p>	<p>Management for sustainability:</p> <ul style="list-style-type: none"> - International, governmental and NGOs’ (non-governmental organisations) responses - Strategies for sustainability at the regional and national scales; ecotourism; selective logging (opportunities for silviculture), medicinal extraction; collection of produce - Sustainability at the individual and local scales: traditional responses and cultures; responsible tourism 	<p>An interesting approach could be to examine international and national approaches and examine their effectiveness at regional and local scales.</p> <p>Here too, a detailed investigation of one region or country is appropriate and this section could be studied concurrently with the previous section.</p>

Additional Resources:

- Archibold, O. W. (1996) *Ecology of World Vegetation*, Chapman and Hall: Stamford CT
- Heelas, R. (2001) *Tropical Environments, Contrasting Regimes and Challenges*, Nelson Thornes: London
- Kellman, M. & Tackaberry, R. (1997) *Tropical Environments*, Routledge: London
- Primack, R. B. (2004) *Tropical Rain Forests. An Ecological and Biogeographical Comparison*, Blackwell: London
- Whitmore, T. C. (1999) *An Introduction to Tropical Rainforests*, OUP: Oxford

Temperate Grassland and Forest Environments

Main themes	Specified content	Suggested teaching and learning
Classification and distribution patterns	Different temperate ecosystems: <ul style="list-style-type: none"> - Temperate deciduous forest, northern coniferous forest, temperate grasslands (prairies and steppes), smaller scale ecosystems such as heathland and moorland The current global distribution of temperate ecosystems and the distribution of associated zonal soils, to include brown earths, podzols and chernozems.	This option covers both forests and grasslands, taking in all the productive land of the temperate zone. Students should understand the links between biomes and soils and their dependence on climate. See: http://www.blueplanetbiomes.org/climate.htm
Temperate climates	The role of climate in determining the distribution of temperate environments (Df, Dw, Cf, and Bsk): <ul style="list-style-type: none"> - Atmospheric circulation in mid-latitudes - Seasonal patterns of precipitation and temperature - Influence of continentality - Influence of relief 	Graphical and cartographical work should enable students to appreciate the influence of latitude, altitude and continentality on climate. Comparison of climate graphs would be useful. There is a simple exercise at http://www.ltscotland.org.uk/images/ClimateGraphs_tcm4-299912.doc or at http://www.geointeractive.co.uk/contribution/wordfiles/ClimateGraphsfortheUK.doc For data, see: http://www.worldclimate.com/ and http://www.metoffice.gov.uk/education/data/climate/index.html

<p>Temperate ecosystem structure and function</p>	<p>The structure and functioning of temperate deciduous woodland, northern coniferous forest, and temperate grasslands (prairies and steppes):</p> <ul style="list-style-type: none"> - Characteristic vegetation communities - Associated fauna - Food chains and webs - Nutrient cycling - Development of associated zonal soils, to include brown earths, podzols and chernozems <p>The principles of succession and development of different climax communities (subclimax and seral stages), and the reasons for the development of plagioclimax vegetation.</p> <p>Natural causes of ecological change, which may be cyclical, such as Dutch elm disease and natural disturbance theory.</p>	<p>It may be advisable to start this section with succession and then study the different forms of ecosystem that may develop.</p> <p>Studies of inland (rather than coastal) successions are appropriate such as re-colonisation of disturbed land such as quarries or where pasture has been allowed to revert.</p> <p>Students should build up case study files of each ecosystem cited; this may be accomplished via group work, production of posters or information leaflets; illustrations should be encouraged at all stages.</p> <p>Fieldwork to look at contrasting structures and abiotic factors in evergreen/coniferous and deciduous/ broadleaf forest would be beneficial.</p> <p>This topic does lend itself to practical work such as production of posters, leaflets and even 3D models of trophic levels and stratification.</p>
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<p>Human use of and impact on temperate environments</p>	<p>The range and a variety of economic uses of temperate deciduous woodland:</p> <ul style="list-style-type: none"> - Exploitation for timber - Land clearance for agriculture - Coppice and pollard management - Recreation <p>How and why deliberate and accidental introduction of non-native species has occurred. The role of forest clearance for agriculture and its consequences in changing the natural landscape for economic exploitation:</p> <ul style="list-style-type: none"> - Removal of hedgerows <p>Livestock farming and the creation of plagioclimactic communities.</p> <p>The reasons for and impact of human activities in changing the natural landscape:</p> <ul style="list-style-type: none"> - Environmental degradation of forests due to acid deposition - Climate change - Recreational use of forest, heath and moorland - The role of fire - The introduction of conifers <p>The role of the American Mid-West and other regions as “bread baskets” in supplying world grain needs and the impact of this, such as the development of the dustbowl in the 1930s.</p>	<p>There is great scope here for students in temperate regions to gain an understanding of their own landscape and local area studies would be a very useful starting point; brief historical studies would be appropriate. Historical geography texts and studies of the making of the landscape will prove useful sources – students may be encouraged to use literary rather than internet sources.</p> <p>Introduction of species such as rhododendron, for example, or the spread of coniferous species through the UK. Students should develop a clear understanding of the difference between communities of native species determined by natural succession within climatic and other abiotic factors versus introduced species for economic or ornamental purposes.</p> <p>Deforestation for timber and/or agricultural clearance, introduction of hedgerows with enclosure and then their removal for field enlargement. Reforestation following creation of Forestry Commission in Britain.</p> <p>Use of forests for timber, recreation – damage of Scandinavian forests through acid rain (Swedish campaign to raise awareness of this).</p> <p>Study of the use of the steppe/prairie grasslands and their suitability for arable production and as major world grain producers.</p>
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<p>Management</p>	<p>The range of responses to deforestation and other changes to vegetation, such as:</p> <ul style="list-style-type: none"> - Conservation initiatives by governments, NGOs (non-governmental organisations) and international organisations at different scales - Low impact farming initiatives - Countryside Stewardship Schemes in the UK <p>These schemes should be evaluated in terms of sustainability with reference to Agenda 21.</p>	<p>An interesting approach could be to examine international and national approaches and examine their effectiveness at regional and local scales.</p> <p>International campaigns (see Forestry Stewardship Council at http://www.fsc-uk.org/) to protect forests, including national parks (http://www.nps.gov/ for US national parks). See http://www.defra.gov.uk/wildlife-countryside/rddteam/forestry.htm for UK forestry strategy, etc.</p>
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Additional Resources:

Archibold, O. W. (1996) *Ecology of World Vegetation*, Chapman and Hall: Stamford CT

Gibson, D. J. (2008) *Grasses and Grassland Ecology*, OUP: Oxford

Gillett, M. (2005) *Ecosystems*, Hodder: London

Nagle, G. (1999) *Britain's Changing Environment*, Nelson: Walton-on-Thames, Surrey

Price, E. (2002) *Lowland Grassland and Heathland Habitats*, Routledge: London

Read, H. J. & Frater, M. (1999) *Woodland Habitats*, Routledge: London

Thomas, P. & Packham, J. (2007) *Ecology of Woodlands and Forests: Description, Dynamics and Diversity*, CUP: Cambridge

<http://www.runet.edu/~swoodwar/CLASSES/GEOG235/biomes/intro.html> – for biome distribution and characteristics.

The Atmospheric Environment

Main themes	Specified content	Suggested teaching and learning
Classification and distribution of climatic zones	The spatial distribution of global climate zones: equatorial, semi-arid tropical, arid tropical, arid temperate, humid temperate, boreal, arctic.	<p>There is a simple exercise for climate graphs using Excel at http://www.ltscotland.org.uk/images/ClimateGraphs_tcm4-299912.doc or at http://www.geointeractive.co.uk/contribution/wordfiles/ClimateGraphsfortheUK.doc</p> <p>For data, see: http://www.worldclimate.com/ and http://www.metoffice.gov.uk/education/data/climate/index.html</p>
Physical atmospheric processes causing the distribution of climatic zones	<p>The components of the atmospheric system (inputs, transfers, stores and outputs). The processes of the atmospheric system in terms of the global energy budget:</p> <ul style="list-style-type: none"> - Vertical energy budget: inputs (solar ultra-violet radiation), transfers (direct and diffuse radiation, scattering, reflection), stores (role of ozone and other atmospheric gases, clouds, buildings/roads), outputs (terrestrial infrared radiation, convection, conduction, latent heat, albedo) - Spatial differences in the energy budget and reasons for them - Horizontal energy budget and the redistribution of energy: <ul style="list-style-type: none"> • Atmospheric energy transfers in global atmospheric circulation (tri-cellular model) • the formation and location and characteristics of high/low pressure zones • Ocean energy transfers by warm and cold ocean currents 	<p>In this section, students should develop a sound understanding of the science of the atmosphere and it does presume they possess a foundation knowledge of key elements of physics.</p> <p>The use of annotated diagrams and hands-on models will enable students to grasp complex concepts quickly, for example: A useful exercise involves using a gapped handout of the energy budget and get students to work out the maths. The tri-cellular model can be taught effectively by getting students to create models (foam footballs, coloured card and masking tape work wonders!).</p> <p>See: http://www.atm.ch.cam.ac.uk/tour/atmosphere.html for information on the ozone layer.</p> <p>There is a very good animated energy budget at http://www.school-portal.co.uk/GroupDownloadFile.asp?File=39954</p> <p>Other useful sites include: http://ess.geology.ufl.edu/ess/Notes/AtmosphericCirculation http://www.ux1.eiu.edu/~cfjps/1400/circulation.html</p>

<p>Management of short-term change in the atmospheric environment</p>	<p>The atmospheric characteristics of the cool temperate western maritime environment, emphasising short-term variations in weather.</p> <p>The physical atmospheric processes responsible for the atmospheric characteristics of the environment:</p> <ul style="list-style-type: none"> - Air masses and anticyclones - The polar front, depressions and mid-latitude storms <p>How human activity is directed by short-term day-to-day changes and periods of persistent low or high pressure in the cool temperate maritime environment and resultant management strategies:</p> <ul style="list-style-type: none"> - Impacts of the atmospheric characteristics through the opportunities for, and constraints on, human activities: agriculture, commercial spending patterns, tourism, construction industry, sporting events, water supply issues, flooding, insurance 	<p>Reference to significant weather events such as 1953 and 2007 floods, 1987 and 1990 storms, 1976 drought, and 2003 heat wave will enhance learning here.</p> <p>This section provides another opportunity for model-making – 3D models of depressions will enable better understanding the sequence of weather associated with their passage.</p> <p>To investigate human activities, students could role-play as buyers for a major supermarket chain or department store and consider seasonal planning versus the imperfections of longer-term weather forecasting. There are also many items of weather-related news items that can be found online to support this section.</p>
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<p>Management of seasonal change in the atmospheric environment</p>	<p>The atmospheric characteristics and processes of the tropical monsoon climate:</p> <ul style="list-style-type: none"> - Wet and dry monsoons - The differential heating of land and sea - The migration of the inter-tropical convergence zone (ITCZ) and changes in the trade winds <p>The influence of areas of high relief.</p> <p>How human activity is directed by the tropical monsoon environment:</p> <ul style="list-style-type: none"> - Impacts of the atmospheric characteristics through the opportunities for, and constraints on, human activities: agriculture, cattle herding management, tourism, water supply issues, settlement and housing development - The monsoon as a hazard <p>Short-term and long-term management strategies in areas affected by the monsoon climate:</p> <ul style="list-style-type: none"> - Seasonal changes - The unreliable nature of the monsoons - The risk of flooding 	<p>For regional area views and useful data, see http://education.vsnl.com/imdchennai/northeast_monsoon.htm and http://www.drought.unl.edu/pubs/dnn/arch12.pdf and also http://www.tropmet.res.in/~kolli/MOL/Monsoon/frameindex.html</p> <p>Monsoon rainfall should be seen as presenting opportunities and threats as it progresses north across the Indian sub-continent.</p> <p>Ideally, students should develop an appreciation of the challenge of living and working in the monsoon environment; use of DVD/video clips and reference to travel advice may enhance learning.</p> <p>Students should understand the changing approaches to managing water in this region.</p>
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<p>Management of cyclical change in the atmospheric environment</p>	<p>Changes which occur to the atmospheric environment in the Pacific region during El Niño and La Niña events.</p> <p>The physical atmospheric processes occurring in the Pacific region during El Niño and La Niña events.</p> <p>The socio-cultural, economic, political and environmental impacts of El Niño events (Pacific and worldwide).</p> <p>The short-term and long-term management strategies associated with El Niño and La Niña events at a regional, national and global level:</p> <ul style="list-style-type: none"> - Prediction through monitoring of changes in the atmosphere-ocean environment - Preparation to minimise the impacts of the change in the atmospheric environment - Rescue and recovery through minimising the loss caused by changes in the atmospheric environment 	<p>http://www.pmel.noaa.gov/tao/el-nino/el-nino-story.html and http://www.elnino.noaa.gov/ for superb graphics.</p> <p>This section will be enhanced by search of the news media to investigate the impacts of the ENSO.</p> <p>While a detailed understanding of the physical processes are essential, students should also fully appreciate the consequences for people in the regions immediately affected (east and west southern Pacific) and the impacts of the teleconnections.</p>
<p>Management of long-term change in the atmospheric environment</p>	<p>The changes which occur to the global energy budget through the enhanced greenhouse effect and global warming.</p> <p>The range of views and attitudes regarding the existence and causes of the enhanced greenhouse effect.</p> <p>The natural and human causes of the enhanced greenhouse effect.</p> <p>The predicted socio-cultural, economic, political and environmental impacts of global warming at different scales.</p> <p>The relative success of a range of strategies, at different scales, to manage the enhanced greenhouse effect and the impacts of global warming.</p>	<p>Students should consider the sceptical views as well as the conventional IPCC and Al Gore view of global warming and climate change in order to gain a critically evaluative perspective including consideration of natural and anthropogenic forcing. Bjorn Lomborg’s ‘Skeptical Environmentalist’ interpretation could provide a useful focus for debate. Indeed, a class debate, with students representing different interest groups, may prove a very profitable approach to this section.</p> <p>Critical evaluation of attempts to limit carbon emissions balanced against the global consequences of economic growth in the NICs and BRICs is desirable.</p>

Additional Resources:

- Barry, R. G. and Chorley, R. J. (1998) *Atmosphere, Weather and Climate*, Routledge: London
- Bradley, R. S. & Law, N. (2001) *Climate Change and Society*, Nelson Thornes: Walton-on-Thames, Surrey
- Digby, B. (2001) *Global Challenges*, Heinemann: Oxford
- Henson, R. (2002) *The Rough Guide to Weather*, Rough Guides: London
- Maslin, M. (2004) *Global Warming, A Very Short Introduction*, Oxford
- Money, D. (2000) *Weather and Climate*, Nelson: Walton-on-Thames, Surrey
- Nagle, G. (2002) *Climate and Society*, Hodder: London
- O'Hare, G. & Sweeney, J. (1986) *The Atmospheric System*, Oliver and Boyd: Harlow, Essex
- O'Hare, G. (2004) *Weather, Climate and Climate Change*, Pearson: Cambridge
- Thompson, R. D. (1998) *Atmospheric Processes and Systems*, Routledge: London
- Warburton, P. (2001) *Atmospheric Processes and Human Influence*, Collins: London
- World weather patterns can be tracked via <http://www.worldweather.org/>
- <http://www.uwsp.edu/geo/faculty/ritter/geog101/textbook/circulation/outline.html> contains detailed explanations and useful diagrams.
- <http://hdr.undp.org/en/reports/global/> – *Human Development Report, 2007/8, Fighting climate change: human solidarity in a divided world.*

Paper 3: Global Themes

On this paper, students are required to answer two questions, one from Section A and one from Section B.

Section A	Section B
Migration and Urban Change	Energy and Mineral Resources
Trade, Debt and Aid	The Provision of Food
The World of Work	Tourism Spaces

There is opportunity here to build upon themes studied for Paper 1, for example, Spatial Inequality and Poverty provides explanatory material for processes studied within Migration and Urban Change and also links well with Trade, Debt and Aid; Health and Disease and The Provision of Food coincide with studies of diet. Yet this paper, as with Section B of Paper 1, offers students the opportunity to examine contemporary issues and teachers should encourage them to follow the news and augment their geography work with the most up-to-date case studies. Whatever the choice of topics, the depth of study required should take them further than would be required for the traditional A Level course and reference to selected texts aimed at first year undergraduates would be appropriate.

General Resources for Paper 3:

Carr, M. (1997) *New Patterns: Process and Change in Human Geography*, Nelson: Walton-on-Thames, Surrey

Cloke, P., Crang, P., & Goodwin, M. (2nd edition, 2005) *Introducing Human Geographies*, Arnold: London

Cohen, R. & Kennedy, P. (2000) *Global Sociology*, Palgrave Macmillan: Basingstoke, Hampshire

Daniels, P., Bradshaw, M., Shaw, D., & Sidaway, J. (2nd edition, 2005) *An Introduction to Human Geography: Issues for the 21st Century*, Pearson: Harlow, Essex

Kuby et al. (2007) *Human Geography in Action*, Wiley: New Jersey

Pacione, M. (2001) *Urban Geography: a global perspective*, Routledge: London

Potter, R. B., Binns, T., Elliott, J. A., & Smith, D. (2nd edition, 2004) *Geographies of Development*, Pearson: Harlow, Essex

SECTION A

Migration and Urban Change

Main themes	Specified content	Suggested teaching and learning
Classification and distribution patterns	<p>Types of population movements:</p> <ul style="list-style-type: none"> - Scale: intra-national, international, local - Direction: rural-rural, rural-urban, urban-rural, urban-urban, periphery-core, core-periphery - Motivation: forced, impelled, free (voluntary) - Spatial: step migration, migration streams and counter-streams - Temporal: daily and weekly commuting, seasonal, periodic, permanent <p>Patterns of population movement:</p> <ul style="list-style-type: none"> - Major international migration streams - Examples of intra-national migration streams: rural-rural, rural-urban, urban-rural, urban-urban, periphery-core, core-periphery <p>Urbanisation and counter-urbanisation and their definition:</p> <ul style="list-style-type: none"> - Global patterns - Contrasts in urbanisation between countries at different levels of development 	<p>Students should develop an understanding that there are many types of population movement – classifications can be found in Guinness (2002) but students may be encouraged to develop their own classification by drawing a grid with time and distance on opposing axes and inserting as many named types of population movement as possible.</p> <p>See: http://www.optimumpopulation.org/opt.more.migration.int.html for an overview.</p> <p>The Global Commission on International Migration have a number of papers which may be found via www.gcim.org.</p> <p>Also see the International Organization for Migration at http://www.iom.int/jahia/Jahia/lang/en/pid/1</p> <p>The type, causes, consequences and impacts of specific migration flows may usefully be studied concurrently.</p> <p>The cycle of urbanisation should be understood with accurate definitions of the processes involved.</p>

<p>Causes of migration and urbanisation</p>	<p>The factors influencing migration, illustrated at a variety of spatial and temporal scales:</p> <ul style="list-style-type: none"> - Push/pull factors, intervening opportunities and obstacles - Economic, socio-cultural, environmental and political influences - Force and choice - Refuge and refugees <p>Urbanisation and counter-urbanisation:</p> <ul style="list-style-type: none"> - The relative importance of rural-urban migration and natural increase in urbanisation - Urban-rural migration and rural depopulation 	<p>It might be productive to take a vertical route through causes, consequences and management in the context of specific case studies of migration.</p> <p>This can develop from the classification by time and distance and may be enhanced by reference to theories as outlined in Guinness (2002) or Gillett (2005).</p> <p>Exemplification of migration flows should be included at all opportunities and should be recent as well as historical, cover a range of countries at different levels of development and cover international and intra-national scales.</p> <p>The UN site is useful and a wallchart can be downloaded from this site: http://www.un.org/esa/population/migration/</p> <p>Students should appreciate that these processes do seem to form a cycle (as cited above) and that countries at different levels of development may be experiencing different stages of the cycle.</p>
<p>Consequences and impacts</p>	<p>Costs and benefits to donor and recipient areas and to the migrants at different scales.</p> <p>The impacts of international migration:</p> <ul style="list-style-type: none"> - Economic: employment/unemployment; remuneration and remittances - Social: provision of services; housing; deprivation; social tension; family; community - Political - Environmental: resource pressure <p>The consequences of urbanisation:</p> <ul style="list-style-type: none"> - Primacy and the economic dominance of urban areas - The provision of housing and associated amenities and services - The development of slums, shanty towns and squatter settlements - Strain on urban infrastructure - Effects on rural donor areas <p>The consequences of counter-urbanisation:</p> <ul style="list-style-type: none"> - The growth of dormitory, commuter and suburbanised settlements - Pressure for development on the countryside - Impacts on rural services 	<p>Selected contrasting case studies should be studied in depth to examine both positive and negative impacts, for example: Polish migration to the UK, Chinese migration to Vancouver, Zimbabwean refugees to South Africa, urbanisation in China, retirement migration to Spain.</p> <p>Useful websites include: http://www.migrationwatchuk.com/default.asp http://www.forcedmigration.org/ http://www.migrationdrc.org/ http://www.migpolgroup.com/ and http://www.ippr.org.uk/research/teams/project.asp?id=945</p> <p>Urban and counter-urban migration studies should similarly focus upon contrasting exemplars. Simple cost-benefit analyses would enable sound evaluation.</p>

Management	<p>Managing migration flows through strategies to encourage or restrict population movement:</p> <ul style="list-style-type: none"> - International: immigration controls, international agreements, financial incentives - Rural-urban: rural development schemes; New Towns as alternative urban destinations - Urban-rural: rural housing developments; urban regeneration and re-urbanisation <p>Managing the impacts of urbanisation and counter-urbanisation:</p> <ul style="list-style-type: none"> - Housing improvements: site and service schemes; upgrading poor quality housing (slums, squatter settlements); rural housing schemes - Infrastructural improvements: water and sanitation; transport; accessibility - Social improvements: education and health - Economic improvements: providing work opportunities; self-help schemes - Environmental protection: greenbelts; other measures 	<p>Students should attain a basic understanding of international legislation such as UN agreement on asylum and EU treaties.</p> <p>Comparisons between EU member states' responses to migration from new member states and asylum seekers and their consequences for sending and receiving nations would be useful.</p> <p>Responses to migration should consider countries at different stages of development; new towns and cities, for example, may be studied in contrasting circumstances.</p> <p>This section may best be investigated by examining the range of possible management strategies and then seeking examples of their use rather than focusing on a limited range of located case studies that might not offer a full range of management options.</p>
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Additional Resources:

- Drake, B. & Lee, C. (2000) *The Urban Challenge*, Hodder: London
- Fincher, R. M. & Jacobs, J. M. (eds) (1998) *Cities of Difference*, Guildford Press
- Flint, C. & Flint D. (1998) *Urbanisation: Changing Environments*, Collins: London
- Gillett, J. (2005) *Population*, Hodder: London
- Guinness, P. (2002) *Migration*, Hodder: London
- Hall, P. (2002) *The Cities of Tomorrow*, OUP: Oxford
- Hamnett, C. (2003) *Unequal City: London in the Global Arena*, Routledge: London
- Hornby, W. & Jones, P. (1993) *An Introduction to Population Geography*, CUP: Cambridge
- Livi-Bacci, M. (2001) *A Concise History of World Population*, Blackwell: Oxford
- Nagle, G. (1998) *Changing Settlements*, Nelson: Walton-on-Thames, Surrey
- Nagle, G. (2005) *Development*, Hodder: London
- Pacione, M. (2001) *Urban Geography*, Routledge: London
- Redfern, D. (2001) *Human Geography in the United Kingdom in the last 30 years*, Hodder: London
- Witherick, M. (1999) *The Urban World: Processes and Issues*, Nelson Thornes: London
- Witherick, M. (2004) *Population & Migration*, Philip Allan: Deddington, Oxfordshire
- Witherick, M. & Adams, K. (2006) *Cities & Urbanisation*, Philip Allan: Deddington, Oxfordshire

Trade, Debt and Aid

Main themes	Specified content	Suggested teaching and learning
Global capital transfers	<p>Global transfers of capital occur in a variety of ways including trade, foreign direct investment (FDI) and aid.</p> <p>Global capital transfers can create debt.</p> <p>Different types of debt: trade deficits, serviceable debt, unserviceable debt.</p> <p>The global pattern of debt.</p>	<p>Students first need to be familiar with the different forms of capital transfer between countries and their terminology. Using dictionaries and online searches, they should build up an appropriate glossary.</p> <p>Country by country debt statistics are available on: www.jedh.org/jedh</p>
Patterns of world trade, their consequences and management	<p>Patterns of world trade:</p> <ul style="list-style-type: none"> - Major importers and exporters of raw materials; commodities, manufactured products, services, hi-tech goods - Global trade balances <p>Changing patterns of world trade since 1900:</p> <ul style="list-style-type: none"> - Colonial and neo-colonial patterns - The rise of newly industrialised countries (NICs) - Terms of trade - The changing importance and nature of goods being traded <p>Factors responsible for patterns of world trade:</p> <ul style="list-style-type: none"> - The principle of comparative advantage - Levels of economic development - The influence of trade blocs, protectionism, the World Trade Organization (WTO) <p>The benefits and problems of trade for exporters and importers:</p> <ul style="list-style-type: none"> - Balance of payments and trade deficits/surpluses - The significance of foreign currency - Overdependence on primary products - Neo-colonial control and trade as a political weapon <p>The management of global trade:</p> <ul style="list-style-type: none"> - WTO and GATT (General Agreement on Tariffs and Trade) - The role of Fair Trade 	<p>Statistical sources should be used to show broad trade patterns of primary, secondary and tertiary products and investment, and also patterns of flows between different groups of countries (e.g. Europe and the USA, compared with Africa and Asia).</p> <p>The best website for these data is the CIA Factbook: https://www.cia.gov/library/publications/the-world-factbook/index.html</p> <p>Students should investigate contrasting case studies of trade patterns in countries at different levels of economic development, describing and explaining the patterns of trade and the impact they have on the countries' levels of development and economic well-being.</p> <p>Understanding of the role and outcomes of world trade agreements may be evaluated by reference to different countries' responses.</p> <p>Case studies of the operation of Fair Trade and how it helps people in poorer countries to improve their quality of life, such as coffee, bananas or chocolate may form the basis of comparative project work (students could prepare posters or leaflets, for example). Or simply a survey of goods being sold locally (especially Oxfam – see http://www.maketrade4fair.com/en/index.htm).</p>

<p>Patterns of foreign direct investment (FDI), its consequences and management, including the issue of debt</p>	<p>Foreign direct investment involves transnational corporations (TNCs) and international agencies and has led to national debt.</p> <p>The global patterns of serviceable and non-serviceable debt.</p> <p>The global patterns of foreign direct investment:</p> <ul style="list-style-type: none"> - Major donors and recipients of investment, outward FDI and inward FDI - Changing patterns of investment over time <p>Reasons for the patterns of foreign direct investment:</p> <ul style="list-style-type: none"> - The benefits for both recipient and donor - The role of TNCs and global financial institutions such as the World Bank and the IMF (International Monetary Fund) <p>The impact of foreign direct investment:</p> <ul style="list-style-type: none"> - Economic growth and development - The problem of debt <p>The management of foreign direct investment and its impacts: the debt crisis and debt relief.</p>	<p>Case studies of TNCs and their investment overseas, including an assessment of its impact overseas and at home, can be drawn from products familiar to the students such as Nike or one of the major car companies or clothing stores such as Gap.</p> <p>Knowledge of FDI into and out of students' own country would enhance their understanding of this process.</p> <p>Students should investigate countries burdened with debt, explaining the causes of the debt, and what is being done to relieve the burden – perhaps contrasting with other responses such as repayment strikes. This could form the basis of individual or group research and presentation in order to attain the comparative element that would aid evaluation.</p> <p>Obvious links are: http://www.worldbank.org/ http://www.imf.org/external/index.htm http://www.jubileedebtcampaign.org.uk/</p>
<p>Patterns of international aid and its consequences</p>	<p>Different forms of aid:</p> <ul style="list-style-type: none"> - Long-term development aid - Short-term relief aid - Bilateral/multilateral aid - Tied aid <p>The global pattern of aid:</p> <ul style="list-style-type: none"> - Major donors, major recipients and reasons aid is given to specific countries/projects - The role of international institutions, governments and NGOs (non-governmental organisations) in giving aid <p>The consequences of aid for recipient countries:</p> <ul style="list-style-type: none"> - Socio-economic, effects on local people, agriculture, markets - Political, dependence on foreign governments and NGOs, corruption 	<p>A good way into this would be via events such as Live8 and Comic Relief – students could investigate the work of these and other charities. Students could each select one of the many international NGOs for a series of comparative class presentations.</p> <p>Case studies of short-term relief aid programmes and longer-term development aid programmes may be used to illustrate the mechanisms of aid and its impact in terms of advantages and disadvantages.</p> <p>A study of the UK aid programme would be a useful illustration of aspects of government led aid programmes.</p> <p>Useful websites include: http://aideffectiveness.developmentgateway.org/Community-Home.8246.0.html The Paris Declaration on Aid Effectiveness (2005) produced a set of measures which may be adapted as an evaluative tool; see: http://www.oecd.org/dataoecd/57/60/36080258.pdf Students should also be aware of the Millennium Development Goals – http://www.un.org/millenniumgoals/</p>

Economic globalisation	The roles of trade, foreign direct investment and aid in the globalisation of the world economy. The advantages and disadvantages of globalisation.	Comparison of contrasting views may provide the basis for a class debate, with students representing different interest groups. The views of Noreena Hertz (<i>The Silent Takeover</i>) and Naomi Klein (<i>No Logo</i>), for example, may be compared with Jeffrey Sachs (<i>The End of Poverty</i>) and pro-globalisation supporters.
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Additional Resources:

Burtenshaw, D. (2006) *Economy & Development*, Philip Allan: Deddington, Oxfordshire

Donnellan, C. (ed) (2002) *Globalisation*, Independence: Cambridge

Ellwood, W. (2001) *The No-Nonsense Guide to Globalisation*, New Internationalist: Oxford

Guinness, P. (2003) *Globalisation*, Hodder: London

Hall, T. (2007) *Everyday Geographies*, Geographical Association: Sheffield

Hanlon, J. (1991) *Mozambique: who calls the shots?* James Currey: Oxford

Hutton, W. & Giddens, A. (eds) (2000) *On the Edge: Living with Global Capitalism*, Jonathan Cape: London

Morgan, J. (2001) *Development, Globalisation and Sustainability*, Nelson Thornes: London

Ransom, D. (2001) *The No-Nonsense Guide to Fair Trade*, New Internationalist: Oxford

Robertson, R. (2002) *Globalisation*, Sage: London

Steger, M. B. (2003) *Globalisation, A Very Short Introduction*, Oxford

Storey, D. (2003) *Citizen, State and Nation*, Geographical Association: Sheffield

www.dft.gov.uk for the website of the UK's Department for Transport, with links to numerous trade organisations.

<http://www.dfid.gov.uk/> for the website of the UK's Department for International Development.

<http://hdr.undp.org/en/reports/global/> – *Human Development Report, 2005, Integrated cooperation at a crossroads: aid, trade and security in an unequal world.*

The World of Work

Main themes	Specified content	Suggested teaching and learning
Employment structure	<p>The classification of employment into primary, secondary, tertiary and quaternary sectors and the differences between these sectors.</p> <p>Variations in employment structure between countries:</p> <ul style="list-style-type: none"> - Relationships between these variations and levels of economic development - Theories associated with such variations (such as Rostow, Clarke) <p>The reasons for spatial differences in employment structure within individual countries.</p>	<p>http://www.statistics.gov.uk/abi/downloads/sections_a-o.xls should link to a detailed page of economic and employment statistics for the UK; see also http://www.statistics.gov.uk/cci/nugget.asp?id=11</p> <p>At a more basic level <i>Philip's Modern School Atlas</i> provides tripartite data as does the CIA World Factbook: https://www.cia.gov/library/publications/the-world-factbook/</p> <p>The CIA Factbook contains data by country on employment structure: https://www.cia.gov/library/publications/the-world-factbook/index.html</p> <p>Also see: http://www.ilo.org/global/lang--en/index.htm</p> <p>The theories will provide a conceptual framework for students but must be critically evaluated and assessed for their contemporary usefulness.</p>
Changing patterns of structural employment	<p>Changing patterns in employment structure over time:</p> <ul style="list-style-type: none"> - The decline of the secondary sector and the growth of tertiary and quaternary sectors in countries at a higher level of development - The growth of the secondary, tertiary and quaternary sectors in newly industrialising countries (NICs) <p>The reasons for these changes:</p> <ul style="list-style-type: none"> - Technological development - Globalisation, transnational corporations (TNCs) and the new international division of labour (NIDL) - Other economic factors - Social factors - Political factors 	<p>The first part of this section develops understanding of employment structures in the previous section and should run concurrently, the CIA Factbook providing contemporary data.</p> <p>http://www.ilo.org/public/english/protection/ses/download/docs/gender.pdf provides useful background reading.</p> <p>This option may be best understood through study of the growth and decline of particular industries. Appropriate industries may be motor vehicles but students may respond to learning about products they use such as shoes and clothing, bicycles, or the changing technology of the music industry (which most classically illustrates the product life cycle). Wikipedia has a reliable list of bicycle manufacturers – students can check out the history and source of their own bikes.</p> <p>A detailed example of the growth and development of one NIC (such as S. Korea or Malaysia) would be useful to illustrate the significant changes that have taken place. Students should appreciate the different economic groupings of countries: NICs, RICs, BRICs, OPECs, etc. and so be able to understand the significance of the production networks developed by TNCs such as Nike.</p>

<p>Contemporary issues associated with the global work place</p>	<p>Unemployment:</p> <ul style="list-style-type: none"> - Current and past trends in unemployment in countries at a higher level of development and the effects of these patterns on people and the local economy <p>Labour exploitation:</p> <ul style="list-style-type: none"> - Causes and effects of labour exploitation in countries at different levels of development - The changing role of trade unions within countries <p>Wage disparities: causes and effects within and between countries at different levels of development.</p> <p>Informal sector employment: the causes and effects of its growth in countries at different levels of development.</p> <p>Prejudice in the work place:</p> <ul style="list-style-type: none"> - Causes of prejudice in, and effects on, different groups - The similarities and differences in the nature of prejudice between different countries and within different sectors <p>Changes in working practices, such as homeworkers, teleworkers, e-workers, video-conferencing.</p>	<p>UK unemployment data is available on www.statistics.gov.uk and international data at https://www.cia.gov/library/publications/the-world-factbook/</p> <p>The World Travel Guide contains information on economic activity and may be purchased via http://www.worldtravelguide.net/</p> <p>Discussion may commence with the pros and cons of minimum wage levels, and consideration of the value of different forms of work balanced against understanding of absolute and relative poverty levels and the wage levels required to maintain a basic standard of living.</p> <p>For information on the informal sector, see: http://www.gdrc.org/informal/index.html</p> <p>Aspects of this section could be taught concurrently with aspects of managing labour resources (see below).</p> <p>Prejudice at work may cover the 'glass ceiling' and the idea of 'old boys' networks' as well 'institutional racism' and the often hidden prejudice for example against the disabled and against older people. Questions such as: 'why are some jobs inherently male or female?' and: 'should people be forced to retire at 65?' should inspire debate. This could be informed by investigation into campaigns and legislation designed to combat prejudice at work. Useful websites include:</p> <p>http://www.direct.gov.uk/en/DisabledPeople/index.htm</p> <p>http://www.scope.org.uk/work/index.php</p> <p>http://www.stonewall.org.uk/media/current_releases/1612.asp</p> <p>http://www.thecommonwealth.org/Templates/Internal.asp?NodeID=35776</p> <p>http://www.workingagainstracism.org/about.html</p> <p>http://www.eurofound.europa.eu/eiro/2000/03/inbrief/uk0003159n.htm</p>
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Migrant labour	<p>The distribution patterns of migrant labour at both international and national scales:</p> <ul style="list-style-type: none"> - Unskilled migrant labour flows - Skilled migrant labour flows - Seasonal migrant labour flows - Long-term and short-term migrant labour <p>The reasons for these distribution patterns:</p> <ul style="list-style-type: none"> - Push and pull factors - The role of governments in encouraging and restricting migration <p>The consequences of such migration for source and destination areas and the migrants themselves:</p> <ul style="list-style-type: none"> - Benefits - Problems 	<p>More recent migration flows may be studied at http://www.migrationdrc.org/, http://www.migpolgroup.com/ and http://www.ippr.org.uk/research/teams/project.asp?id=945</p> <p>Students could construct a matrix of economic movement with time and distance forming the two axes; at the lowest level, this would simply be commuting, but intra-national migration flows should be studied as well as international. Students' family experiences may prove a useful starting point.</p> <p>There are some classic case studies of economic migration (Turkish <i>gastarbeiter</i>, for example, or the <i>Windrush</i> generation) but more recent examples should be considered such as Polish migrants to the UK since their accession to the EU, East German migration to the West following re-unification, or the continuing flow of rural-urban migrants to developing cities. The migration of skilled workers (such as health professionals) from less to more developed countries and the consequences of this may be investigated.</p>
Management	<p>Strategies for managing labour resources at different scales.</p> <p>Managing labour resources at the international scale:</p> <ul style="list-style-type: none"> - International Labour Organization (ILO), minimum wages, legal and illegal international migrant flows <p>Managing labour resources at a national scale:</p> <ul style="list-style-type: none"> - Labour rights, the role of unions, minimum wages, women's rights, job centres <p>Managing labour resources locally:</p> <ul style="list-style-type: none"> - Seasonal demands within local areas such as employment in tourism or agriculture 	<p>Role-playing exercises may prove useful to deliver this section casting students in the role of workers, union leaders, managers, shareholders, employers, and politicians. The issues may be judged in different economic sectors such as horticulture, textile manufacture, theme park recreation/tourism, and mail order.</p> <p>See: http://www.ilo.org/global/lang--en/index.htm for the ILO, http://www.fedee.com/IntroEurope.shtml http://www.tuc.org.uk/ and http://www.cbi.org.uk/</p>

Additional Resources:

Burtenshaw, D. (2006) *Economy & Development*, Philip Allan: Deddington, Oxfordshire

Guinness, P. (2003) *Globalisation*, Hodder: London

Francis, E. (2000) *Making a Living: Changing Livelihoods in Rural Africa*, Routledge: London

Raw, M. (1993) *Manufacturing Industry: the Impact of Change*, Collins: London

Sheppard, P. (2004) *Economic Activity and Change*, Hodder: London

Townsend, A. (1997) *Making a Living in Europe: Human Geographies of Economic Change*, Routledge: London

www.ilo.org/migrant – website of the International Labour Organization.

www.labourbehindthelabel.org

www.wds.worldbank.org/ – *World Development Report, 1995, Workers in an Integrating World*

SECTION B

Energy and Mineral Resources

Main themes	Specified content	Suggested teaching and learning
Classification	<p>Energy and mineral resources. Metallic and non-metallic mineral resources. Renewable and non-renewable resources, finite and infinite resources. Flow resources. Non-renewable resources in terms of stocks and reserves. The influence of economic and technological factors on the availability of energy and mineral resources. The resource continuum.</p>	<p>Various classification models may be used: see, for example, Appendix 2 in Allen (1992) or Flint (1999:8-9). See also McKelvey's diagram (Allen, 1992: Appendix 1) distinguishing between resources and reserves related to economics and available technology. A useful leaflet from the British Geological Survey and Department for Communities and Local Government can be downloaded from http://www.mineralsuk.com/britmin/mm13.pdf</p>
Energy resources: supply and demand	<p>Distribution patterns of supply and demand of selected energy resources, including oil and at least one renewable resource. The variations in energy resource mix between countries in relation to development and resource availability. Changing sources of energy over time both globally and within individual countries:</p> <ul style="list-style-type: none"> - The shift from coal to oil and gas - The growth of renewable and alternative sources of energy - Variations in the use of nuclear power 	<p>A vertical path may be taken through this topic, studying supply, demand, impact and management of one energy source concurrently.</p> <p>Students should develop an understanding of the changing patterns of supply and demand, particularly for oil, with the growth of Asian economies; thus news media will provide good information.</p> <p>Contrasting examples of the changing energy mix of countries at different levels of economic development (such as the UK, South Korea, Iceland, Brazil).</p> <p>See the CIA World Factbook for details on countries' energy and mineral resources and use at https://www.cia.gov/library/publications/the-world-factbook/</p>

<p>Mineral resources</p>	<p>Distribution patterns of supply and demand of a range of mineral resources both metallic and non-metallic. Changes in these patterns over time. Factors influencing these distribution patterns and how they change over time:</p> <ul style="list-style-type: none"> - Price variations - Geological conditions - Levels of economic and technological development - The role of foreign direct investment - The cycle of exploitation - Product cycles 	<p>A vertical path may be taken through this topic, studying supply, demand, impact and management of one energy source concurrently.</p> <p>Students should develop an understanding of the changing patterns of supply and demand for mineral resources such as copper with the growth of Asian economies; thus news media will provide good information.</p> <p>Students should investigate the supply and demand for selected mineral resources (such as aluminium, copper, tin), and how these patterns are changing over time. The rising demand for some minerals in BRICs in response to rapid economic growth and the consequences for world markets should be investigated.</p> <p>http://www.geologynet.com/economiclinks.htm is a very useful link.</p>
<p>The impact of resource exploitation</p>	<p>The national impact of mineral resource exploitation:</p> <ul style="list-style-type: none"> - Economic benefits, such as foreign exchange earnings, employment, the multiplier effect, debt payment - Social, economic and environmental problems, such as living conditions and environmental degradation <p>The national impact of changes in energy resource supply and demand in economic, social and environmental terms:</p> <ul style="list-style-type: none"> - Changes in the balance between domestic and imported energy resources - Attempts to increase renewability - Arguments over the energy mix, including the debate over nuclear and renewable solutions <p>The global impact of changing energy and mineral demand: resource depletion, climate change, increasing economic costs, political implications.</p>	<p>Students should investigate how the exploitation of mineral resources has economic, social and environmental impacts at international, national and local scales.</p> <p>http://www.ourplanet.com/aaas/pages/population04.html should prove useful for both minerals and energy.</p> <p>See http://www.mineralsuk.com/britmin/mm2.pdf for information on raw materials for construction.</p> <p>A lesson plan and resources can be found at http://www.quarried.co.uk/Downloads/Environmental Impacts Worksheet - Teacher notes.doc</p> <p>Students should investigate contrasting national examples to demonstrate how changes in energy demand and supply affect countries economically, socially and environmentally.</p> <p>http://www.ucsus.org/, http://www.greenpeace.org.uk/ and http://www.foe.co.uk/sitemap.html have some useful information on energy resources.</p>

<p>Management</p>	<p>Managing energy and mineral resource exploitation at different scales:</p> <ul style="list-style-type: none"> - International commodity organisations, such as OPEC (Organization of the Petroleum Exporting Countries) - National resource policies, such as nationalisation, rationalisation, subsidies <p>Managing the environmental impact of energy and mineral resource exploitation at different scales:</p> <ul style="list-style-type: none"> - International agreements and protocols, such as Brundtland, Club of Rome, Kyoto, Antarctic Treaty - The application of international agreements at a national scale - National policies, such as resource substitution, promotion of alternative energy use - Local approaches, such as the application of Agenda 21, land reclamation schemes <p>Managing the socio-economic impact of energy and mineral resource exploitation at different scales:</p> <ul style="list-style-type: none"> - National policies, such as minimum wages, regeneration grants, inward investment, import tariffs - Local approaches, such as regeneration schemes, local employment initiatives 	<p>Students should investigate the working of the oil market, including the production chain, and national policies affecting this.</p> <p>Examples of sustainable resource management at global, national and local scales should be incorporated with an understanding of the principles of recycling and conservation.</p> <p>http://www.opec.org/home/ is a useful source of data for the whole of this option.</p> <p>See also: http://www.antarctica.ac.uk/about_antarctica/geopolitical/treaty/ http://unfccc.int/kyoto_protocol/items/2830.php http://www.worldinbalance.net/pdf/1987-brundtland.pdf http://www.clubofrome.org/</p> <p>Otherwise students should investigate the energy strategies of their own countries. In the UK this is overseen by BERR, The Department for Business, Enterprise and Regulatory Reform at http://www.berr.gov.uk/energy/index.html</p>
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Additional Resources:

- Allen, J. E. (1992) *Energy Resources for a Changing World*, CUP: Cambridge
- Elcome, D. (1998) *Natural Resources, Their Use and Abuse*, Nelson Thornes: Walton-on-Thames, Surrey
- Flint, D. (1999) *Managing Resources*, Hodder & Stoughton: London
- Mather, A. G. & Chapman, K. (1995) *Environmental Resources*, Longman: London
- Pickering, K. T. & Owen, L. A. (2nd edition 1997) *An Introduction to Global Environmental Issues*, Routledge: London
- Press, F. and Siever, R. (1994) *Understanding earth*, Freeman: New York
- Rees, J. (1990) *Natural resources: allocation, economics and policy*, Routledge: London
- Simmons, I. G. (1991) *Earth, Air and Water: Resources and environment in the late 20th century*, Arnold: London
- World Commission on Environment and Development (1987) *Our Common Future*, OUP: Oxford
- Woodcock, N. (1994) *Geology and Environment in Britain and Ireland*, UCL: London
- www.riotinto.com/howeare/review_magazine.asp – for articles on minerals and places.
- www.riotinto.com/library/376_video_library.asp – for videos of Rio Tinto's operations.
- www.riotinto.com/whatweproduce/218_our_products.asp – includes coal and uranium as well as minerals.

The Provision of Food

Main themes	Specified content	Suggested teaching and learning
Classification and distribution	<p>The physical constraints on food supply with reference to optima and limits models to demonstrate the constraints of climate, topography and soil on the development of agriculture.</p> <p>The significance of limiting factors for plant growth.</p> <p>The patterns of agricultural production globally and nationally resulting from these constraints and factors.</p> <p>The difference between subsistence and commercial agriculture.</p> <p>The location of major marine fish stocks and the reasons for their location.</p> <p>The location of fish farming and reasons for its location.</p>	<p>Understanding of the physical limits to agriculture should be set in the context of global distribution patterns and an understanding that there is a limit to the amount of land that can be used.</p> <p>Similarly, students should understand the physical determinants for the location of fish stocks with reference to water temperature and upwelling zones (affecting fertility of oceans).</p> <p>http://www.fao.org/ is a good starting point for global food issues.</p>
The demand for food	<p>The increasing demand for food as global population increases and the mismatch between population distribution and food availability.</p> <p>The concept of carrying capacity with reference to the theories of Malthus and Boserup, to Brundtland, and the prospect of sustainability.</p> <p>Patterns of food consumption (including fish) and the consequences of these with regard to:</p> <ul style="list-style-type: none"> - Health, including an understanding that there are geographical and social differences in health that can be linked to diet - Religion and culture - The need for food aid - Ethical considerations (including the growing demand for organic produce; vegetarianism and veganism) 	<p>Reference to population growth to put food demand in context; see: http://www.ibiblio.org/lunarbin/worldpop http://www.census.gov/ipc/www/popclockworld.html http://www.peterrussell.com/Odds/WorldClock.php for a dramatic emphasis.</p> <p>Understanding that food supply is not evenly distributed – reference to ‘bread basket’ regions – related to population distribution.</p> <p>Use www.worldmapper.org for maps of population distribution and under-nourishment.</p> <p>Comparison of Malthusian and Boserupian theoretical analyses, with reference to examples (1940s Ireland or Easter Island vs India and the Green Revolution), through Club of Rome to Brundtland.</p> <p>Discussion and debate of issues affecting demand for food such as the growing affluence of Chinese leading to greater meat consumption and consequences of this. There is a wide range of issues here and students should be encouraged to extend their thinking beyond the ideas suggested in the syllabus with particular reference to current news as this is a developing issue.</p>

<p>The supply of food in countries at higher levels of development</p>	<p>The modernisation of food production after 1950 and its consequences:</p> <ul style="list-style-type: none"> - Changes to the means of supply - Increased yields to the point of overproduction - Improved farm incomes - Changes in land tenure and farm size - Significant landscape change <p>The 'post-productionist' phase of food production and its influence on food production systems and policy:</p> <ul style="list-style-type: none"> - Farm diversification schemes - The introduction of countryside stewardship schemes - The application of top-down approaches such as set-aside, ESAs (Environmentally Sensitive Areas) and NSAs (Nitrate Sensitive Areas) in the UK - The growth of bottom-up approaches such as low impact techniques and organic farming - Diversification of food production to increase income levels - Reduction in the number of farms <p>The exploitation of marine resources and the depletion of fish stocks as a result of:</p> <ul style="list-style-type: none"> - The difficulties inherent in the working of fisheries policies - The development of larger and more efficient trawlers <p>The growth of fish farming and its economic and environmental impacts.</p>	<p>The post-war response to food shortages and pre-war agricultural poverty through the application of technology and significant government support (both in western Europe and North America). Students should not get too caught up in the politics of the Common Agricultural Policy – the measures adopted and their outcomes are the key elements.</p> <p>For marine fisheries, useful sites include:</p> <p>http://www.mfa.gov.uk/ http://www.defra.gov.uk/marine/index.htm http://www.nwr.noaa.gov/ http://www.nmfs.noaa.gov/</p>
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<p>The supply of food in the wider world</p>	<p>Changes in the means of supplying food in the wider world, with particular regard to:</p> <ul style="list-style-type: none"> - The intensification and extensification of agriculture in response to population pressure and the consequences of overcultivation and overgrazing - How the Green Revolution served to increase food production in selected countries with reference to: <ul style="list-style-type: none"> • The development of high yielding varieties of wheat, maize and rice • The extension of irrigation, drainage and terracing schemes • The use of machinery in place of manual or animal labour - The application of fertilisers, herbicides, insecticides and other pesticides - Different approaches to land reform and the benefits and drawbacks for agrarian communities of such reform - The pressure to replace subsistence agriculture with cash crop production and the social, economic and environmental implications of the commercialisation of agriculture - The range of alternative, intermediate technology solutions to food shortages including intercropping and polyculture. 	<p>Essentially this is about the application of green revolution techniques but also there should be in depth study of the change from subsistence to cash crops as wealthier countries increasingly sought food supplies (often quite specialised and to strict quality control measures) from poorer countries with significant social and economic costs. This then moves into environmental impacts with consideration of crops such as palm oil.</p> <p>Investigation via online news media will provide valuable up-to-date information and students should consider the issue of food security as the combined pressures of rising population, increasing wealth, the demand for biofuels, and climate change appear to be creating the 'perfect storm' of inadequate global food supply.</p> <p>Sites such as http://dieoff.org/page36.htm seem remarkably prescient; compare with http://news.bbc.co.uk/1/hi/in_depth/7361945.stm</p>
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<p>The supply of food: the globalisation of production and supply</p>	<p>Issues of food supply in the 21st century, such as:</p> <ul style="list-style-type: none"> - Ethical issues, such as exploitation of animals, cultural differences in diets, exploitation of migrant labour, the introduction of genetically modified (GM) crops - Environmental issues, such as the loss of tropical forests and mangroves, the introduction of monocultures, tropical prawn fisheries, air transport and food miles, the potential impact of global climate change on food production - Economic issues, such as Fair Trade, the pressure to replace subsistence production with commercial - Political issues, such as the roles of TNCs (transnational corporations), NGOs (non-governmental organisations) and food aid in relation to agricultural aid 	<p>Food security is now of global concern as the rising demand for biofuels, the ongoing drought in Australia, the potential impact of climate change on the 'bread baskets', the growing world population and crop vulnerability to inclement weather (as in the 2007 wet summer in the UK) together have pushed up the price of staple crops (rice and wheat) causing significant food poverty in poorer nations.</p> <p>Against this background neo-Malthusians and Boserupians debate the likelihood of a new green revolution, perhaps using GM crops.</p> <p>There are many conflicting issues to be debated here and students should be encouraged to investigate widely using news media. Students could prepare arguments for and against particular aspects of modern food production, such as the role of GM, Fair Trade, long-distance food imports, the role of supermarkets.</p>
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Additional Resources:

- Allen, D. & Williams, G. (1997) *Food, Farming and Environment*, Collins: London
- Clover, C. (2005) *The End of the Line: How Overfishing Is Changing the World and What We Eat*, Ebury Press: London
- Crispin, J. & Jegede, F. (2000) *Population, Resources and Development*, Collins: London
- Ilbery, B. (1992) *Agricultural Change in Great Britain*, OUP: Oxford
- Jennings, S., Kaiser, M., Reynolds, J. D. (2001) *Marine Fisheries Ecology*, Wiley/Blackwell: New Jersey/London
- Nagle, G. (2005) *Development*, Hodder: London
- Raw, M. & Atkins, P. (1995) *Agriculture and Food*, Collins: London
- Sarre, P. (1991) *Environment, Population and Development*, Open University: Milton Keynes
- Witherick, M. & Warn, S. (2001) *Farming, Food and Famine*, Nelson: Walton-on-Thames, Surrey
- www.ciwf.org.uk/publications – Compassion in World Farming (CIWF) supply good free videos and other resources.

Tourism Spaces

Main themes	Specified content	Suggested teaching and learning
Classification	<p>The definitions of tourism, recreation and leisure.</p> <p>Classifying tourism using a variety of criteria, including destination, activity, scale, tourist characteristics, ecological impact.</p>	<p>Students should be aware of the existence of a range of types of tourism. A simple exercise constructing a schematic diagram should suffice; a time element should be incorporated.</p>
Change over time	<p>The changing nature of the tourism industry from 1800 to the present day, including its changing scale and the changing demands of tourists. Reference should be made to the Butler life cycle model.</p> <p>The reasons for these changes in relation to:</p> <ul style="list-style-type: none"> - Economic conditions - Socio-cultural values and attitudes - Technological developments, including transport - Logistical nature of the holiday product, such as package tourism - Political influences, including political instability - Unforeseen natural events - Role of the media 	<p>Students could focus initially on the growth and changing nature of the UK tourism industry from the 1800s, and examine the growth of the global tourism industry.</p> <p>http://www.statistics.gov.uk/CCI/nscl.asp?ID=8131 provides information on tourism to, from and within the UK.</p> <p>See also http://www.tourismtrade.org.uk/MarketIntelligenceResearch/</p> <p>International data can be found at http://www.unwto.org/index.php</p> <p>Students should study changes in a range of countries at different stages of economic development and understand how tourism provides a route to development and greater economic security for some countries. Against this, the destabilisation of economies through conflict can quickly damage or destroy this income-generating sector (such as in Kenya, 2008, the former Yugoslavian states, or south-east Asia following the 2004 tsunami).</p>

<p>Socio-cultural issues and management in tourism spaces</p>	<p>The factors influencing the level of socio-cultural impact:</p> <ul style="list-style-type: none"> - Scale of tourism/number of tourists - Size/population of the destination - Level of interaction between tourists and local communities - Similarity between the culture of the home and destination countries - Attitudes of tourists towards local communities <p>The nature of the socio-cultural impacts and the associated management strategies.</p> <p>Positive impacts:</p> <ul style="list-style-type: none"> - Community benefits through social development projects in health and education - Local cultural promotion and preservation in an increasingly globalised world <p>Negative impacts:</p> <ul style="list-style-type: none"> - Destruction of traditional local socio-cultural patterns including social demographic changes and cultural tensions between tourists and local communities - Commodification of culture as a tourist resource - Development of antisocial and illegal activities including crime, prostitution and sex tourism 	<p>A range of examples should be studied to illustrate the issues, including countries at different stages of economic development.</p> <p>Case studies from poorer countries should be studied in detail to illustrate a range of positive and negative socio-cultural impacts and management strategies, for example The Gambia or Nepal. Kariel's (1982) spiral of economic and infrastructural growth and landscape changes influenced by tourism (in Clout, <i>et al</i>, 1989: 164) is a very useful illustration of impacts.</p> <p>Students should be able to evaluate the success of strategies to manage the negative impacts and enhance the positive impacts of tourism.</p> <p>Understanding of cultural differences may be enhanced by studies of selected cultures with reference to religious sensibilities, histories, dress codes, music and traditional food.</p> <p>There is a nice case study of Australia at http://www.gawler.sa.gov.au/webdata/resources/files/5_Gawler_Impacts_Tourism.PDF</p>
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<p>Economic issues and management in tourism spaces</p>	<p>The nature of the economic impacts and the associated management strategies.</p> <p>Positive impacts:</p> <ul style="list-style-type: none"> - Tourism and development within countries at different levels of development through income generation and employment - Redistribution of wealth spatially within a country including the roles of urban tourism in regenerating areas of urban deprivation and of rural tourism <p>Negative impacts:</p> <ul style="list-style-type: none"> - Problems of seasonal tourism - Lack of political and economic ownership within the tourism industry in some countries - Uneven spatial distribution of tourism investment and growth, including the core-periphery model, the development of enclaves and the decline of tourist areas over time 	<p>Students should explore examples from countries at different stages of economic development.</p> <p>Examples showing positive impacts and management of tourism and development such as in The Gambia, and the redistribution of wealth such as cultural initiatives in Glasgow or Liverpool and safari tourism in Kenya.</p> <p>http://www.tourismconcern.org.uk/ is a charity set up to fight exploitation in tourism.</p> <p>Suggested case studies showing negative impacts and management include:</p> <ul style="list-style-type: none"> - Seasonal tourism: skiing in the French Alps - Lack of political/economic ownership of tourism: The Gambia - Uneven spatial distribution: coastal Gambia or mountains in Nepal or cities such as Prague - Decline of tourist areas: Blackpool or Benidorm <p>Students should be able to evaluate the success of strategies to manage the negative impacts and enhance the positive impacts of tourism.</p>
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<p>Environmental issues and management in tourism spaces</p>	<p>The factors influencing the level of environmental impact:</p> <ul style="list-style-type: none"> - Scale of tourism/number of tourists - Nature of the tourist activity - Fragility of the local environment or ecosystem - Local community perceptions of the value of the environment - Management strategies in place <p>The nature of the environmental impacts and associated management strategies.</p> <p>Negative impacts:</p> <ul style="list-style-type: none"> - Pressures on habitats and on rural and urban landscapes - Pressures on ecosystem environments with a particular focus on the impact on management of tourism in coral reef ecosystems - Pressures on protected and wilderness environments - Pollution, including visual pollution of the landscape, noise pollution, air and water pollution <p>Positive impacts:</p> <ul style="list-style-type: none"> - Locally, such as conservation, preservation of monuments and zoning strategies - Nationally, including the role of National Parks - Globally, including the role of international co-operation and legislative designations - The role of sustainable tourism and ecotourism 	<p>Students should study examples from countries at different stages of economic development such as:</p> <ul style="list-style-type: none"> - Visitor pressure threatening carrying capacities: Yosemite National Park, USA - Pressure on coral reef environments: Great Barrier Reef, Australia; Ban Don Bay, Thailand - Wilderness environments: Antarctica - Pollution: water pollution in Mediterranean, air pollution in Cairo, Egypt - National Parks: Peak District, UK Kakun National Park, Gambia <p>Much of this information can be found through online searches. Students may also be encouraged to produce reports and presentations on different places.</p> <p>Students should be able to evaluate the success of strategies to manage the negative impacts and enhance the positive impacts of tourism.</p> <p>See also: http://www.naturenet.net/education/tourism.html http://www.coolantarctica.com/Antarctica_fact_file/science/threats_tourism.htm and a useful paper may be purchased from http://www.worldwatch.org/node/831</p>
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Additional Resources:

Clout et al (2nd edition, 1989) *Western Europe: Geographical Perspectives*, Longman: London

Dove, J. (2004) *Tourism and Recreation*, Hodder: London

France, L. (1997) *Sustainable Tourism*, Earthscan: London

Holden, A. (2000) *Environment and Tourism*, Routledge: London

Marvell, A. & Watkins, C. (2005) *Changing Geography: Sustainable Tourism*, Geographical Association: Sheffield

Nagle, G. (1998) *Tourism, Leisure and Recreation*, Nelson: Walton-on-Thames, Surrey

Shaw, G. & Williams, A. (2002) *Critical Issues in Tourism*, Blackwell: Oxford

<http://www.worldtravelguide.net/> – the World Travel Atlas may be purchased through this site; it also contains much useful information.

Paper 4: The Research Topic

Three prescribed topics for investigation are offered for each examination session. Ideally, candidates should be able to choose which topic they research, but it may be more manageable for Centres to choose topics to be investigated by the whole entry or by smaller groups. Within each topic, there is considerable scope for individuality in the choice of the specific investigation to be undertaken.

There are three elements related to this paper:

- the themes for wider study identified within each of the topics
- the research investigation to be undertaken by the candidate
- writing up the study and preparing for the examination.

Students should be guided through rather than taught these elements; the role of the teacher is that of facilitator, enabling students to carry out individual research. It is not advisable to commence this work too early in the sixth form as it should involve a significant degree of synopticity. However, it may be useful for students to start a research file earlier in the course, collecting newspaper articles, websites and relevant bibliographic references.

The Research Topic should involve both fieldwork and secondary material. Fieldwork is essential as part of the individual research investigation. The amount of time spent on fieldwork will depend upon individual and centre circumstances, but a minimum of two days in the field is recommended. Fieldwork could be organised on the basis of separate days out, or could be part of a more prolonged fieldwork visit. Fieldwork options thus may be a block of work in the autumn or spring terms of the upper sixth/Year 13 or, at the earliest, the latter half of the lower sixth/Year 12 summer term.

It may be possible to integrate a topic with the core syllabus, for example, for the first cohort of examination in summer 2010:

Fluvial geomorphology may be integrated with Hydrological Hazards

Environmental degradation may be integrated with Energy and Mineral Resources

Retail patterns may be integrated with Migration and Urban Change

Students should be encouraged to develop their research skills:

- They should know how to formulate a hypothesis or research question and plan a programme of research to investigate their hypothesis or question.
- They should appreciate the relative value of different sources, particularly when using the internet, and should learn how to reference their sources.
- They should learn how to write in an appropriate academic style and how to structure a research report as set out in the syllabus.
- They should understand how to evaluate critically the data and information they collect as well as having a working knowledge of standard statistical, graphical and cartographic analytical techniques.

Many of these skills can be taught within the normal programme of learning and thus should be introduced from the start of the course.

Suggested Resources for Paper 4:

- Broad, J. (2001) *A-Z Advancing Geography: Key Skills*, Geographical Association: Sheffield
- Clifford, N. J. & Valentine, G. eds. (2008) *Key Methods in Geography*, Sage: London
- Ebdon, D. (1985) *Statistics in Geography: A Practical Approach*, Blackwell: Oxford
- Field Studies Council (2008) *Using digital maps and GPS in fieldwork: a practical guide for teachers*. FSC: Shrewsbury
- Flowerdew, M. & Martin, D. (2004) *Methods in Human Geography: A Guide for Students Doing a Research Project*, Prentice Hall: New Jersey
- Frew, J. (1993) *Advanced Geography Fieldwork*, Nelson: Walton-on-Thames, Surrey
- Holmes, D. & Farbrother, D. (2000) *A-Z Advancing Geography: Fieldwork*, Geographical Association, Sheffield
- Kneale, P. E. (2003) *Study Skills for Geography Students: A Practical Guide*, Arnold: London
- Lenon, B. & Cleves, P. (2003) *Fieldwork Techniques and Projects in Geography*, Collins Educational: London
- Miller, G. (2000) *Fieldwork Ideas in Action*, Hodder: London
- Rogerson, P. (2001) *Statistical Methods for Geography*, Sage: London
- Rogerson, P. (2006) *Statistical Methods for Geography: A Student's Guide*, Sage: London
- St. John, P. & Richardson, D. (1996) *Methods of Statistical Analysis of Fieldwork Data*, Geographical Association: Sheffield
- St. John, P. & Richardson, D. (1997) *Methods of Presenting Fieldwork Data*, Geographical Association: Sheffield

Fieldwork and Primary Data Collection: Some Suggestions

For Paper 1, Geographical Issues, there are opportunities to support learning which should be taken to develop the field skills which will be required in Paper 4. A minimum of two field days or ten hours is recommended.

Paper 1: Geographical Issues	Some suggested activities
Section A	
Tectonic Hazards	While some centres will be able to fund exotic trips to tectonically active regions, or at least to see significant relict features as may be found in parts of northern England and Scotland, others may be able to simulate the impact of earthquakes, for example. The recent (2008) earth tremor that caused some disturbance in the Northeast and East Midlands could form the basis of an impact assessment and role-play exercise with regard to planning for such events.
Hazardous Weather	This topic does not lend itself easily to field investigation but role-play exercises concerned with planning for hazardous weather such as heavy snow and blizzards, matched to real events, perhaps investigating the preparedness of a local authority (observation of the location of permanent grit stores, for example) or disaster planning may be possible.
Hydrological Hazards	This topic is a classic fieldwork topic but care should be taken not to replicate Year 10/11 work. This may be done by avoiding the standard rivers day of fieldwork and focusing instead on other aspects of the hydrological cycle, such as infiltration or interception, comparing two or more sites with different underlying geologies, soils, and/or vegetation cover.
Section B	
The Geography of Crime	Local neighbourhood and town centre surveys would provide excellent field data on this topic, noting Neighbourhood Watch signage, CCTV cameras, effectiveness of street lighting, use of burglar alarms, gates, fences and walls, and vulnerable spaces such as subways or poorly-lit alleys. Questionnaire surveys would reveal the perception of crime of local people. Local newspapers are a good source of primary information about location of crimes, criminals and victims.
Health and Disease	This is possibly the least amenable topic to field study but it may be possible to construct questionnaires that might be conducted in a local shopping street or leisure centre, or simply used to interview family and friends on personal and family health, lifestyle and diet.
Spatial Inequality and Poverty	Housing surveys would provide a useful means of studying spatial inequality in the field, estimates of house size from external evidence and housing quality measures – state of repair, evidence of renovation – perhaps measured against local regeneration strategies and infrastructural investment. Similarly, studies of provision of services and measurements of access to such services (bus routes, retailing centres, surgeries) may reveal local disparities.

Similarly, fieldwork is recommended, where feasible, for Papers 2 and 3 (Global Environments and Global Themes) and at least two days or ten hours may be advisable.

Paper 2: Global Environments	Some suggested activities
Section A	
Arid and Semi-Arid Environments	Notwithstanding relict geological features of arid environments in the UK and the technical definition of parts of Essex as semi-arid, this option realistically lends itself only to virtual fieldwork.
Glacial and Periglacial Environments	The standard fieldtrip to Snowdonia or the Alps would seem attractive for this option, although other regions such as the Eden valley (Cumbria) would offer the opportunity to examine smaller glacial features. Examination of glacial deposits and mapping of striations and other features would enable challenging investigative work.
Coastal Environments	This is another classic fieldwork topic offering the opportunity to measure many aspects of coastal processes in much greater detail than may have been students' experience in earlier years. Beach profiles and sand dune transects, sediment surveys, and structure and morphology of cliffs may be easily undertaken.
Section B	
Tropical Environments	Realistically, the most likely fieldtrip for tropical environments will be to the Tropical House at Kew Gardens or Leeds Tropical World. Both these venues will provide a useful though fairly passive introduction to the topic. World weather patterns can be tracked via http://www.worldweather.org/
Temperate Grassland and Forest Environments	This topic does provide an excellent opportunity for detailed ecology fieldwork. Studies of contrasting woodland, hydroseres, basic soil analysis (related to vegetation cover), woodland management and land use surveys would be most valuable.
The Atmospheric Environment	Study of the western maritime environment would be enhanced by longer term weather logging which would promote understanding of the nature and impact of day-to-day changes. World weather patterns can be tracked via http://www.worldweather.org/

Paper 3: Global Themes	Some suggested activities
Section A	
Migration and Urban Change	Population studies can provide primary data by examining family migration histories or small area based questionnaire surveys. However the urban and counter-urban aspects of this theme enable more accessible fieldwork studying the growth of dormitory settlements (mapping house age and type), surveying service provision and evaluative studies of regeneration are all feasible here.
Trade, Debt and Aid	Primary data to exemplify this option can be gathered by encouraging students to examine the origins of their own possessions (a quick check in class of shoes and clothing works well in Centres where school uniform is not required). Comparisons of the place of manufacture versus the location of company HQs generally reveals significant patterns.
The World of Work	Local area studies are possible – the impact of deindustrialisation and consequent structural change in local employment may be carried out by looking at employment and census statistics and relating these to changes in building and land use.
Section B	
Energy and Mineral Resources	The study of environmental impacts is possible in the context of visits to abandoned quarries or external evaluation of working sites (it may be possible to arrange guided tours). Students could usefully monitor their own household energy use in the context of energy conservation.
The Provision of Food	Visits to and study of local farming enterprises will facilitate understanding but a useful exercise would be to examine the provenance of the average family food purchase – consideration of food miles and the consequences for food producers would be useful evaluative work.
Tourism Spaces	Questionnaire surveys of tourists and surveys of tourism amenities provide straightforward opportunities to collect primary data for this theme. These can take place in both urban and rural contexts where consideration of carrying capacities and evaluation of management strategies may also be undertaken.

Schemes of Work

It is expected that a total of 380 guided learning hours will be timetabled for this course. The straightforward structure of the syllabus would allow up to 45 hours per topic, including practical and fieldwork, and 20 hours for Paper 4. Thus where a class is to be taught by two teachers (presumably along the conventional human/physical expertise division), an outline scheme of work such as the following may be adopted:

Hours	Teacher 1	Teacher 2
45 x 2	Paper 1, Section A: first chosen topic	Paper 1, Section B: first chosen topic
45 x 2	Paper 1, Section A: second chosen topic	Paper 1, Section B: second chosen topic
20	Paper 4	Paper 4
45 x 2	Paper 2, Section A: first chosen topic	Paper 3, Section A: first chosen topic
45 x 2	Paper 2, Section B: second chosen topic	Paper 3, Section B: second chosen topic

Where the class is to be taught by only one teacher, it is, of course, advisable to alternate between physical and human topics, thus:

Hours	
45	Paper 1, Section A: first chosen topic
45	Paper 1, Section B: first chosen topic
45	Paper 1, Section A: second chosen topic
45	Paper 1, Section B: second chosen topic
20	Paper 4
45	Paper 2, Section A: first chosen topic
45	Paper 3, Section A: first chosen topic
45	Paper 2, Section B: second chosen topic
45	Paper 3, Section B: second chosen topic

It should be noted that the approach shown above represents the minimum coverage of topics required by Papers 1, 2 and 3. In order to allow candidates more choice of question, particularly for Paper 1, the time may be allocated differently.

An allocation of approximately 10 hours per year for field and practical work may be interpreted literally as two days out of school or more usefully as up to two weeks per year. Preparation for Paper 4 could begin at end of third term (lower sixth/Year 12) and then continue through the second year (upper sixth/Year 13), as the students pursue their research.

Sample detailed scheme of work:

Teachers will have their own preferred style for detailed schemes of work so the one below is given as a brief sample of one possible design.

Paper 1: Section A: Hydrological Hazards

Subtopic	Detail	Resources	Skills
Causes of the distribution pattern: Hazards occur at different points in the cycle	<ul style="list-style-type: none"> - Surface runoff: river floods & flash floods - Saturated ground & soil stores: flash floods - Prolonged &/or heavy precipitation: flash floods, ice storms - Low level condensation: advection, radiation & hill fogs - Ocean stores + low pressure: high tides & storm surges 	<p>BBC website. Met Office archive pages for examples. Barry & Chorley (7th edition, 1998), pp.61-71 on condensation and precipitation types, characteristics and distribution. Cathcart (2002) – easy background reading. Nagle (2003), Chapter 1. Frampton, et al (2000), pp.32-33. Briggs & Smithson (1985), p.60 on fog, pp.62-69 & pp.182-198 on precipitation. Hill (2004), pp.9-12.</p> <p>[This list is exemplary not exhaustive.]</p>	<p>Use and interpretation of sketch maps and diagrams.</p> <p>Use of information from secondary sources: textbooks, articles, internet.</p>

Examination Advice

Command words

The information on using command words and examination resources provided below is intended as a resource that can be passed on to your students. It is intended to enlighten them with regard to some common misinterpretations rather than to supply a definitive list of command terms.

SOME HINTS ON USING COMMAND WORDS AND EXAMINATION RESOURCES

Or, how to answer the question, the whole question, and nothing but the question!

Describe and **explain** sometimes appear together in exam questions but more often they are separated. Don't mix them up! If the question says 'describe' and you use the words "due to" or "because" (or similar) in your answer – you have gone wrong! These words link to an explanation – which is probably the next question. **Describe** will want you to say what, where, when or who. In describing stimulus material (graphs, maps, photos, tables), identify trends and patterns, quoting facts and figures from the material. **Explain** will want you to say how or why or give reasons for patterns, trends and exceptions. There are different ways of describing but don't just plod through each bit of a graph, for example; look for overall trends and significant highs and lows. Similarly, **give, list, state** or **identify** also require a simple straight to the point response – again no 'because' or 'due to'. **Suggest reasons for...** is very similar to "explain" but slightly more speculative – your reasons should still be *reasonable*, however. This is a "why" question, really.

Often the first question might ask you to **define** or say **what is meant by the term...** This is where you will give the definition of a key term that you have learned in preparation for the exam. Start now by compiling a glossary of key terms. **Distinguish between** might require you to identify the difference between two or more terms, quite important when you think how easy it is to mix up corrosion and corrasion, attrition and abrasion or interception and infiltration.

Compare and **contrast** require you to find similarities and differences. Make sure you say what these are; it's not enough just to describe one thing and then describe the other – your answer must include phrases like "whereas" or "on the other hand" that actually indicate a comparison.

Words like **examine, discuss, consider,** and **to what extent** require you to look at all sides of an issue dispassionately. Your writing should be objective, so try to avoid bombarding the examiner with your own, possibly biased, opinion.

Words like **evaluate** and **assess** require you to come to some sort of judgement on the basis of the evidence you have presented.

Using textual resources: few marks are ever gained in examinations at this level for copying or paraphrasing what is provided. To get high marks you need to develop the ideas. These resources are triggers to get you started on an answer.

When the question says **With reference to one or more...**, obviously you must use appropriate case studies. Simply naming a place and then writing general ideas that apply to loads of places will gain few marks. Also writing down all the facts you learned by heart regardless of their relevance to the question is a waste of space and time. On higher-mark questions, stop and think! Plan your answer; which facts are relevant? This question needs clear and unquestionable detail specific to a place. Names of districts, buildings or key features that are unique to that place are essential, as are facts and figures relating to the specific place.

Using photographs: Pick out the detail but then develop the theme. This kind of resource is often used as a trigger for your answer – think of triggers as clues from which you work out an answer.

Draw a sketch diagram or map does not mean write an answer with a bit of a sketch on the side. Nor does it mean you should spend ages colouring in a beautiful work of art. The marks will be partly for the accuracy of the diagram but largely for the detail of your annotations – good labels get good marks in Geography.

Using levels' marking

Levels' marking enables examiners to ensure greater comparability and to differentiate candidates, work more effectively. A generic scheme has been constructed for the essay questions on Papers 1, 2 and 3 (shown below, Table 2). While experienced teachers will inevitably have an instinctive feeling about the worth of any piece of work, it is nevertheless valuable to use these levels' criteria. Ideally, to assess a student's work, start with the highest level and work down through the levels until the criteria statements describe the quality of the essay; the greater the number of criteria met for a level, the higher the marks within that level.

Students should be given this generic mark scheme and encouraged to meet the criteria at the highest level. A useful exercise would be to mark each other's work – typed, if possible, to achieve some anonymity. This will enable students to appreciate the examiners' viewpoint and help them to meet the criteria for the higher levels.

Table 1 below suggests ways in which you may help your students to prepare to meet the criteria based upon the requirements for Level 5.

Table 1: Training students to meet the assessment criteria:

Assessment Criteria (taken from Level 5)	Possible strategies
Wide-ranging, detailed and accurate knowledge and clear, high order understanding of the subject content	There is no substitute for old-fashioned learning but transforming the information into a different format will enable students to 'process' it. Thus they could convert a piece of prose to a mind map, describe a diagram or map, outline a process or sequence using a concept map, or produce a poster or leaflet for a lay audience.

Relevant, detailed and accurate exemplification used effectively	Students should be encouraged to keep a file of case studies (understanding that they may be utilised in a variety of contexts).
Logical and clear organisation; good English expression; full and accurate use of geographical terminology	Training in essay structure. Simple exercises on the meaning of geographical terms (including fun games such as hangman, or matching definitions to terms on cards). Strong emphasis on the use of proper English and avoidance of slang and text language using exemplars. Comparison of well and badly expressed responses would be useful.
Well annotated and executed sketch maps/ diagrams integrated fully with the text	This will also serve as a useful revision technique: encourage students to produce maps and diagrams with detailed annotations (a good homework exercise and quick to mark).
Fully focused on the specific demands of the question	Ensure that students can deconstruct questions and appreciate the requirements of the command terms.
Systematic analysis and a critical approach to evaluation; appropriate application of concepts and theories	Identifying which theory or model applies in which context can be challenging; spider diagrams or tables might enable students to make the right connections. The development of critical thinking skills will aid effective evaluation; students should be encouraged to debate issues and to criticise what they read constructively. Students may adopt the standpoint of different stakeholders in appraising well chosen short pieces of text.
Conclusion shows high level insight and is logical and well founded on evidence and argument	Students should practise writing conclusions (and introductions) to enable them to appreciate the value of constructing a coherent argument.

Table 2: Levels' criteria for essay questions on Papers 1, 2 and 3

Level	Marks	Assessment Criteria
5	22-25	<ul style="list-style-type: none"> • Wide-ranging, detailed and accurate knowledge and clear, high order understanding of the subject content • Relevant, detailed and accurate exemplification used effectively • Logical and clear organisation; good English expression; full and accurate use of geographical terminology • Well annotated and executed sketch maps/diagrams integrated fully with the text • Fully focused on the specific demands of the question • Systematic analysis and a critical approach to evaluation; appropriate application of concepts and theories • Conclusion shows high level insight and is logical and well founded on evidence and argument
4	18-21	<ul style="list-style-type: none"> • Good knowledge and depth of understanding of the subject content • Appropriate and well developed exemplification • Logical organisation; sound English expression; appropriate use of geographical terminology • Clearly annotated sketch maps/diagrams well integrated with the text • Well focused on the demands of the question • Elements of systematic analysis and ability to evaluate; generally appropriate application of concepts and theories • Conclusion is sound and based on evidence and argument
3	14-17	<ul style="list-style-type: none"> • Sound knowledge and understanding of the subject content lacking depth in some areas • Appropriate but partial exemplification, may not be integrated with the text • Generally clear communication but lacking some organisation; English expression and use of geographical terminology are mostly accurate • Sketch maps/diagrams generally used effectively and appropriately • Specific demands of the question mostly met • Some ability to analyse and evaluate; limited application of concepts and theories • Conclusion is limited and has some links to the rest of the response
2	10-13	<ul style="list-style-type: none"> • Some knowledge and understanding of the subject content lacking depth and detail • Exemplification used may be limited or not fully appropriate • Limited organisation; English expression is basic with some accurate use of geographical terminology • Sketch maps/diagrams may have inaccuracies and limited relevance • Question is addressed broadly or partially • Analysis, evaluation and application of concepts and theories are limited and may be superficial • Conclusion is basic and may not be linked to the rest of the response

1	0-9	<ul style="list-style-type: none">• A little knowledge and understanding of the subject content; response may also contain unconnected material• Exemplification, if used, is simple and poorly related to the text or may not be relevant• Lack of clarity and organisation; English expression is simple with inaccuracies; geographical terminology, if used, is basic or not understood• Sketch maps/diagrams are limited or poorly executed and may lack relevance• Question is understood weakly and may be addressed slightly• Superficial statements replace analysis and evaluation; application may be minimal or absent• Conclusion may be absent or simply asserted
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