Geography

GCE Geography H083/H483

Incorporating Data Skills in Geography

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Oxford Cambridge and RSA

GCE GEOGRAPHY H083/H483

Unit	Link to GCE specification	Suggested teaching and learning activities	Web link to data source
p.11 River environments	River landscapes provide opportunities for a number of human activities.	Effects of land use on river quality. Select a river for students to find data for. Students to then plot proportional circles showing phosphates and nitrates onto map of area. Use map to identify and annotate any land use that may have impacted on the river quality. Abstraction of water and uses to construct a located bar chart using the total abstraction for regions of the UK. Students to analyse the different water use in different areas and suggest reasons for this – e.g. industry, agriculture, urban. Explain why some regions such as the Midlands, has the highest abstraction for industry.	http://maps.environment-agency.gov.uk/wiyby/dataSearchController?lang=_e&textonly=off&topic=riverquality http://www.ons.gov.uk/ons/taxonomy/index.html?nscl=Land+and+Inland+Waters#tab-data-tables
	The pressure to develop river basins can make them increasingly vulnerable to flooding.	Students to plot hydrographs for an area that has experienced a flooding event. (Link given is for rainfall and flow data related to Carlisle floods 2005) Download data for areas that have experienced flooding. For example, the area around the Somerset levels in January 2014. Students to plot rainfall over the time period and explaining the patterns and how it contributed to flooding. Use in a decision-making exercise together with a map & photographs to explore possible river management developments to reduce flood risks.	http://www.geography.org.uk/resources/flooding/carlisle/mapsdata/ http://www.metoffice.gov.uk/hadobs/hadukp/

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p.13 Coastal environments	There are a number of ways that coastal areas can be protected, ranging from hard engineering to managed retreat.	Plot cliff retreat using cliff erosion data. Look at relationship between cliff erosion rates and coastal management nearby. Introduce ideas of managed retreat, holding the line and advancing the line. Students to present arguments for and against different approaches.	http://maps.environment-agency.gov.uk/wiyby/dataSearchController?lang=_e&textonly=off&topic=coastal_erosion http://www.coastalexplorer.eastriding.gov.uk/pdf/Cliff_erosion_data_table_April2013.pdf
p.15 Cold environments	Climatic extremes lead to finely balanced ecosystems which can be easily damaged.	Climate graphs which can then be used to inform interpretation of effects that climate can have upon the environment. Links given for Antarctica, Wentachee (Rockies) and Sutton (Alaska). Resources to develop the climate graph activity - terrestrial and marine ecosystems in Antarctica.	http://www.coolantarctica.com/Antarctica%20fact%20file/antarctica%20environment/climate_graph/vostok_south_pole_mcmurdo.htm http://www.usclimatedata.com/climate/wenatchee/washington/united-states/uswa0487/2014/1 http://www.usclimatedata.com/climate/sutton/alaska/united-states/usak0234 http://www.discoveringantarctica.org.uk/alevel_3_0.html
	What are the issues associated with the development of cold environments?	Students to produce graph to show crude oil production in Alaska. Investigate why the production level has fallen, considering environmental impacts, costs, remoteness. Mapping exercise to plot flow lines of visitor numbers (tourists by nationality) and distance to illustrate the countries of origin of tourists and researchers visiting Antarctica. the data entitled 'tourists by nationality'. Bar/line graphs to show the increase in tourism from 2000 - 2013. What environmental impacts might this have? Why has there been an increase?	http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MCRFPAK2&f=A http://iaato.org/en_GB/tourism-statistics

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p.17 Hot arid/ semi-arid environments	Climatic extremes lead to finely balanced ecosystems which can be easily damaged.	Climate graphs which can then be used to inform interpretation of effects that climate can have upon the environment. Links given for Alice Springs (Australia), Agadez (Niger) and Karasburg (Namibia).	http://en.climate-data.org/location/586/ http://en.climate-data.org/location/3461/ http://en.climate-data.org/location/2183/
p.20 Managing urban change	Urban growth and decay can lead to a variety of social and economic issues in urban areas.	Use of a range of deprivation data (income, employment, health, education, crime, environment, housing). Students to work in pairs or small groups to present information on a chosen area examining the level of deprivation. Presentation of deprivation data in a range of ways – choropleth maps, located bar charts, proportional circles. Use Gini Coefficient to measure inequality across the wards. **"Urban Deprivation in Manchester" Learner Activity.** Use statistics to map global patterns of urban population growth. GIS software could be used for this activity. Investigate which countries in the world are experiencing greatest growth and explore the impacts that rapid growth might have.	http://www.ons.gov.uk/ons/index.html http://www.ons.gov.uk/ons/guide-method/census/2011/census-data/2011-census-data-catalogue/index.html http://www.ocr.org.uk/qualifications/as-a-level-gce-geography-h083-h483/ http://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS

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AS Unit F762 Managing change in Human Environments

Unit	Link to GCE specification	Suggested teaching and learning activities	Web link to data source
p.20 Managing urban change	Urban change can put pressures on the environment.	Use Oxford traffic survey information to construct line graphs of traffic increase over a given period. Students to consider implications for urban areas. Alternatively, students could construct a flow line map showing variations in traffic flow around Oxford. Construct a proportional circle map to illustrate variations in congestion in cities around the world. Students to then investigate problems created by congestion and possible management solutions. Graphs to show increase in traffic over time caused by a change - for example, the building of a new shopping centre. Students to formulate a hypothesis. Mann Whitney U test to compare traffic flows before and after a development such as a shopping centre. Write a report including statistics regarding the impact of waste reduction strategies used by a specific council – Plymouth and Mumbai (Dharavi recycling scheme).	https://www.oxfordshire.gov.uk/cms/sites/default/files/folders/documents/roadsandtransport/traffic/tablea.pdf http://www.tomtom.com/en_gb/trafficindex/ http://www.dft.gov.uk/traffic-counts/index.php http://www.ons.gov.uk/ons/taxonomy/index.html?nscl=Waste+and+Recycling http://www.karmayog.com/cleanliness/stats.htm

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p.22 Managing rural environments	Structural change can lead to economic and social differences within and between rural areas.	Construction of population pyramid or bar charts to show population characteristics of rural areas of the UK. Students to mind map the impact of a population change (for example the decrease in the 30-44 age group) on rural areas.	http://www.ons.gov.uk/ons/rel/census/2011-census-analysis/rural-urban-analysis/comparing-rural-and-urban-areas-of-england-and-wales.html#tab-Age
	Lack of economic opportunities in rural areas can lead to depopulation and decline.	Students to work in pairs to construct line graphs to show decline in availability of rural services. Each pair to take one service (eg bank, supermarket, doctor). Use the % of people more than 4km from the service. Students to then present their information and consider impact of service decline. Additional information can be found: http://www.poverty.org.uk/71/index.shtml?2	https://www.gov.uk/government/statistical-data-sets/rural-services-series
	The changing use of rural areas can put increasing pressures on the environment.	Graphs to demonstrate the changes in wildlife populations in rural areas using biodiversity statistics. Students to then research causes of the changes.	https://www.gov.uk/government/statistical-data-sets/env09-england-biodiversity-indicators
p.24 The energy issue	The global energy mix is made up of both finite and renewable sources, which vary in their availability over time and space.	Comparison of two contrasting countries by constructing histograms to show their energy mix.	http://data.worldbank.org/topic/energy-and-mining
	As economies develop, there is an increased demand for energy.	Comparison of countries' energy use and level of development by plotting GDP against energy use. Students to use Spearman's Rank correlation to identify link.	http://data.worldbank.org/indicator/EG.USE.PCAP.KG.OE http://data.worldbank.org/indicator/NY.GDP.MKTP.CD

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p.26 The growth of tourism	Tourism has developed into a global industry in the last fifty years and now features in every continent.	Students to take a year each and plot, using flow lines, the country of origin of tourists visiting the UK onto a map of the world. Once finished students to pin maps to working wall and create statements to identify changes and patterns. Use table 3.10 from the spreadsheet. In groups, the student should find the top 20 countries visited by UK residents in each year from 2008 – 2012. How has the pattern of visits changed? Which countries have experienced largest increase? Each group to select one country that has experienced a rapid increase and research how tourism has affected that area.	http://www.visitbritain.org/insightsandstatistics/inboundvisitorstatistics/yearlydata/ http://www.ons.gov.uk/ons/rel/ott/travel-trends/2012/rpt-travel-trends--2012.html#tab-Trends-in-visits-abroad-by-UK-residents
	Tourism brings both opportunities and problems for people and the environment.	Students to create a located bar graph on a map of UK to show the % of people employed within tourism. Students to choose one of the areas where tourism makes a significant contribution to the economy and create a case study to present to other students related to positive and negative aspects of tourism in this area.	http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-283485
p.29 Option A1: Earth hazards	Mass movement is more likely to occur when both physical and human factors disturb the equilibrium of a slope.	Using the information on the largest landslides of 20th century, students to plot on Google Earth where they occurred and then add labels to include cause and impact. Choose one landslide to research in more detail to gain an understanding of what human factors may have contributed to the landslide.	http://landslides.usgs.gov/learn/majorls.php

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Unit	Link to GCE specification	Suggested teaching and learning activities	Web link to data source
	Earthquakes and volcanoes are caused by plate tectonics and bring distinctive impacts to an area and these vary from place to place.	Create a map to show data for recent earthquakes, including depth and magnitude. Overlay with map of tectonic plates. This could be done using ArcGIS if available.	http://earthquake.usgs.gov/
p.30 Option A1: Earth hazards	Earthquakes and volcanic eruptions have a range of environmental and social impacts on the areas affected which create a range of human responses to the hazard.	Students to complete Spearman's Rank Correlation of the severity of earthquake and their impact. Students can choose to look at cost of damage or deaths. Students need to select earthquakes of similar magnitudes. Students to choose two contrasting hazards such as landslide in the Philippines and 2005 Sumatra earthquake. Students to then create an event profile to compare the impacts of the two hazards. This could also be done to compare hazards in an MEDC and LEDC. **"Same magnitude, different result" Learner Activity.**	http://earthquake.usgs.gov/earthquakes/world/historical_country_mag.php http://www.usgs.gov/natural_hazards/#volc http://www.ocr.org.uk/qualifications/as-a-level-gce-geography-h083-h483/

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AS Unit F762 Managing change in Human Environments
Section A: Environmental Issues

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p.35 Option A3: Climatic hazards	Tropical storms and tornadoes form and develop under particular atmospheric conditions to become major hazards.	Students to work in pairs, plot the track of a hurricane or tornado. How does the hurricane or tornado category change over its course and why?	http://www.csc.noaa.gov/hurricanes/#
p.36 Option A3: Climatic hazards	Human activities may impact on the global climate to create particular climatic hazards.	Students to import data on UK mean temperature from 1659 and use Excel to create graphs. Then analyse temperature fluctuations over last 350 years. The last column has yearly temperature from 1659 - 2013.	http://hadobs.metoffice.com/hadcet/data/download.html http://hadobs.metoffice.com/hadcet/cetml1659on.dat
p.38 Option B1 Population and resources	Population is dynamic and changes in response to a number of demographic, social, economic and political factors. The factors vary from place to place.	Students to be given a country at random (could be picked out of a hat). Each student to create a factsheet for that country for its population characteristics and how they have changed over the last 25 years. These can then be used to identify trends and suggest causes.	http://data.worldbank.org/country

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Section B: Economic Issues

Unit	Link to GCE specification	Suggested teaching and learning activities	Web link to data source
p.43 Option B3 Development and inequalities	Countries vary in their levels of economic development and this in turn, influences quality of life (such as standard of living) of their citizens.	Students, on a large sheet, to list different ways of measuring development (quantitative). Each student to choose one measure and map six different countries' data. Two LEDC, two MEDC and two NIC. Use statistical analysis techniques such as Spearman's rank to compare level of development and their chosen measure. Use data on two countries at either end of the development spectrum to create a set of information cards that compare the two countries. Students can then use in a 'Top Trumps' style game to revise variations in development and quality of life.	http://data.worldbank.org/indicator?display=default#topic-11
p.44 Option B3 Development and inequalities	Economic inequalities may result in social and environmental conditions also becoming unequal.	Comparison of MEDC and NIC pollution levels using comparison bar charts or line graphs.	http://data.worldbank.org/indicator/EN.ATM.CO2E.KT/countries?display=default


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