

A Guide to GCSE Geography A – WJEC Eduqas

This guide is for students, parents and carers. It outlines: Information about the GCSE course; the topics on each examination paper and where students can find revision resources; and ends with examination tips specific to this subject.

Course Title and Exam Board

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|---------------------------------|---|--|
| Exam board | WJEC Eduqas GCSE Geography A | |
| Course title | Geography | |
| Course structure and assessment | 3 year course (Year 9-11) 3 exam papers at the end of Year 11 Component 1 – Changing Physical and Human Landscapes Component 2 – Environmental and Development Issues Component 3 – Applied Fieldwork Enquiry | |
| Key dates | 21 st May – PM – 1hr 30mins | Component 1 – Changing Physical and Human Landscapes |
| | 5 th June – PM 1hr 30mins | Component 2 – Environmental and Development Issues |
| | 13 th June – AM – 1hr 30mins | Component 3 – Applied Fieldwork Enquiry |
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GCSE Examinations

| Paper | Marks | Duration | Weighting | Topics on this paper |
|---|-------|---------------|-----------|---|
| Component 1 – Changing Physical and Human Landscapes | 88 | 1hr 30mins | 35% | Landscapes and physical processes Rural-urban links Tectonic landscapes and hazards |
| Component 2 – Environmental and Development Issues | 88 | 1hr 30mins | 35% | Weather and climate and ecosystems Economic Development and Resource Issues Environmental Challenges |
| Component 3 – Applied Fieldwork | 76 | 1hr 30mins | 30% | Analysing flows and patterns of movement Traffic flows in a retail environment - |

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|---------|--|--|--|---|
| Enquiry | | | | <p>'Pedestrians will be safer if Central Brighton is pedestrianised.'</p> <p>Analyse sediment size/shape as a result of longshore drift along a coastline</p> <p>The coastal defences in Rottingdean effectively protect the cliff from erosion</p> <p>The wider UK dimension (applying fieldwork knowledge and skills to wider UK knowledge)</p> |
|---------|--|--|--|---|

Component 2: Exam Date: 5th June

Component 2: Core Unit: Weather, Climate and Ecosystems

Climate change

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|-------------------------------|--|
| Carbon sinks | Places where carbon is stored over very long periods of time, for example, in fossil fuels. |
| Carbon-neutral | An activity in which any carbon dioxide emissions are equal to carbon being stored. |
| Desertification | When the climate of a dry region becomes even drier. Vegetation dies or is eaten by grazing animals and the soil becomes vulnerable to soil erosion. |
| Glacials | Cold periods in Earth's history when glaciers have advanced and ice sheets increased in size. |
| Greenhouse effect | A process which traps longwave radiation in the atmosphere. This process is natural but has been enhanced (made stronger) by extra greenhouse gases. |
| Greenhouse gases (GGs) | Gases such as carbon dioxide and methane. These gases are able to trap heat in the atmosphere. |
| Inter-glacials | Warmer periods in Earth's history when glaciers have retreated and ice sheets have decreased in size. |
| Long wave radiation | Energy in the form of heat that is given off by the Earth. Some long wave energy is absorbed by greenhouse gases. |
| Quaternary | The most recent period of geological time in Earth's history. |
| Short wave radiation | Energy in the form of light that is emitted by the sun. Most short wave energy passes through the Earth's atmosphere. |

Weather and climate

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| Air mass | A large parcel of air in the atmosphere. All parts of the air mass have similar temperature and moisture content at ground level. |
| Anticyclone | A high pressure system in the atmosphere associated with dry, settled periods of weather. |
| Aspect | The direction in which a slope or other feature faces. |
| Continental climate | The climatic condition of large land masses heating up and cooling down very quickly. |
| Cyclone | A low pressure system in the atmosphere associated with unsettled weather, wind and rain. |
| Depression | A weather system associated with low air pressure. Depressions bring changeable weather that includes rain and windy conditions. |

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| Drought | A long period of time with much less precipitation than normal. |
| Leeward side | The side of a hill or mountain that is sheltered from the wind. |
| Maritime climate | The climatic condition of land close to sea. The sea moderates temperatures meaning that there are only small variations in temperature. |
| Monsoon | A climate type experienced in South Asia in which a seasonal pattern of wind brings a distinct wet season. |
| Ocean currents | Predictable flows of water through the seas and oceans. |
| Tropical rain belt (ITCZ) | A zone between the tropics of Cancer and Capricorn that has a lot of rainfall. |
| Unstable | Warm air that is rising may be described as unstable. Unstable air causes clouds to build up and form rain. |
| Urban heat island | When a city has temperatures that are warmer than in the surrounding rural area. |
| Urban micro-climate | The small scale, local climate of a large city which is influenced by its buildings and traffic. |
| Windward | The side of a mountain that faces into the wind. |

Ecosystems

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| Biodiversity | The variety of living things. |
| Biomes | Very large scale ecosystems e.g. tropical rainforests or deserts. |
| Canopy | The upper layer of a forest. |
| Ecosystem | A community of plants and animals and the environment in which they live. |
| Key services | The way in which ecosystems provide benefits for people. |
| Mono-culture | A type of agriculture (farming) in which only one crop is grown over very large areas of land. |
| Nutrient cycles | The movement of minerals, through an ecosystem, from one store to another. |
| Tropical rainforest | Large forest ecosystems (or biomes) that exist in the hot, wet climate found on either side of the equator. |

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| Tundra | A treeless ecosystem largely found in the Arctic region. |
| Wildlife corridor | Where habitats (such as forests) are joined by strips of habitat (such as hedgerows). These corridors allow the movement of wildlife. |

Pages in revision book: 74 - 97

Key points of learning / case studies

Low Pressure hazard and high pressure hazard – causes, consequences and responses

Location and features of Tropical Rainforest

Location and features of the Savanna or Temperate Deciduous Forest

Small Scale ecosystem in the UK - woodland

Brighton off shore wind turbines

Human impact on the rainforest

Human impact on the savanna or TDF

Component 2: Exam Date: 5th June

Component 2: Options Unit: Environmental Challenges

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| Agri-businesses | Farming that is organised by large businesses - often by multi-national companies. |
| Agro-forestry | A type of farming in which a mixture of crop, shrubs, fruit trees and nut trees are grown. |
| Aquaculture | The commercial farming of fish and shellfish. |
| Biomes | Very large scale ecosystems e.g. tropical rainforests or deserts. |
| Consumers | A name used to describe people in wealthy economies who buy and use food, resources, energy and other stuff. |
| Consumerism | The theory that the consumption (use) of goods and services is a good thing because it benefits the economy. |
| Ecotourism | Small scale tourist projects that create money for conservation as well as creating local jobs. |
| Embedded energy | The amount of water or energy that is required to make a product. |
| E-waste | Electronic waste products such as computers and mobile phones. |
| Food miles | How far the food has been transported to get from producer to consumer |
| Greenhouse gases (GGs) | Gases such as carbon dioxide and methane. These gases are able to trap heat in the atmosphere. |
| Mono-culture | A type of agriculture (farming) in which only one crop is grown over very large areas of land. |

Revision book pages 134 – 144

Ecosystem destruction – Tropical Rainforest and Coral reefs

Short and Long term impacts of climate change on: UK, Antarctica, continent of Africa or Papa New Guinea – Class case study sheets

Reducing the impact of climate change

Management of Ecosystems – Rainforest and Grasslands – Revision guide pg 142 and pg 143

Component 2: Exam Date: 5th June

Component 2: Core Topic: Development and Resource Issues

Key Terms

Inequality

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| Dependency | When a country relies too heavily on one way of earning foreign income. For example, some Caribbean countries rely too much on money from tourism. |
| Diversify | Where a much wider variety of new business opportunities and jobs are created in a region. |
| Ecotourism | Small scale tourist projects that create money for conservation as well as creating local jobs. |
| Enclave tourism | Where tourists are kept separate from local communities. |
| Globalisation | Flows of people, ideas, money and goods are making an increasingly complex global web that links people and distant places together. |
| GNI per person | An economic measure that represents the average income in a country. GNI stands for Gross National Income. |
| Informal economy | Those jobs and businesses that are not regulated by the state. Workers generally do not pay income tax but they are not protected by safety rules. |
| Landlocked | A country that has no coastline and, therefore, has no sea ports. Many of the world's poorest countries are landlocked. |
| Leakage | When money, spent by tourists, benefits companies in other countries rather than people working in the country that the tourists are visiting. |
| Mass tourism | When very large numbers of tourists, who have bought a package holiday, visit a large resort. |
| Micro-credit | Where small loans are given to businessmen and women who are too poor to qualify for traditional bank loans. |
| Multi-national companies (MNCs) | Large businesses, such as Sony, who have branches in several countries. The headquarters of MNCs are usually located in global cities . |
| Multiplier effect | An upward spiral of the economy and its benefits on employment. |
| Newly Industrialised Country (NIC) | Countries, such as India, which have a growing middle class, a strong manufacturing sector and rapid urban growth. |
| Self-help | Improvement projects carried out by ordinary people rather than by businesses or governments. Compare this to top-down development . |
| Bi-lateral aid | Financial support or the gift of food, clothing or other emergency support, that is given directly from the government of one country to another. |
| Development aid | Help which is given to tackle poverty and improve quality of life over the long term to improve education or health care. |

| | |
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| Emergency aid | Help that is given urgently after a natural disaster or a conflict to protect the lives of the survivors. |
| Exports | The sale of goods or services to another country. |
| Fair trade | A deal in which workers in the producing country benefit from a reasonable rate of pay and decent working conditions. |
| Free trade | When countries trade without any limits to the amount of goods that can be exported and imported. |
| Import duty | A tax placed on goods brought into a country to make them more expensive and protect local industries. See tariffs . |
| Imports | The purchase of goods from another country. |
| Multi-lateral aid | Funding that involves many donor countries. |
| Quotas | Restrictions on the amount of particular goods that can be imported each year. |
| Subsidy | A payment that a country makes to its own farmers and businesses so that their goods can be sold at a lower price to consumers. |
| Tariffs | A type of tax, or import duty , charged on goods as they enter a country. |
| Trade blocs | Trading partnerships arranged between a group of countries. The European Union is one example. |

Water Resources

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| Abstraction | When water is taken from a river, reservoir or underground source to be used by people. |
| Aquifers | Rocks in the ground that are capable of holding large quantities of water |
| Drainage basin | The area a river collects its water from. This is also called a catchment area. |
| Groundwater store | Water in the ground below the water table. |
| Over-abstraction | When water is abstracted at a faster rate than it is recharged, leading to a store of water decreasing in size. |
| Rainwater harvesting | The collection and storage of rain water, for example, from the roof of a house. |
| Recharge | Water that enters an aquifer and refills a groundwater store. |
| Surface stores | Places where water is found on the surface such as lakes and rivers. |

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| Water footprint | The amount of water used to make an item of food or make a product such as an item of clothing. |
| Water security | When a society has enough water to ensure that everyone has clean water, sanitation and good health and the economy has enough water to grow food and make things. |
| Water stress | When there is a shortage of water which creates risk for individuals, farmers or industries. |
| Water transfer | A scheme that allows large quantities of water to be moved from a place where there is plenty of water to a place that does not have enough. |

Pages in revision book: 98 – 133

Key points of learning / case studies

Regional Economic Development – Development divide in Indonesia and UK – Revision Mat

Global Inequality: Revision Mat and Lesson Case Study Sheets

Inequality within a LIC (Kenya) and a NIC (Indonesia).

Multinational Companies.

Tourism within a LIC (Kenya) and a NIC (Indonesia)

Water Resources – Revision Mat

GLOBAL INEQUALITIES

(COMPONENT 2: Development & Resource Issues)

NUMBER OF FOREIGN TOURIST DIRECT ARRIVALS IN BALI YEAR 1970 - 2012

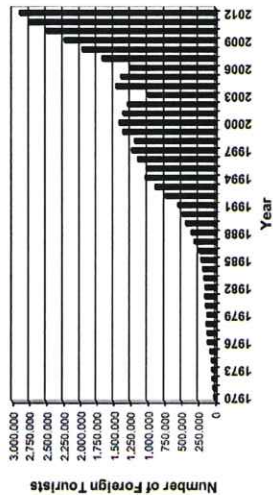
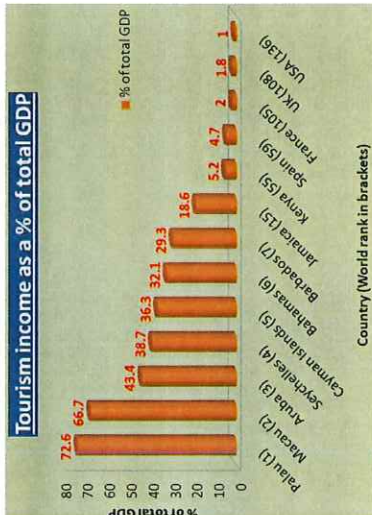


Figure 1. Number of Direct Arrivals of Foreign Tourists in Bali Year 1970 - 2012 (Source: Bali Tourism Government Office, 2013)



| KEY-TERM | DEFINITION |
|---------------------------------|--|
| Enclave tourism | Where tourists are kept separate from local communities. |
| Globalisation | Flows of people, ideas, money and goods are making an increasingly complex global web that links people and distant places together. |
| Informal economy | Those jobs and businesses that are not regulated by the state. Workers generally do not pay income tax but they are not protected by safety rules. |
| Multi-national companies (MNCs) | Large businesses, such as Sony, who have branches in several countries. The headquarters of MNCs are usually located in global cities. |
| Development aid | Help which is given to tackle poverty and improve quality of life over the long term to improve education or health care. |
| Emergency aid | Help that is given urgently after a natural disaster or a conflict to protect the lives of the survivors. |
| Quotas | Restrictions on the amount of particular goods that can be imported each year. |
| Subsidy | A payment that a country makes to its own farmers and businesses so that their goods can be sold at a lower price to consumers. |
| Tariffs | A type of tax, or import duty, charged on goods as they enter a country. |
| Trade blocs | Trading partnerships arranged between a group of countries. The European Union is one example. |
| Exports | The sale of goods or services to another country. |
| Imports | The purchase of goods from another country. |



| COMMAND WORD | DEFINITION | EXAMPLE |
|----------------------------|--|---|
| Discuss | Describe and explain relevant points and build up a balanced argument with supporting detail. | Discuss how the impacts of tourism effects countries in different ways. |
| Explain | Give reasons or causes. Show an understanding of how or why something has occurred. | Explain how global trade leads to uneven patterns of development |
| Identify | Point out and name from a number of possibilities. The command will be used in conjunction with 'describe' or 'explain'. | Identify the main benefits of FairTrade |
| Illustrate | Refer to a case study or example. It does not mean 'draw', although appropriate maps or diagrams enhance case studies. | Illustrate how tourism can benefit a country. |
| Outline | Give a brief summary of the main characteristics. Where questions ask for an outline of the main reasons then a summary explanation is needed. | Outline how international aid can help to reduce inequalities. |
| Suggest reasons why | Put forward a plausible explanation from your wider geographical understanding and not just actual knowledge. | Suggest reasons why MNC's choose to operate in more than one country. |

Kenya (Low Income Country: LIC)

Importance of tourism: Contributes to 12% of GDP & 11% of jobs.

Positive effects of tourism: Provides direct (hotel worker) & indirect employment (farmer;) local infrastructure is improved; Mombasa Marine National Park (1989.)

Negative effects of tourism: Much of the profit is leaked to richer countries; black market economy is growing e.g. 2000 prostitutes in area, boats destroy coral reef.

How international aid reduces inequalities in Kenya:

Multilateral Aid: African Development Bank Group-Providing money for a geothermal development project which provides electricity for 500,000 households.

Bilateral Aid: UKAid-£128 million spent a year to get more children into school.

NGO: OXFAM-Providing toilets for locals &empowering women to share skills

Indonesia (Newly Industrialised Country: NIC)

Importance of tourism: Contributes to 30% of GDP in Bali and 25% of jobs

Positive effects of tourism: Bali has lowest unemployment rate (1.89%) Environmental laws say no hotels within 5km of temples.

Negative effects of tourism: Every year 700 hectares of land lost to hotels, every day 13,000 cubic metres of waste is dumped on public tips.

MNC location in a NIC (Unilever):

Advantages of MNCs in Indonesia: Bring money and jobs into country; bring knowledge &expertise.

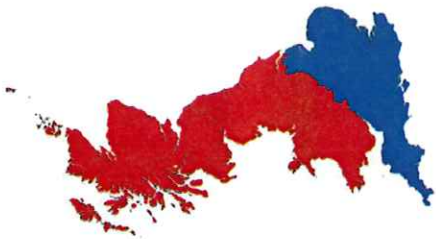
Disadvantages of MNCs in Indonesia: Wages are low/exploitation; have poor records of pollution.

Unilever: 9 factories located in Java; reinforces inequalities as better paid, more skilled jobs in Java, this encourages migration and overpopulation.

Regional Economic Development

(COMPONENT 2: Development and Resources)

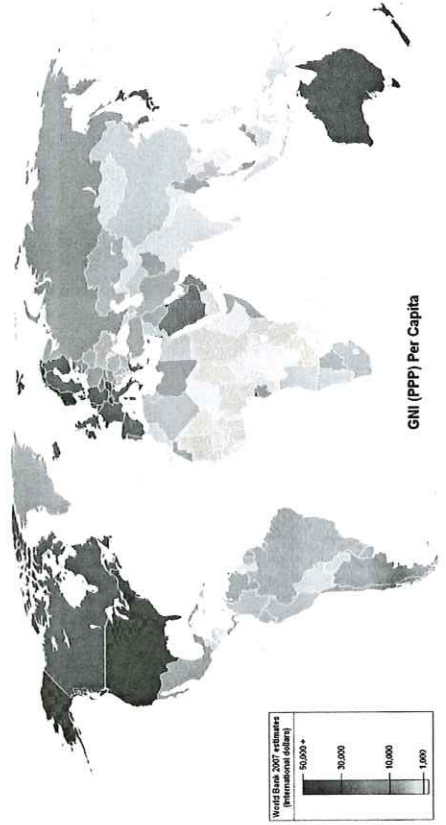
A map of the North/South Divide



| KEYTERM | DEFINTON |
|--|---|
| GNI per person | An economic measure that represents the average income in a country. GNI stands for Gross National Income. |
| Newly Industrialised Country (NIC) | Countries, such as Indonesia, which have a growing middle class, a strong manufacturing sector and rapid urban growth. |
| Gross Domestic Product (GDP) | The total value of goods and services in a country. |
| Purchasing Power Parity (PPP) | This converts GNI into a figure that describes what that money will buy in local prices. |
| A continuum of Economic Development | The idea that every country's development fits somewhere along a line, between very poor countries such as Malawi and very rich countries such as the UK. |
| Multiplier effect | An upward spiral of the economy and its benefits on employment. |

| COMMAND WORD | DEFINTON | EXAMPLE |
|----------------------------|---|--|
| Describe | Identify distinctive features and give descriptive, factual detail. Unless the question says 'describe and explain', never explain (e.g. writing 'because') as there will be no credit given. Questions asking for a description may ask to set out the main patterns, trends, characteristics, distributions, effects, relationships | Describe the distribution of high income countries. |
| Define | Give the precise meaning of a term. | Define NIC. |
| Discuss | Describe and explain relevant points and build up a balanced argument with supporting detail. | Discuss the statement that there is a |
| Evaluate | Evaluate asks the candidate to give an overall assessment of value with a justification of conclusions or viewpoints. | Evaluate the different methods of measuring devel- |
| Explain | Give reasons or causes. Show an understanding of how or why something has occurred. | Explain how regional inequalities can be reduced. |
| Outline | Give a brief summary of the main characteristics. Where questions ask for an outline of the main reasons then a summary explanation is needed. | Outline the main reasons for the North/South divide. |
| Suggest reasons why | Put forward a plausible explanation from your wider geographical understanding and not just actual knowledge. | Suggest reasons for inequality in Indonesia |

A MAP OF GNI (GROSS NATIONAL INCOME)



CASE STUDY: Patterns of regional social/economic inequality in a named NIC.

Named NIC– Indonesia

Regional Patterns:

- Majority of poor live in rural areas. In 2014, 13.8% of rural population was classified as poor compared to 8.2% of urban population.
- In absolute terms over half of Indonesian poor live on island of Java. In relative terms the eastern provinces show higher numbers of poverty.

Causes of Inequality:

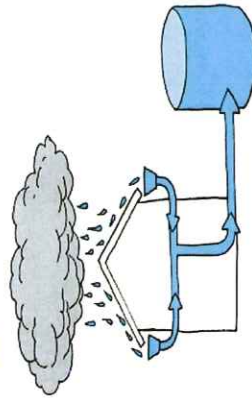
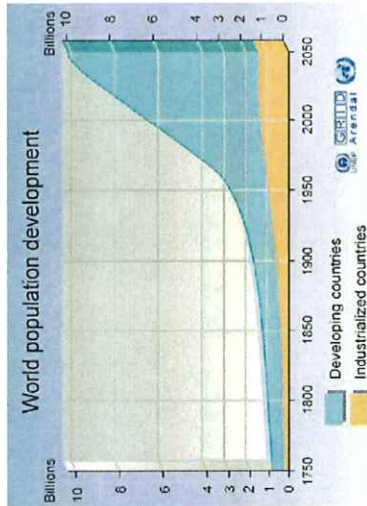
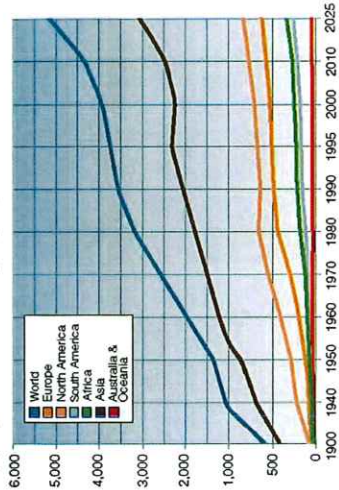
- Subsistence farmers have high rates of rural poverty.
- Inflation of rice prices causes increase in poverty.
- Children from poorer households do not have proper nutrition and cognitive skills develop slowly as do educational levels.
- Increasing wage gap between skilled and unskilled workers.

Consequences of Inequality:

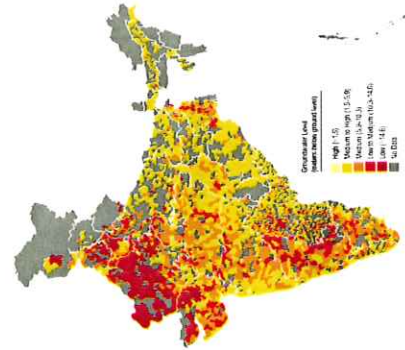
- It slows economic growth.
- It intensifies conflict and social tension.
- It encourages inequality to continue as children from lower income families do not have the same opportunities and cycle of inequality continues.

Global Water Consumption 1900 - 2025

(by region, in billions m³ per year)



54% of India's Ground-water Wells Are Decreasing



WATER RESOURCES

(COMPONENT 2: Development & Resource issues)

| COMMAND WORD | DEFINITION | EXAMPLE |
|-----------------|---|--|
| Describe | Identify distinctive features and give descriptive, factual detail. Unless the question says 'describe and explain', never explain. Questions asking for a description may ask to set out the main patterns, trends, characteristics, distributions, effects, relationships | Describe how rain water harvesting can be used in areas where access to river limited. |
| Define | Give the precise meaning of a term. | Define the term 'water footprint'. |
| Evaluate | Evaluate asks the candidate to give an overall assessment of value with a justification of conclusions or viewpoints. | Use a case study to evaluate a large-scale water transfer project. |
| Explain | Give reasons or causes. Show an understanding of how or why something has occurred. | Explain how over-abstraction of groundwater can impact communities |
| Justify | Explain why your choice is better than the possible options. | Justify the use of rainwater harvesting as an alternative to large-scale dam projects. |
| Outline | Give a brief summary of the main characteristics. Where questions ask for an outline of the main reasons then a summary explanation is needed. | Outline the impacts of over abstraction of groundwater in a Country that you have studied. |

→ **CASE STUDY: The Lesotho Highlands Water Project (LHWP)**

- The largest water-transfer scheme in Africa!
- Diverts 40% of the water in the Senqu river basin in Lesotho to the Vaal river system in the Orange Free State of South Africa via 200km of tunnel systems. The river Vaal then carries the water into Gauteng Province.
- There are a variety of social, environmental & economic impacts
- ⇒ **CASE STUDY: Rainwater harvesting in South Africa**
- South Africa has nearly half of all the dams in Africa, however there are still lots of people without access to clean drinking water
- Many of these people live in rural areas and are too isolated to benefit from the LHWP and too poor to drill boreholes to access groundwater. Therefore, these people rely on cheaper, small-scale methods of rain water harvesting.
- There are a variety of social, environmental & economic impacts

⇒ **CASE STUDY: Over-abstraction of groundwater in India**

- Supplies of groundwater are rapidly vanishing. As aquifers decline and wells begin to go dry, people in India are being forced to confront a growing crisis. 73% of groundwater in Punjab is used for agriculture.
- As more multinational companies locate in less developed countries there will be more demand on water. For example in India Coca-Cola uses over a million litres of water a day to produce drinks, further depleting the groundwater!

| KEY TERM | DEFINITION |
|------------------------------|--|
| Water footprint | The amount of fresh water utilized in the production or supply of the goods and services used by a particular person or group. |
| Water security | Making sure that sufficient fresh water supplies are always available. |
| Rain water harvesting | Collecting, storing and using rainwater for landscape irrigation and other uses. |
| Reservoir | A large natural or artificial lake used as a source of water supply. |
| Dam | A barrier constructed to hold back water and raise its level, forming a reservoir used to generate electricity or as a water supply. |
| Ground water | Water held underground in the soil or in pores and crevices in rock. |



TOPIC 13: CLIMATE CHANGE

(COMPONENT 2: Weather, Climate and Ecosystems)

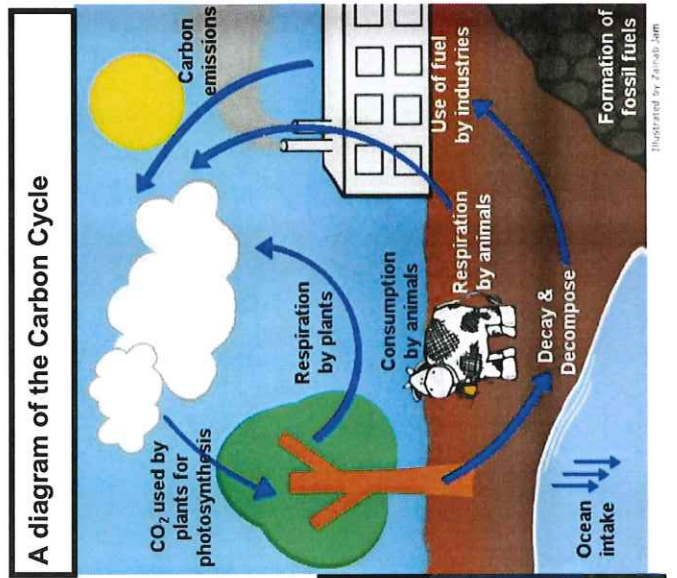
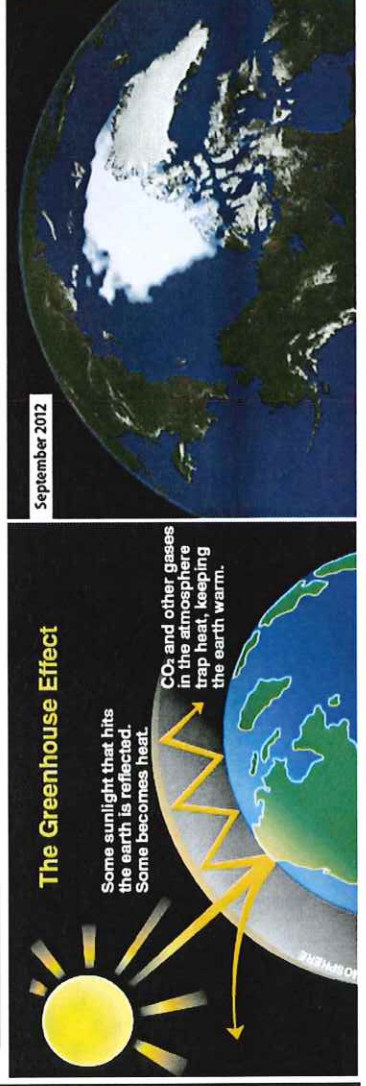
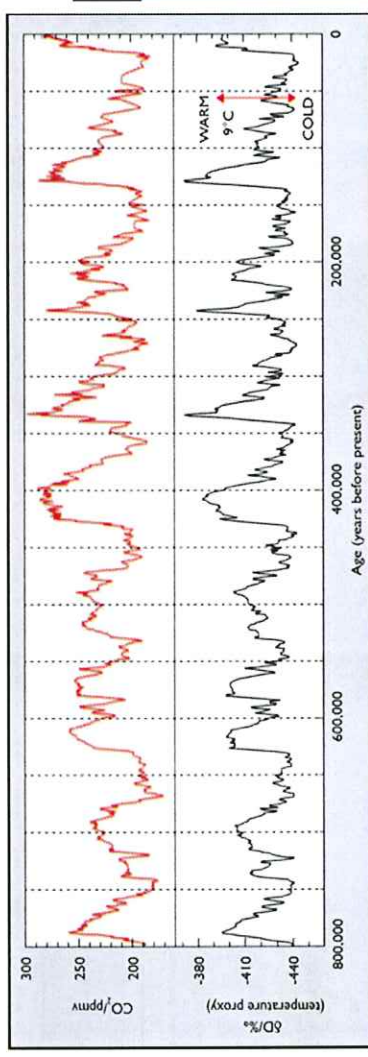
- ### Causes of Climate Change:
- Orbital Change:** The Earth's orbit is an ellipse which changes every 100,000 years. As the orbit is further from the sun it is cooler.
 - Volcanic Eruptions:** Volcanic aerosols reflect the sunlight away and reduce the Sun's heat energy entering the Earth's atmosphere. Following Mt. Pinatubo's eruption, global temperatures dropped by approximately 0.5 C.
 - Solar Output:** When sunspot activity is at a minimum the solar output is reduced. This can lead to lower temperatures on Earth.
 - Fossil fuels** account for over 50% of the majority of global greenhouse gas emissions, burning them releases CO2 into the atmosphere.
 - Agriculture:** contributes to approximately 20% of greenhouse gas emissions. It also produces large volumes of methane.
 - Deforestation:** Deforestation leaves fewer trees to absorb CO2. This means that the enhanced greenhouse gases contribute to rapid climate change.

- ### Evidence that Climate Change is real:
- Rising Sea Levels:** Global sea level has risen between 10-20cm in the past 100 years.
 - Rising Temperature:** It has increased by 1 C over the last 10 years.
 - Glacial Retreat:** Arctic sea ice has thinned by 65% since 1975.
 - Ice cores:** CO2 in ice cores is now 40% higher than it was before the industrial revolution.
 - Tree Rings:** There has been an increase in the tree ring widths which suggests warmer weather over-

- ### Evidence that Global Warming is natural:
- Global temperatures fluctuate, temperatures decreased between 1940-1975.
 - The oceans are the biggest source of CO2 not human activity. When the climate warms, oceans release CO2.
 - Solar activity influences global warming more than anything else, solar activity is now very high.
 - Current global warming is nothing unusual, temperatures were more extreme in the Medieval Warm

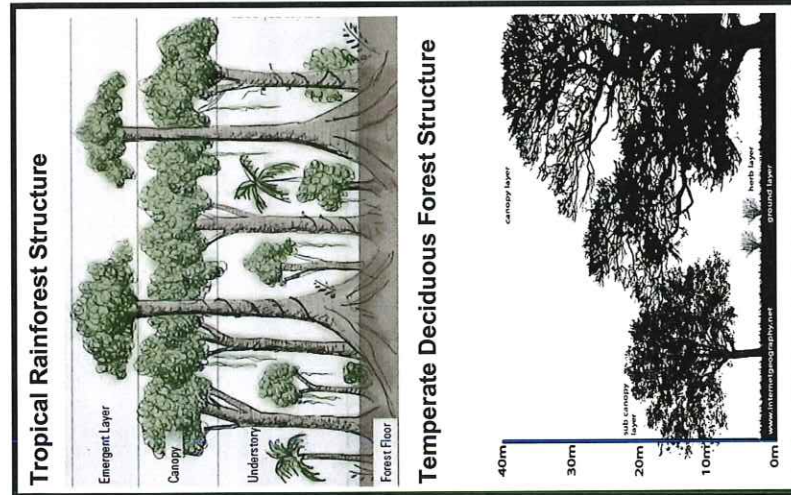
| COMMAND WORD | DEFINITION | EXAMPLE |
|--|---|---|
| Describe | Identify distinctive features and give descriptive, factual detail. Unless the question says 'describe and explain', never explain (e.g. writing 'because') as there will be no credit given. Questions asking for a description may ask to set out the main patterns, trends, characteristics, distributions, effects, relationships | Describe the carbon cycle. |
| Define | Give the precise meaning of a term. | Define the Greenhouse effect. |
| Discuss | Describe and explain relevant points and build up a balanced argument with supporting detail. | Discuss the evidence that climate change is natural. |
| Explain | Give reasons or causes. Show an understanding of how or why something has occurred. | Explain the Greenhouse effect. |
| Outline | Give a brief summary of the main characteristics. Where questions ask for an outline of the main reasons then a summary explanation is needed. | Outline the causes of climate change. |
| Use the information in Figure X to describe | Your answer must be based on the resources provided and have a direct reference to the resource. | Use the information from the graphs below to compare the trend between CO2 and temperature. |

| KEYTERM | DEFINITION |
|--------------------------|--|
| Carbon sinks | Places where carbon is stored over very long periods of time, for example, in fossil fuels. |
| Glacials | Cold periods in Earth's history when glaciers have advanced and ice sheets increased in size. |
| Global cooling | The cooling of the climate at a global scale. This process can occur if the sun's radiation is blocked too much dust (aerosols) in the atmosphere. |
| Greenhouse effect | A process which traps longwave radiation in the atmosphere. This process is natural but has been enhanced (made stronger) by extra greenhouse gases. |
| Inter-glacials | Warmer periods in Earth's history when glaciers have retreated and ice sheets have decreased in size. |
| Quaternary | The most recent period of geological time in Earth's history. |



ECOSYSTEMS

(COMPONENT 2: ENVIRONMENT & DEVELOPMENT ISSUES)



Brighton & Hove Woodland Strategy

- 504 hectares of publicly owned fragmented urban woodland. Managed by B&H Council.
- Managed with conservation as priority. Most woodland protected as part of Local Nature Reserves.
- Coppicing used as a strategy for tree management and habitat restoration.
- Local community groups assist with management.
- Woodlands remain open to the public.
- Natural regeneration supported where appropriate.
- Deadwood left on site, if no fire or H&S risk,
- Selection of species for planting to reflect local character
- Planning permission usually denied—but extreme pressure for new homes to be built.
- Hedgerows and tree belts to connect woodlands , creating wildlife corridors.

| COMMAND WORD | DEFINITION | EXAMPLE |
|-------------------------------------|--|---|
| Contrast | Give a point by point identification of differences only. | Contrast two biomes that you have studied. |
| Define | Give the precise meaning of a term. | What is sustainable management? |
| Describe | Identify distinctive features and give descriptive, factual detail. Unless the question says 'describe and explain', never explain (e.g. writing 'because') as there will be no credit given. Questions asking for a description may ask to set out the main patterns, trends, characteristics, distributions, effects, relationships. | Describe the distribution of Temperate Deciduous Forest. |
| Discuss | Describe and explain relevant points and build up a balanced argument with supporting detail. | Discuss the local and regional impacts of deforestation in the tropical rainforest. |
| Evaluate | Evaluate asks the candidate to give an overall assessment of value with a justification of conclusions or viewpoints. | Evaluate a sustainable management strategy used in a named ecosystem that you have studied. |
| Explain | Give reasons or causes. Show an understanding of how or why something has occurred. | Explain how climate has influenced a biome that you have studied. |
| Identify | Point out and name from a number of possibilities. The command will be used in conjunction with 'describe' or 'explain'. | Identify a primary consumer in a named ecosystem. |
| Outline | Give a brief summary of the main characteristics. Where questions ask for an outline of the main reasons then a summary explanation is needed. | Outline the need for sustainable management in a named ecosystem. |
| With the aid of an annotated | Annotation requires labelling plus some explanation or extended comment on or near the diagram. | With the aid of an annotated diagram, explain the structure of a named ecosystem that you have studied. |

Rampion Off-Shore Windfarm

- Located 13-25km of the Sussex Coast on the South of England,
- 116 turbines providing clean, renewable energy for 290,000 homes for an expected period of 25 years.
- Off-shore turbines can be larger and provide more power because no noise complaints. Less intrusive than land based turbines.
- Causes disturbance to local marine environment during construction. Seals & porpoises move away, but do return.
- Sealife and fish flourish around artificial reef created by turbine foundations.
- 14km of underground cable need to take electricity to substation in West Sussex. Very visible scar left on chalk grassland landscape of South Downs Nation

Threats to the Amazon Rainforest

- Resettlement: People moving into forest destroy the land
- Mining. Great areas are dug up by companies to get to minerals. The main ones are iron ore, manganese, copper, bauxite. Space is also needed for houses and railway tracks. Water is polluted downstream by gold mining because of the chemicals used. This effects the wildlife like fish and the polluted water is then not drinkable.
- Belo Monte Dam. Problems include huge flooding of areas behind the dam. Trees die in the flooded areas and make the water poisonous. Animals also get trapped by the water and have to be rescued. Fish migration is disrupted.
- Cattle ranching – keeping cattle on land destroys huge areas of forest.

| KEYTERM | DEFINTON |
|-----------------------------------|---|
| Biodiversity | The variety of living things. |
| Biome | A global land area that is characterised by the plants, animals and climate in that area |
| Ecosystem | A community of plants and animals and the environment in which they live. |
| Mono-culture | A type of agriculture (farming) in which only one crop is grown over very large areas of land. |
| Nutrient Cycle | The movement of minerals, through an ecosystem, from one store to another. |
| Tropical Rainforest | Large forest ecosystems (or biomes) that exist in the hot, wet climate found on either side of the equator. |
| Wildlife Corridor | Where habitats (such as forests) are joined by strips of habitat (such as hedgerows). These corridors allow the movement of wildlife. |
| Temperate Deciduous Forest | A biome that is always changing. It has four distinct seasons: winter, spring, summer and autumn. Trees lose their leaves in winter. |

Rimba Raya Biodiversity Project

- To restore 65,000 hectares of degraded rainforest in Kalimantan, Indonesia. Will provide buffer zone between palm oil plantations and Tanjung Puting NP.
- Don't demonise the Palm Oil Plantations.
- Area includes 14 villages & 2000 households.
- Had official recognition as an Ecosystem Restoration Concession (ERC)- provides some legal protection.
- Financed through REDD+ carbon credits.
- Fire-fighting on margins to prevent incursions by plantation owners.
- Local school children help with tree planting.
- Local adults trained to run forest enterprise: small scale agro-forestry, bee keeping and collecting rubber.
- Afforestation: so far over 300,000 trees planted.
- To date, 5 orphaned orangutans cared for then released into the project area.