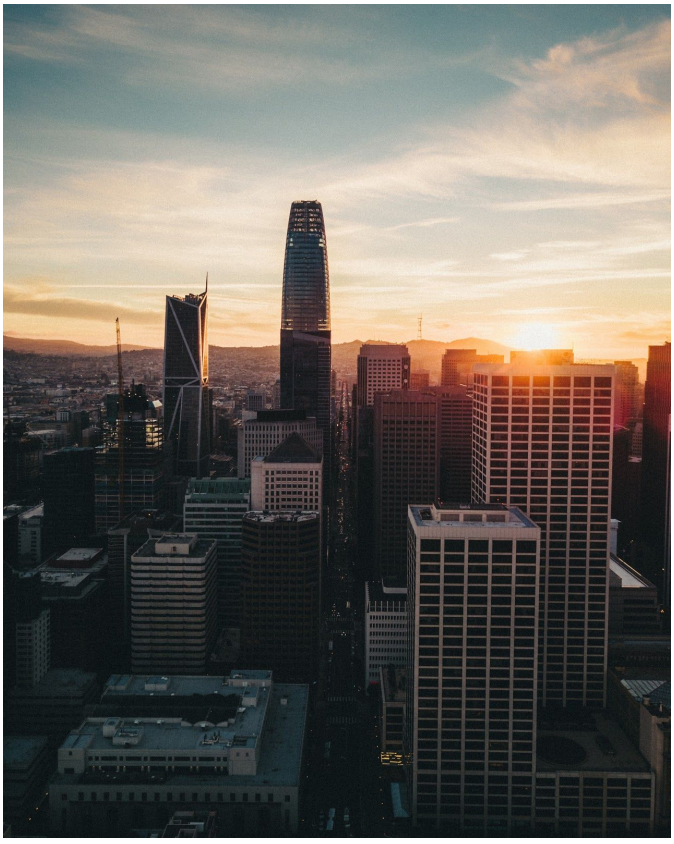
DCHS GEOGRAPHY

National 5 Course Notes



NATIONAL 5 GEOGRAPHY

NATIONAL GEOGRAPHY REVISION

Physical Environments Unit

Weather (UK)

- The effect of latitude, relief, aspect and distance from sea on local weather conditions
- The characteristics of the 5 main air masses affecting the UK
- The characteristics of weather associated with depressions and anticyclones

Landscape types (glaciated and coastal)

- The formation of landscape features

a) Glaciated upland: corrie, pyramidal peak, arête, U-shaped valley

b) Coastal landscapes: cliffs, caves and arches, stacks, headlands and bays, spits

- Land uses appropriate to the landscapes (farming, forestry, industry, recreation and tourism, water storage and supply)
- For one landscape, describe and explain

a) The conflicts which can arise between land uses within this landscape

b) The solutions adopted to deal with the identified land use conflicts

Human Environments Unit (Developed and Developing Countries)

Population and Development

- Social and economic indicators
- Physical and human factors influencing global population distribution
- Factors affecting birth and death rates

Urban Areas

- Characteristics of land use zones in cities in the developed world
- Recent developments in the CBD, inner city, rural/urban fringe in developed world cities
- Recent developments which deal with issues in shanty towns in developing world cities

Rural Areas

- Changes in the rural landscape in developed countries, related to modern developments in farming (e.g. diversification, new technology, organic farming, GM, government policy)
- Changes in the rural landscape in developing countries related to modern developments in farming (e.g. GM, new technology, biofuels)

Climate Change

- Features of climate change
- Cause: physical and human
- Effects: local and global
- Management: strategies to minimise the impacts

Health

Describe the distribution of a range of world diseases

Explain the causes, effects and strategies adopted to manage:

- AIDs in developed and developing countries
- One disease prevalent in a developed country (e.g. heart disease/cancer)
- One disease prevalent in a developing country (e.g. malaria)

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PHYSICAL ENVIRONMENTS UNIT

WEATHER (UK)

The effect of latitude, relief, aspect and distance from sea on local weather conditions

Latitude	• The further from the **Equator,** the colder the temperature. This is because it receives less intense heating from the sun as the sun's rays are less concentrated. • Places closer to the North Pole are colder because of reflection by snow and ice.
Altitude	• Places higher up (mountainous regions) are colder because temperatures decrease as altitude increases (by °C for every 100m in height). Places located on flat-low lying land are warmer (e.g. Central Scotland)
Aspect	• Places which are south facing are warmer because they get more sun
Ocean circulation	• Western coastal areas are warmer because of a warm ocean current (the North Atlantic Drift) • (Coastal locations tend to be cooler in summer and warmer in winter than places inland at the same latitude)
Prevailing winds	• Prevailing SW winds are warmed as they pass across the warm ocean current also means western coastal areas are warmer
Oceans temperature	• In summer, places closer to the sea are cooler and in winter they are warmer because the sea heats up slowly in summer and cools slowly in winter.

Mountains force the wind up and the air cools. This condenses, form clouds and can rain on the west side of the mountain. As the wind passes over the mountain to the east and descends it warms and moisture evaporates. This leaves the east side with less clouds and drier. This is a rain shadow.

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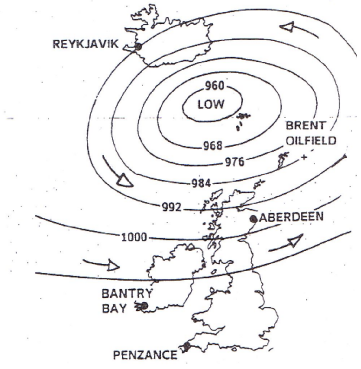
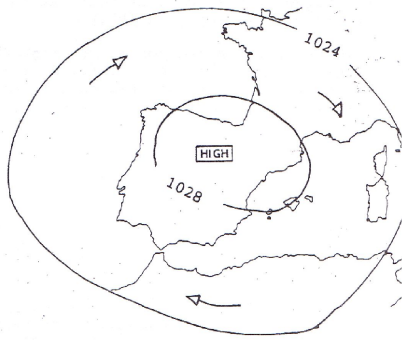
The characteristics of the 5 main air masses affecting the UK

Tropical continental	• Hot, dry weather in summer which could result in droughts • There might need to be hosepipe bans • Grass might wither and die causing problems for livestock farmers • Ice cream sales might rise • People make the most of the sunny weather and head for the beach • It could be very hot and difficult to do physical work outside • Heavy rain from thunderstorms might cause flash floods

The characteristics of weather associated with depressions and anticyclones

Depression (Low pressure)	Anticyclone (High pressure)
	
• Winds circulate in an anticlockwise direction • Strong winds: isobars close together • Cloudy at fronts • Heavy rain at a warm front/cold front • Warmer (and drier) in the warm sector • Warmer as the warm front approaches and passes • Ca be warmer as the clouds trap the heat	• Winds circulate in a clockwise direction • Light winds: isobars are far apart • Dry weather as there are no fronts to bring rain/snow • clear skies/little cloud since air sinks (no fronts) • Hot in summer • Cold (e.g. below freezing) in winter (e.g. Dec/Jan) since there is a lack of cloud which allows heat to escape • Fog blocks out sunshine

Anticyclones:

Summer	Winter
• High temperature • Little/no precipitation • Very light winds • Very little/no cloud cover	• Low temperature • Very little/no precipitation • Very light winds • Very little/no cloud cover • It can be foggy in the morning

Anticyclones in summer:

Advantages	Disadvantages
• Warm and sunny weather improves people's mood • People can participate in more outdoor activities (e.g. BBQs) • Outdoor sports can take place (e.g. tennis matches) without being rained off • School sports days can safely go ahead due to dry conditions • Rising sales of summer goods (e.g. sunscreen, ice lollies) increase shops profits	• Hose-pipe bans enforced due to lack of water • Drought conditions reduce the yields of farmers' crops • People suffer from sunburn and dehydration • More people admitted to hospital with heatstroke • Putting a strain on resources • Forest fires break out • Thunderstorms are also a disadvantage of anticyclones

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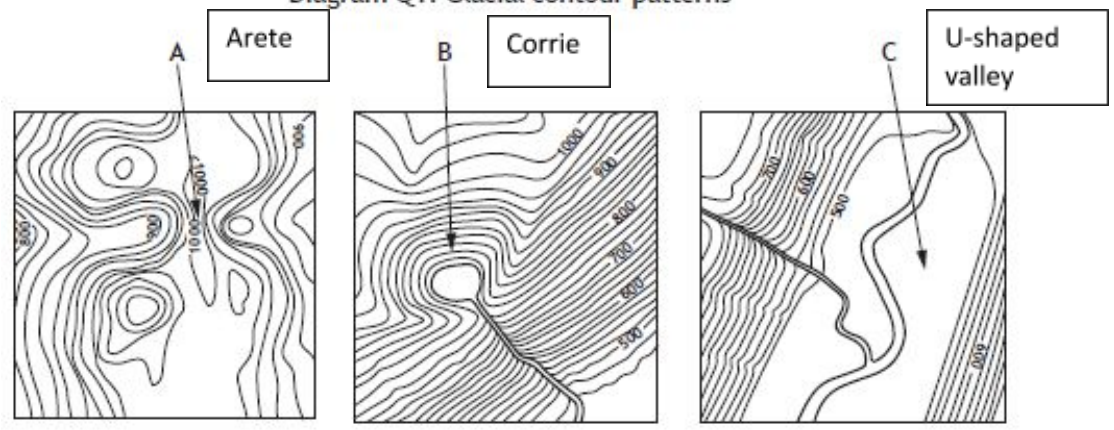
LANDSCAPE TYPES (GLACIATED AND COASTAL)

The formation of landscape features

Diagram Q1: Glacial contour patterns



a) Glaciated upland: corrie, pyramidal peak, arête, U-shaped valley

Corrie	• An arm chair shaped hollow which may contain a tarn. Three steep sides and one open face. • Snow collects in the north facing hollow of a mountain and the bottom layer turns to ice (compacts) • The ice begins to move and the hollow is eroded (and deepened) • Rocks frozen onto the bottom of the ice scrape away at the base of the hollow (abrasion) • Ice plucking is when the glacier freezes on to loosened rock and pulls it free as the glacier moves • Frost shattering may cause material to be incorporated into the ice • It steepens the backwall of the hollow • The ice melts leaving a tarn/corrie loch
Pyramidal Peak	• The highest point in an area, formed when three or more corries form back to back
Arete	• A knife-edged ridge with steep sides • Snow collects in hollow and is compressed into ice • The ice eroded the mountain on all sides creating corries • The backwalls of the corries were eroded back towards each other by plucking and abrasion • A knife-edged ridge was formed between them • Arête is formed where two corries are formed back to back
U-shaped valley	• Snow compresses to ice and forms a glacier • A steep sided valley with a wide and flat bottom • V-shaped valley before glaciation • A glacier moves down a main valley which it erodes • By plucking: ice freezes on to fragments of rock and pulls them away as the glacier moves downhill; this steepens the sides of the valley

	• And abrasion: rock fragments embedded in the ice scrape the land surface (valley floor) as the glacier moves • The sides of the valley and ice may be affected by frost shattering • As a result the valley becomes deeper, straighter and wider (truncated spurs which are interlocking spurs cut-off) • It can have a mis-fit stream at the bottom

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b) Coastal landscapes: cliffs, caves and arches, stacks, headlands and bays, spits

Cliffs and Wave-cut Platforms	• A wave strikes the coast • Land is eroded and undercut • By hydraulic action • And corrosion/abrasion/corrosion • Physical and chemical weathering affect the cliff face • Rock above becomes unstable and collapses • Forming a cliff • Over time the cliff receded • Leaving a wave-cut platform at sea level
Caves and arches	• Hard and soft rock are eroded at different rates • The soft rock erodes quicker and forms bays • The hard rock is left sticking out and forms headlands • The sea wears away the headland through corrosion, hydraulic action, solution and attrition. • The cave is enlarged over time and the back wall is knocked through, this forms an arch
Stacks	• Hard and soft rock are eroded at different rates • The soft rock erodes quicker and forms bays • The hard rock is left sticking out and forms headlands • The sea wears away the headland through corrosion, hydraulic action, solution and attrition. • The cave is enlarged over time and the back wall is knocked through, this forms an arch • The processes continue to wear away the arch until the roof collapses and it forms a stack
Headland and bays	• Most likely to be found in areas where there are bands of alternating soft and hard rock • Which meet the coast at right angles • The softer rock (e.g. clay) • Will erode more quickly forming bays (e.g. hydraulic action, corrosion, corrasion) • Which may have sandy beaches • Whilst the harder rock (e.g. chalk) • Will erode more slowly forming headlands • Which jut out into the sea • Erosion processes (hydraulic action, abrasion) • Beaches are found in the bays – sand or shingle (deposition)
Spits	• A long narrow ridge of sand joined at one end to the mainland • Longshore drift transports material along the beach

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Land uses appropriate to the landscapes (farming, forestry, industry, recreation and tourism, water storage and supply)

Land uses in Glaciated Landscapes:

Farming	• Hill sheep farming is common in glaciated upland area (e.g. Cairngorms) because sheep are hardy and can survive the cold, harsh conditions. • The low temperatures and lack of sunshine mean the climate is unsuitable for growing crops. • Crops are also unable to grow as high rainfall leaches nutrients from the soil • The slopes are too steep to use farm machinery • Flatter areas on valley floors are often marshy which makes it unsuitable for arable farming • Some pastoral faming (e.g. cattle) is possible on valley floors as the grass is better quality
Forestry	• Commercial forestry can take place on the lower slopes of u-shaped valleys where weather conditions are less harsh and soil quality is better • This is possible as trees are hardy and can grow on quite steep land and relatively thin soils • Trees make use of steep land that is unsuitable for farming or building on • Trees help to prevent soil erosion on slopes and flooding in valleys as their roots bind together and absorb water
Recreation and Tourism	• Tourists are attracted to glaciated upland areas for the natural scenery which includes ancient forests, vast mountains with glacial features, rivers and lochs • Ribbon lochs provide opportunities for water sports (e.g. water skiing and canoeing) • Mountains provide great opportunities for hill walking and rock climbing • Snow-filled corries enable winter sports (e.g. skiing, snowboarding) • Bird watching is also popular in forests • Small settlements (e.g. Aviemore) provide tourist services (e.g. hotels, eateries, information centres/car parks, equipment hire shops)
Water storage and supply	• The high rainfall in upland areas supplies lochs with water that can be used to provide drinking water to settlements • The hard impermeable rocks provide excellent geological conditions for water storage in reservoirs • Steep sided u-shaped valleys provide a natural basin for water storage
Renewable energy	• Hydro-electric power (HEP) is generated by damming hanging valleys to create electricity using the force of waterfalls • Wind turbines can also be located on mountains to take advantage of the windy conditions to generate energy

For one landscape, describe and explain

a) **The conflicts which can arise between land uses within this landscape**

Glaciation: Case Study Cairngorms

Tourists v Locals • Roads become congested, especially when skiing conditions are good in winter (e.g. Aviemore, Glenshee ski resort) • Narrow roads in small urban areas are not built to withstand the volume of cars and parking is a problem • More traffic increases noise and air pollution • Visual pollution is caused by the cable cars, ski tows and the funicular railway Second 'holiday' home ownership (e.g. Ballater) causes local first time buyers problems and they may have to move away as houses are unaffordable. Services may close as second home owners are not permanent residents so less money is spent in the area
Recreation (e.g. walkers) v Locals • Walkers (e.g. Glenmore Forest Park) can cause footpath erosion and leave litter which causes visual pollution in popular walking areas • Fragile wildlife habitats are also destroyed by walkers and wildlife is disturbed in forests and moorland • In summer, wild camping and fires creates litter and increases the risk of accidents
Farming v Tourists (e.g. walkers) • Parked cars on narrow roads can restrict the movement of large tractors. • Groups of noisy tourists can disturb animals, especially during breeding season • Walkers can leave gates open and dogs can chase sheep if let off the lead • Stone walls can be damaged by people climbing over them • Farmers may restrict walkers' access at certain times (e.g. lambing season) • Farm vehicles can slow up tourist traffic on the roads

Coasts: Case Study Dorset

Tourists v Locals • The high number of tourists arriving by car means that traffic congestion is a huge problem. Small coastal roads become easily congested. • Many tourists increase congestion in 'honeypot' areas (e.g. Corfe Castle). The higher volume of traffic increases noise and air pollution • Car parks are Studland and Lulworth Cover have limited access so there is a concentration of cars in this area. Tourists don't always consider where they are parking and often restrict access for locals

- Second home ownership increases as more people buy second 'holiday' homes. This causes local first time buyers problems getting on the property ladder and they may have to move away as houses are unaffordable.

Tourist facilities spoil the natural beauty of the coast. Tourists often leave litter on the beaches (e.g. Chesil Beach)

Recreation (e.g. walkers) v Locals

- Fragile wildlife habitats are destroyed by walkers and wildlife is disturbed on beaches
- The visitors create unsightly footpaths as the fragile landscapes are being deeply eroded (e.g. Studland sand dunes).
- Visitors' dogs can foul the beaches and footpaths which makes it unpleasant for sunbathers and walkers.
- Sunbathers on the beaches are disturbed by the noise from the boats, jet skis and water skiers.

b) **The solutions adopted to deal with the identified land use conflicts**

Glaciation: Case Study Cairngorms

Tourists v Locals

- Rail and bus services have been improved.
- One way streets, bypasses and complete closures of popular areas at peak times (e.g. Aviemore Centre ring road)
- Car parks have been built to reduce the number of cars on narrow roads. Parking permits have been issued to locals.
- The government offers help to first time buyers through Affordable Home Ownership Schemes to enable them to buy a property in their local area

Recreation (walkers) v Locals

- Rangers can build and repaid stone paths to reduce footpath erosion. Subsoiling creates a hard wearing surface which requires less maintenance.
- Maps, signposts and designated paths help to keep walkers off fragile vegetation and direct them along specific routes (e.g. Ballater)
- More bins have been set up in car parks and in areas most frequently visited by tourists.

Forestry v Tourists

- Farmers display signs to encourage people to close gates behind them
- Visitor centre staff and TV campaigns help to educate the public about the Scottish Outdoor Access Code which contains advice about walking dogs within the National Park (e.g. Glen Tanar Estate website)
- Voluntary bodies (e.g. National Trust) protect areas by buying land and buildings and maintaining stone walls and footpaths
- Park rangers are employed to prevent problems by encouraging responsible tourism and liaise with different land users to minimise problems (e.g. Abernethy Forest)

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Coasts: Case Study Dorset

Tourists v Locals

- Around Studland 4 main car parks have been expanded and accommodate 820 cars. However, some visitors continue to park on and damage verges.
- Train lines, buses, cycle routes and boat trips offer alternative forms of transport (e.g. from Swanage to Corfe). This decreases the number of drivers on roads.
- Bins are put along the paths and beaches. Some tourists still leave litter. Local authorities fine people and voluntary litter picks.

The government offers help to first time buyers to enable them to buy a property in their local area (e.g. Affordable Homes Ownership Schemes).

Recreation (e.g. walkers) v Locals

- Use of leaflets and information boards. This is successful as more people are aware of the need to look after the countryside. Rangers give advice to the public and organisations (e.g. National Trust) have taken some of the responsibility.
- Marram grass has been replanted to help conserve vegetation (e.g. Studland SSSI). Nature reserves have been created (e.g. Townsend Nature Reserve).
- Some paths have been closed to prevent further erosion (and sand dunes have been fenced off). The fences successfully collect sand where trampling has occurred.
- Boardwalks are laid along main footpaths using paving, cobbles and stonework (e.g. National Trust, Dorset Wildlife Trust). They complement the buildings.
- Designated dog bins have been positioned on popular walking areas. Signs are placed on some beaches forbidding dogs from going there.
- Zoning of areas (e.g. Poole Harbour) ensures that different activities (e.g. fishing and jet skiing) are kept apart. Speed limits have caused less disruption to beach users. Quiet areas are encouraged (e.g. Poole Harbour). The zoning of areas ensures that different activities are kept apart.

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HUMAN ENVIRONMENTS UNIT

POPULATION AND DEVELOPMENT

Social and economic indicators

Indicator	Developed Country	Developing country
Social: **Life expectancy** *Very useful development indicator as shows that people in developed countries (e.g. Finland) live much longer than in developing countries (e.g. Chad)*	• Likely to be because the standard of living in Finland is much better • There will be much better hospitals, more doctors and more money to spend on medicine • A wealthy developed country can afford to pay for all of this •	• People will have very hard physically demanding lives which may lead to a shorter life expectancy • They may also live shorter lives on average because of poor nutrition, food shortages and famine
Economic: **Percentage of workforce employed in agriculture** *Can tell you a lot about a country because of a very high proportion of workforce in agriculture shows less developed country*	• (e.g. Mali) most workers are employed in farming because mostly subsistence farmers who have to grow own food • Few other places that can get food from or simply can't afford to buy it • Also few other industries for people to get jobs in as country is less developed • Lack of money to invest in setting up new businesses	• (e.g. Netherlands) have very efficient farming industries which require very few workers • Their economy is highly developed meaning most people are employed in many other jobs and industries which are available and which provide higher incomes than farming

Physical and human factors influencing global population distribution

Human Factors:

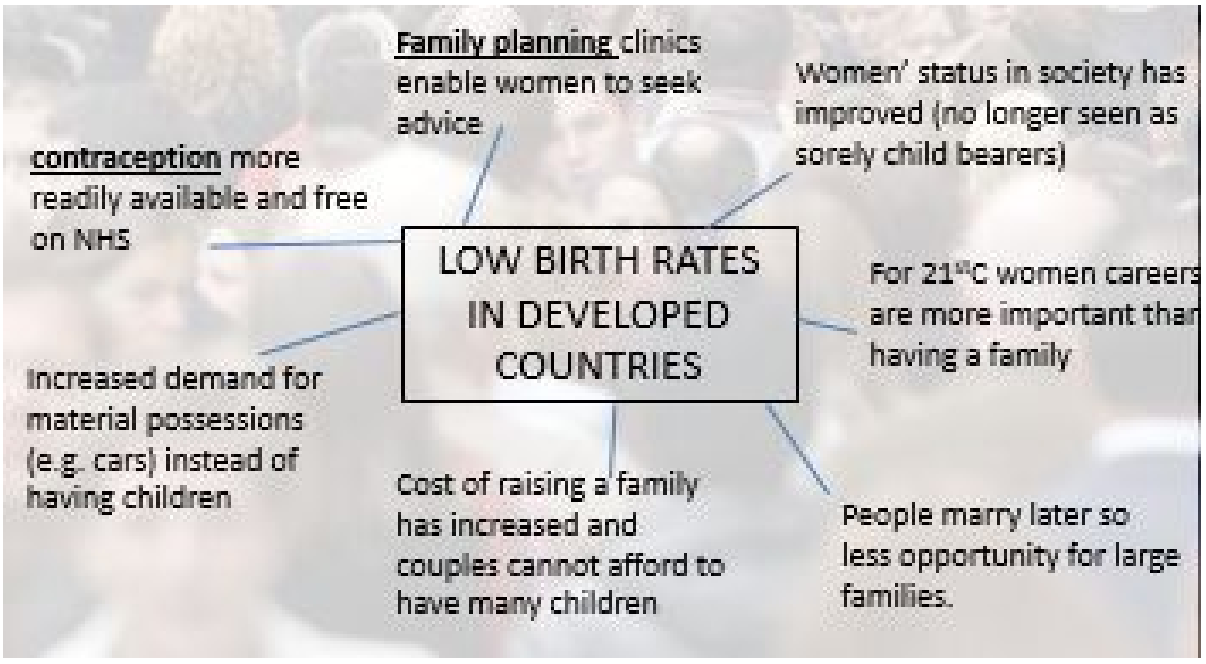
FACTOR	High	Low
JOB OPPORTUNITIES	• Industries in urban areas encourage people to move to find work • Cities (e.g. Rio de Janeiro) have a high population density as there are a variety of job opportunities	
TRANSPORT (COMMUNICATIONS)	• Areas which are accessible (e.g. Central Lowlands of Scotland) • Places with good transport links (e.g. roads, airport aract people and industries	Remote areas which are isolated and have poor transport links do not attract industries.

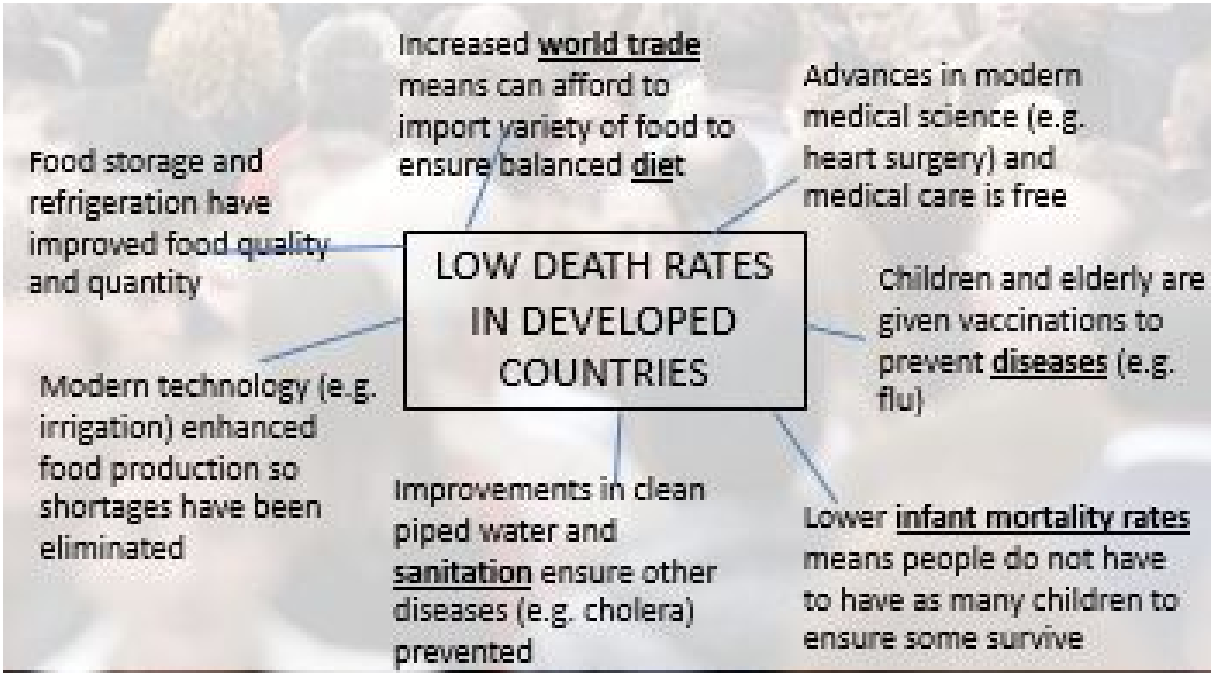
GOVERNMENT AID	Industries locate where government funding is available. People move into these areas for work.	• where they are poor quality (e.g. on steep slopes) few crops can be grown • Population density in areas (e.g. Syria) is falling as people are moving away because of prolonged war)
SERVICES	many urban areas are crowded as people move to them (e.g. Berlin, New York) for the variety of amenities (e.g education, entertainment)	

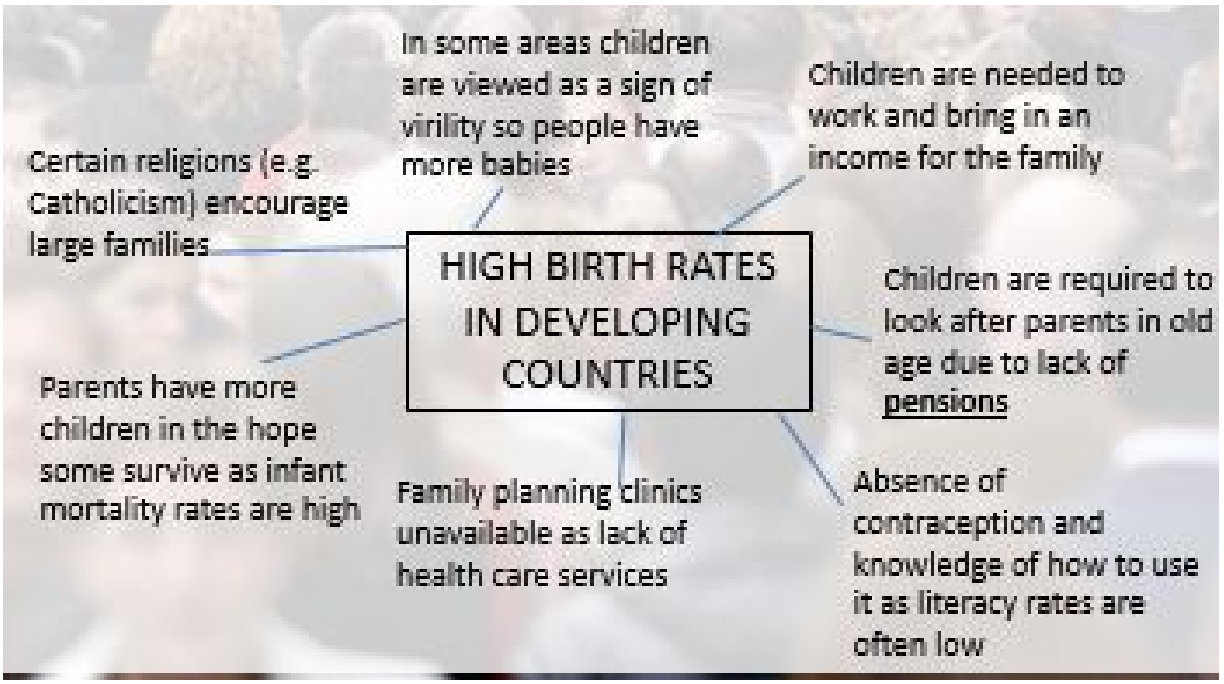
Physical Factors:

FACTOR	High Population Density	Low Population Density
CLIMATE	People prefer to live in temperate climates where there is enough rainfall to provide water.or to cold)	Few people tend to live in areas with extreme climates: • (e.g. Sahara Desert) with very high temperatures and low rainfall make farming difficult • (e.g. Arctic Canada) as permafrost makes building houses and roads difficult as the ground is frozen for much of the yearive id climate spread easily
RELIEF (HEIGHT AND STEEPNESS)	• People favour living on flat, low-lying areas as they are easier to build on and grow crops. • Coastal areas allow trade to take place as ports locate by the sea. Tourism means a variety of jobs are available.	Few people tend to live in mountainous areas because: • Steep slopes make it difficult for machinery to operate • It is difficult to build houses, factories and transport links. • Upland areas are too cold and wet which makes it difficops. • Mountainous areas are often isicult tohis deters industries from locating in these areas)
SOILS	People prefer to live in fertile areas so crops can be grown to supply food.	• Where they are poor quality (e.g. on steep slopes in Northern Scotland) few crops can be grown so less people live there • Few people live in hot desert areas because soil dries out and turns to dust, making it difficult to grow crops/keep animals
NATURAL RESOURCES	• People live in areas where minerals (e.g. gold) and raw materials (e.g. timber) to exploit and sell. • Natural landscapes with beautiful scenery (e.g. beaches) attract tourists. Tourism generates job opportunities (e.g. hotels, restaurants).	Few people tend to live in areas lacking natural resources because there will be little industry and this means less employment opportunities.

Factors affecting birth and death rates






HIGH BIRTH RATES IN DEVELOPING COUNTRIES
In some areas children are viewed as a sign of virility so people have more babies
Children are needed to work and bring in an income for the family
Certain religions (e.g. Catholicism) encourage large families
Children are required to look after parents in old age due to lack of pensions
Parents have more children in the hope some survive as infant mortality rates are high
Family planning clinics unavailable as lack of health care services
Absence of contraception and knowledge of how to use it as literacy rates are often low

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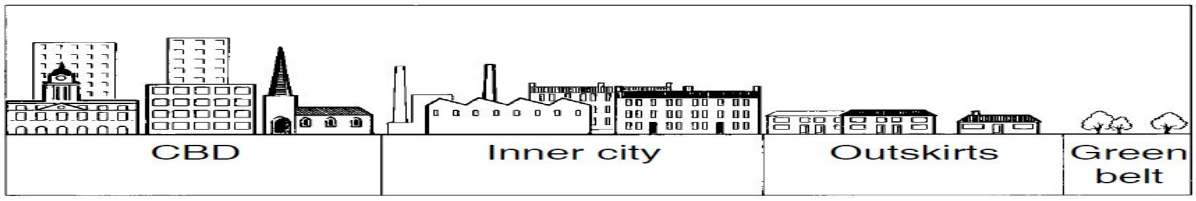
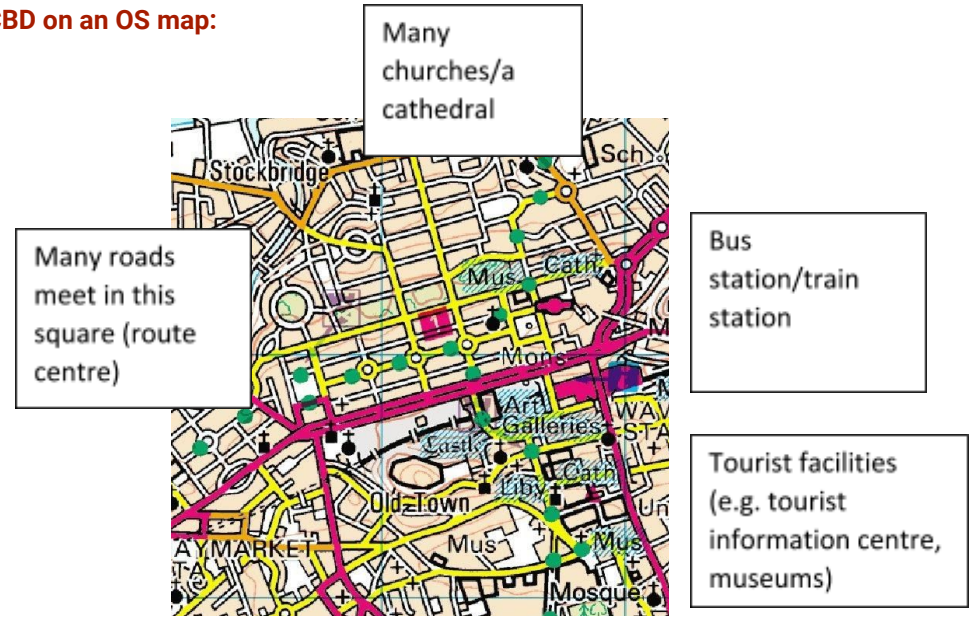
URBAN AREAS

Characteristics of land use zones in cities in the developed world



CBD

Evidence of a CBD on an OS map:



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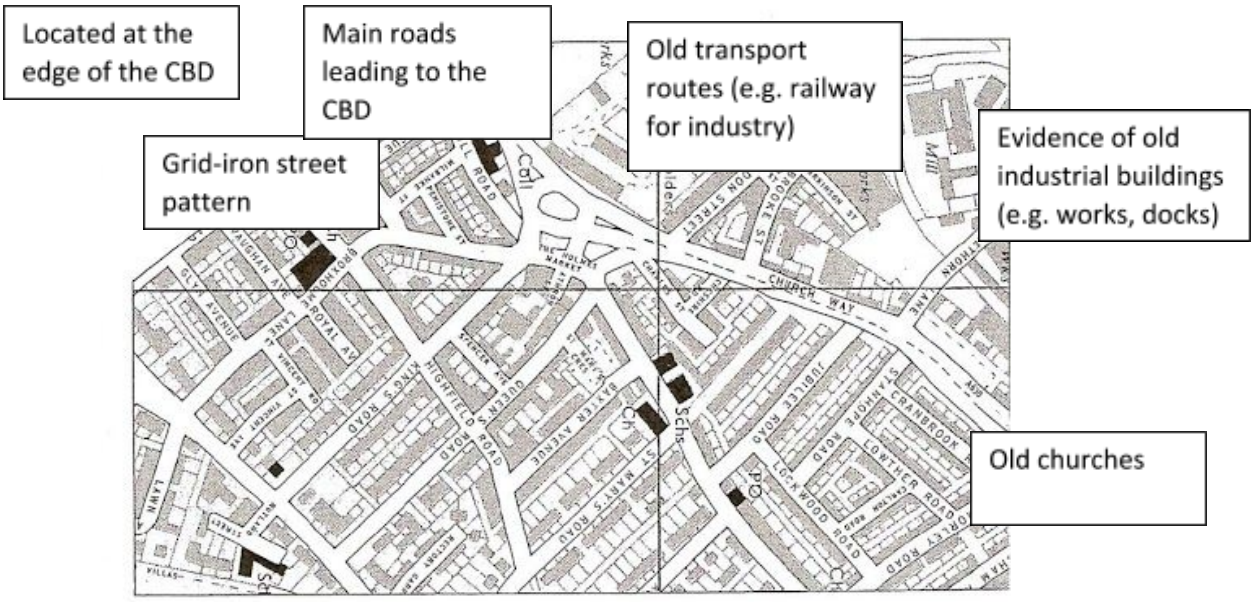
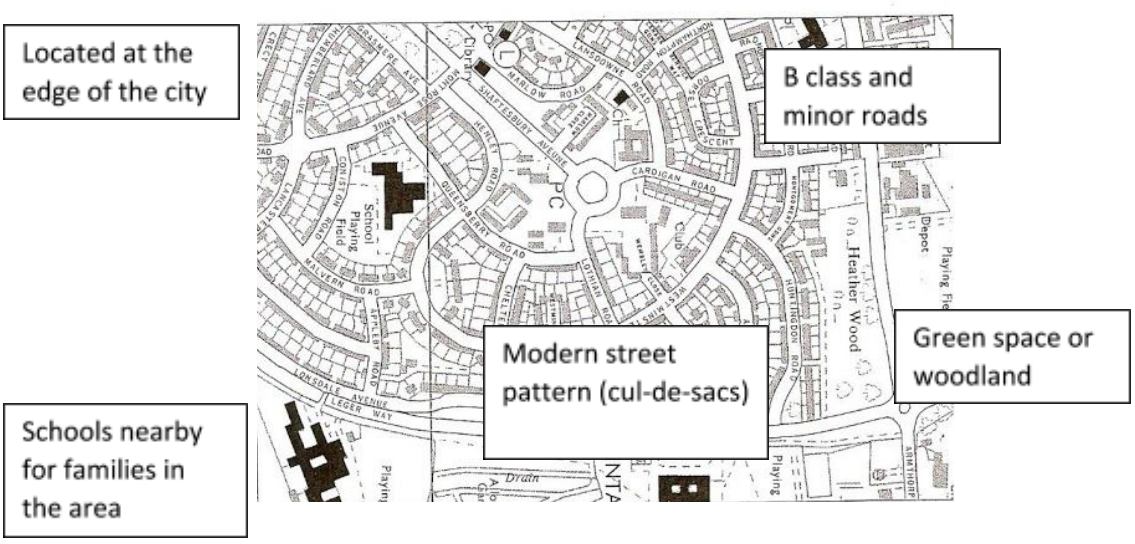
Inner City

Features of the Inner City:



Suburbs

Features of the Suburbs:



The advantages and disadvantages if this location for developments (e.g. housing estates, shopping centres):

Advantages	Disadvantages
• The land is flat so easy to build on • There is room for expansion • There are roads and motorways close by allowing the easy delivery of goods and access for customers or people can use to commute to their work • Possible link with railway stations which connect it to other areas • The land is cheaper on the outskirts. This allows houses to be bigger with gardens • The housing close by can supply a workforce • The city can supply a large amount of customers • Less noise and air pollution • Opportunities for outdoor recreation (e.g. woods, country parks) • Park and Ride scheme could give easy access to the city	• Could increase traffic congestion at peak periods • Area could suffer from noise pollution

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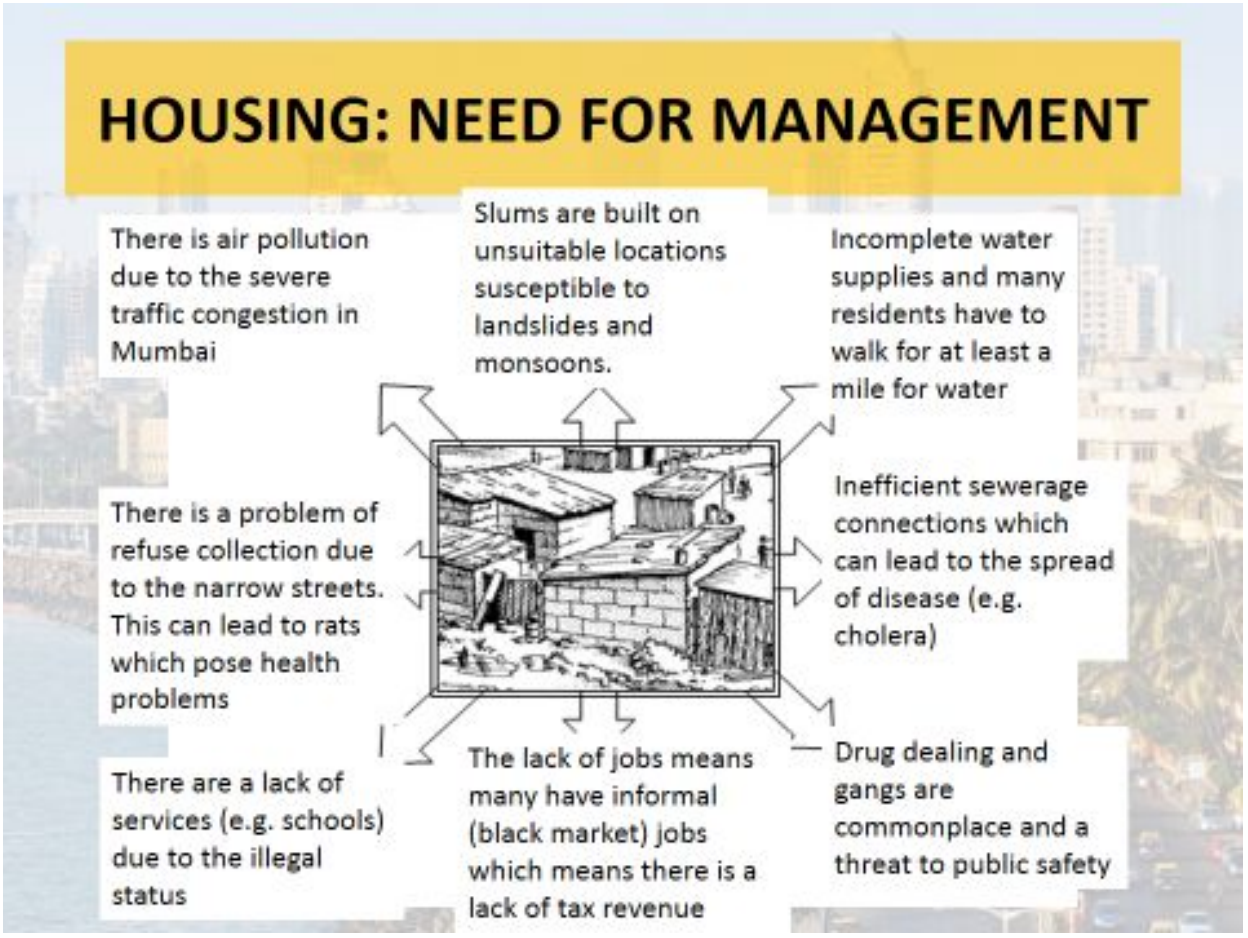
Recent developments in the CBD, inner city, rural/urban fringe in developed world cities

CBD	• **Pedestrianised areas**: streets too narrow for traffic/to improve safety and lower pollution • **Improvements in transport systems** (e.g. bus and cycle lanes): to encourage the use of public transport/for smoother traffic flow; congestion charging; new trams; multi-storey car parks; one-way systems • **Many shops have closed**: due to online shopping or economic problems • **Department stores have been replaced by franchises** (shop modernisation): found it too expensive to remain open as independent units • **Shopping centres have been created**: more attractive/pleasant shopping experience to compete with out of town shopping centres/to bring customers back to the city centre (quicker for people to do their shopping, safer for young children, plenty of space for parking, accessible) • **Old buildings have been renovated into high cost flats**: to attract people back into the city to live • **Increase in office space** (tenements converted into offices) to increase business • **Redevelopment of areas/streets:** to increase tourism
INNER CITY (Regeneration)	• Housing estates have been created on the edge of town: cheap land, space and cleaner environment • Multi-storey flats have replaced demolished tenements: the tenements were no longer suitable for living in (e.g. overcrowding, disease) • New towns: well-planned with local services and good transport links • Renovated old tenements: due to problems with multi-storey flats (e.g. structural problems) and many tenement buildings were old and in need of repair. (gentrification) • New amenities (e.g. toilets, central heating) • New shopping centres • Land improved to attract new industry • Tourist developments • New industry to replace the old industry which had closed down • Brownfield sites have been removed (eyesore) • Existing infrastructure/access to city centre (services) • Prevents urban sprawl/environmental damage on greenfield site
SUBURBS (Out of town housing developments)	• More housing being built in the suburbs • Out-of-town shopping centres have been created: more pleasant shopping experience; quicker for people to do their shopping; safer for young children; plenty space for parking; more accessible • Improvements in transport systems: By passes/park and ride • Planning restrictions in rural areas • Land is cheaper • Lots of space to build and expand • Pleasant environment • Less congestion and pollution than brownfield site

Recent developments which deal with issues in shanty towns in developing world cities



	Management
A	The Dharavi Redevelopment Project where the slums have been bulldozed and some of the residents have moved into high rise apartments. The area has been developed with services (e.g. schools).
B	Self-Help Schemes are where the government or charities provides residents with the tools and training to improve their homes.
C	In Site and Service the authorities improve the housing (e.g. upgrading sewerage to reduce diseases such as cholera). The land is connected by transport links and has access to services (e.g. water)
D	The city authority built the new town of Navi Mumbai. This was to reduce the number of people living in Mumbai and reduce the pressures on the city.

Rio De Janeiro

Issues of living in the favelas:

Housing- Rapid growth of the city has led to a housing shortage. Most of the rural migrants begin their life in Rio in shanty towns called 'favelas'. 19 per cent of the population live in around 600 of these shanty towns. They are found mainly on the edges of the city, on poor quality land that is not suitable for urban development. People here are squatters, with no legal rights to the land they occupy. They live in overcrowded conditions, often in home-made shelters constructed from scavenged materials like timber, tarpaulins and corrugated iron. The shanty towns have grown spontaneously with no planning, and so have no proper roads, pavements or local services like hospitals. The largest shanty town is called Rocinha, in the south of the city - overlooking the beaches and main tourist hotels.

Transport- With the country undergoing rapid development, car ownership has grown and the central business district is very congested with high levels of air pollution. Mountains hem in the city on the coastline, so traffic is confined to a limited number of routes. Buses and trams provide public transport for the residents, and the city has two subway lines. Roads in the favela areas are often just dirt tracks, and most people living here walk to their destinations.

Education- There are few schools in the favelas.

Health care- There is a shortage of hospitals and clinics in the favelas, and high levels of illness and disease prevail here.

Crime- High levels of crime, violence and drug abuse blight many of the favelas. Street crime is a problem in the tourist areas, although pacification has recently started to improve crime rates.

Economic challenges Poverty - there is a massive gap between rich and poor citizens in Rio. Many wealthy people live close to the central business district - right next to the favelas. Employment - there are few job opportunities in the favelas. Poor transport systems make it hard for residents in the favelas to travel to work. Many citizens of Rio work in the informal job sector as street sellers, shoe shiners, etc.

Environmental challenges Urban sprawl - this is an issue as the city continues to grow rapidly, encroaching on surrounding rural (countryside) areas. Pollution - from traffic congestion in the city centre, and from industrial zones. Litter is an issue on the beaches. Waste disposal - a particular problem in the favelas, where there is no organised sewage or waste recovery systems.

Strategies to improve favelas such as Rocinha and Complex De Alemao:

- Self-help schemes have also been supported. Here, local residents are provided with building materials like concrete blocks and cement in order to replace home-made shelters with permanent dwellings. These are often three or four storeys high, and with water, electricity and sewage systems installed.
- Legal rights such as granting the favela residents rights to own their own properties. Low rents have also been offered.
- Transport systems have been extended to include the favelas to give residents the opportunity to travel to work in the city centre and industrial areas.
- Law and order has been improved in the favelas by trying to rid these areas of crime and drug abuse. Several large favelas have been improved in this way through federal 'Pacification Programmes'.
- New towns like Barra da Tijuca, built 20 kilometres along the coastline, have been built to relocate some residents from city favelas.
- Cable car built from Complex De Alemao to the CBD to speed up journey time. This makes it easier for favela workers to get into the CBD, easing pressure on housing in the favelas directly adjacent to the CBD.
- Pacification in Rocinha, whereby police forces such as the UPP are tasked with forcing drug gangs and illegal activities out of the favela, one area at a time. This makes areas safer but can lead to a larger concentration of criminals in non-pacified favelas.

RURAL AREAS

Changes in the rural landscape in developed countries, related to modern developments in farming

CHANGE	EXPLANATION
Diversification	• Most farmers have seen a rapid decline in their income (and subsidies have been reduced). • Many have had to diversify and seek income from other sources (e.g. holiday accommodation, recreational facilities, farm shops). • Allows farmers to become more independent and less reliant on subsidies • Visiting a farm means people experience rural landscape and outdoor activities • Wind farm development on farming land also generates extra income
New technology/ Mechanisation	• (e.g. using GPS to manage field operations or animals feeding) saves time • Computerised water management/irrigation can increase crop production • Drones may be used to survey fields or crops which helps farmers to quickly identify problems • Increases efficiency enabling the farmer to (e.g. plough, spray) more quickly, and cover a larger area. • It speeds up harvesting and results in the product being delivered to markets fresher, and at a higher premium. • It allows for a smaller workforce and therefore lower wage bills. • Satellite technology/computers can control the application of fertilisers to particular areas of fields. This improves yields. • However, the cost of buying and maintaining this equipment and machinery is expensive • Less labour is required which has led to a decrease in population in rural areas • Overuse of chemicals may lead to environmental damage

Government Policy (EU Policy)	• Department for Food and Rural Affairs (DeFRA) or the Scottish Rural Development Programme (SRDP) supports farming industry by providing subsidies. • Government demands disease control in plants and animals to maintain high standards of produce • Government funds and supports research into agriculture which in turn improves farming practices • Set Aside: More efficient farming has led to a surplus of food being produced. Farmers are offered grants to stop growing crops. The land is then Set Aside and my then return to its natural state. • Farm Woodland Schemes**:** Farmers are paid to plant trees instead of growing crops. This enhances the landscape.
GM Crops	• Genetically modified crops can increase crop yields and improve resistance to disease • Many people disagree with GM crops arguing that it may have a negative impact on the natural environment. • More tolerant crop varieties could be grown in areas where they couldn't previously be grown • GM crops reduce the need for pesticides which helps insects and bees
Organic Farming	• This is a form of food production without chemicals. Much less damage is done to the environment as fewer toxic chemicals are released into the soil or find their way into rivers.

NATIONAL 5 GEOGRAPHY

Changes in the rural landscape in developing countries related to modern developments in farming (e.g. GM, new technology, biofuels)

CHANGE	EXPLANATION
GM: Widespread adoption of new higher yield varieties of rice ('Green Revolution')	• More crops can be grown and harvested each year which means a greater profit for the farmer. • They can reduce the cost to the farmer of applying pesticides and reduce the risk to health
The use of mini-tractors/small rice harvesters instead of draught animals (mechanisation)	• Increases crop yields and better profits for some farmers, which can be used to improve their standard of living • As it is more efficient, reduces labour costs and means less physical work for people. • However, it means less jobs for people and machines are expensive and need repairs (which developing countries cannot afford)
Small fragmented fields combined	• Land reform/farming is more profitable and efficient. Money can be used to improve overall standard of living and enables the farm to be profitable
Greater use of modern pesticides/fertilisers or improved irrigation systems	• as pesticides can reduce disease and produce better crops. This means an increased yield and some for sale (trade and export). • Fertilisers increase crop yields • This can mean increased profits for farmers (which can increase their standard of living). However, they can cause pollution.

CLIMATE CHANGE

PHYSICAL AND HUMAN CAUSES OF CLIMATE CHANGE

Physical Causes	Human Causes
• **Changes in the tilt of the Earth**: the greater the tilt of the Earth towards the sun, the closer some areas are and the greater amount of energy received. There is a change every 41,000 years. • **Changes in rotation of Earth around the sun:** Over a 97,000 year cycle, the Earth's orbit stretches and affects the amount of energy received. • **Sun spot activity**: 11 year cycle of rises and falls in solar energy. If there are lots of sun spots more solar energy is being sent out from the sun. • **Volcanic eruptions**: Release gas and sulphur dioxide. This combines with water to form droplets which absorb the sun's radiation. The Earth does not receive as much insolation (e.g. Krakatoa, 1883). • **Ocean circulation**: warming and cooling of tropical areas in Pacific Ocean can affect climate and lead to flooding. Retreating ice caps release water which leads to changes in the oceanic circulation and reduces the albedo effect.	• **Burning of fossil fuels**: Factories, cars etc have burned fossil fuels which release CO^2 into the atmosphere which increases the 'greenhouse effect' and temperature. • **Deforestation**: CO^2 is released when the cleared trees are burned. There is less absorption of CO^2 which leads to a build-up in the atmosphere. • **Methane**: Huge numbers of cows bred for human consumption. Rice grown in large quantities in paddy fields to feed growing populations - India (Methane is produces by microbes underwater as they help to decay flooded organic matter). Humans waste in landfills decaying underground releases methane. • **CFCs**: Increasing in the atmosphere due to aerosols, fridges and air conditioning. It is released if appliances are not disposed of correctly. • **War:** Bombs create large amounts of dust which can reduce insolation and the Earth's temperatures.

NATIONAL 5 GEOGRAPHY

EFFECTS OF CLIMATE CHANGE

Global Effects	• **Weather:** some places are drier, some wetter, some warmer and some cooler. More storms, floods and droughts. Plants and animals may find it difficult to survive. • **Sea Levels:** higher temperatures will result in melting of sea ice (e.g. Greenland) which will flow into sea and sea levels may rise. This could cause flooding of low lying coastal settlements (e.g. Bangladesh). People will lose their homes and have their livelihoods destroyed. • **Farming**: affects the kind of crops that can be grown (Some grow better e.g. wheat but others e.g. maize can't cope with higher temperatures). Changes in rain affects plant growth. Some countries (e.g. Brazil) may not be able to grow enough food for their citizens. • **Water**: Already lack enough water for people in some places (e.g. Sahel in Africa). The Great Plains of the USA are likely to experience drier conditions whilst Scotland is likely to experience more rain. • **Plants and Animals**: The melting of ice caps will have an effect on the habitat and hunting ground of polar bears who will be forced into more populated areas. Plants and animals at risk of extinction if not able to cope with changes in weather. • **People:** Overcrowding as people move inland to avoid the risk of coastal flooding (e.g. Egypt). Diseases (e.g. malaria) could spread into areas not affected as increase in temperature allows mosquitos to breed.

STRATEGIES TO MINIMISE THE IMPACTS OF CLIMATE CHANGE

Local/Individual Strategies	• **Switch to energy saving products:** (e.g. light bulbs) generate less heat and use less energy. Switch of the light when leaving a room. This reduces the amount of fossil fuels used putting less CO^2 into the atmosphere • **Recycling**: Saves energy and reduces pollution and emissions from manufacturing products and disposing of them (e.g. Falkirk Council) Composting food and garden waste reduces rubbish sent to landfills and reduces emissions (e.g. methane) (5p levy on carrier bags) • **Use water efficiently**: (e.g. when brushing teeth, dishwasher use) reduces energy needed to pump and treat water for our use. • **Green power:** (e.g. solar panels on the roof). It is a clean energy supply and reduces emissions. • **Transport**: people encouraged to use public transport, walk or cycle to reduce fossil fuel consumption and damaging emissions from cars. Bus and cycle lanes designated to encourage people not to use their car • **Education:** Educate people on benefits of being energy efficient (media awareness campaigns) • Encourage people to holiday at home to reduce the number of aircraft journeys taken (especially short-haul flights)
National (UK) Strategies	• The government encourage people to make their houses more energy efficient by giving grants (e.g. loft insulation) which reduce the amount of energy used • The UK government are trying to reduce the use of fossil fuels (e.g. coal, oil, natural gases) by introducing targets for renewable energy using green fuels (e.g. HEP, wind power, solar power). • Cities are introducing policies to reduce car use and therefore greenhouse gas emissions (e.g. new tram system Edinburgh) • Governments tax is significantly reduced on vehicles with low CO2 emissions

International/Global Strategies	• In Brazil laws have been passed to reduce the removal of forest through burning and illegal logging so reducing the amount of CO^2 released into the atmosphere (and increase afforestation). • Many world nations take part in Climate Change conferences (e.g. Paris Conference December 2015) where nations discuss global strategies and agreed targets to reduce the causes of global warming (reduce the use of carbon-based fuels) • Many government signed the Kyoto Protocol, committing them to reducing greenhouse gas emissions. • The Carbon Credits scheme is aimed at reducing greenhouse gas emissions by making the polluter pay according to how much pollution they generate. • Scientists observe and measure changes in temperature, CO^2 emissions and rising sea levels to monitor the rate of climate change and advise world leaders. • Governments bas the use of harmful substances (e.g. CFCs)

NATIONAL 5 GEOGRAPHY

HEALTH

AIDS

Causes:

- Transfer of fluids from an infected person during unprotected sex
- Sharing needles with a carrier can also pass on the disease
- Some babies are born with AIDS, having been infected in the womb
- They can become infected through breast milk
- In some countries there is a lack of education on how AIDs in spread
- Having many different sexual partners
- Infection from contaminated blood

Consequences of disease for population in affected area:

- If young people are infected with HIV/AIDS they might die leading to a shortage of labour in some areas and countries
- Lack of staff in schools means that children cannot be educated
- They cannot go on to get good jobs and find it difficult to support their families
- If farmers/farm workers are ill they will be too weak to work meaning there might be food shortages
- People will not have enough food to survive
- Industries will not have enough workers so the area/country cannot develop and might get into debt
- The relatives of people suffering from HIV/AIDS may not be accepted by other members of the community and may lose their jobs and struggle to survive
- Treating the sick in more remote areas can be difficult as some areas will not have access to qualified doctors, nurses and medicines.

Strategies used to control/manage the disease

- Education campaigns promoting the benefits of safe sex and the dangers of sharing hypodermic needles (e.g. TV and Radio)
- Encouraging the use of condoms (available for free)
- Drug rehabilitation projects
- Attempts to develop an AIDS vaccine
- Needle exchange programmes
- Blood screening
- Agencies (e.g. World Bank) have made funding available to developing countries

HEART DISEASE

Causes:

- Eating too many fatty foods increases cholesterol levels
- This narrows the arteries increasing the chance of heart disease

- Fatty foods lead to obesity which puts an extra strain on the heart
- Many people do not eat enough fruit or vegetables
- Lack of exercise raises blood pressure affecting the efficiency of the heart
- Smoking narrows the arteries and puts pressure on the heart
- Stress increases blood pressure
- Heart complaints can be heredity

Consequences of disease for population in affected area:

- Many work days are lost in industry through ill health
- This can reduce profits in business
- Strain is put on the health service
- This increases the cost of state and private healthcare (more medical staff and hospital beds are needed to treat those suffering from the disease)
- There is an increase in the number of patients suffering from coronary-related illnesses (e.g. angina, high blood pressure, strokes)
- Life expectancy is lowered

Strategies used to control/manage the disease

- More people now have regular check-ups for cholesterol and blood pressure
- Allowing early intervention for at risk patients
- More advanced medical equipment is being invented and used (e.g. artificial heart valves)
- More advanced surgery is now available (e.g. bypass surgery)
- The government runs many campaigns to educate the public (e.g. stop smoking and health eating campaigns)
- People are encouraged to eat more healthily and take more exercise
- Healthy eating is encouraged in school dining hallsFree and reduced membership of gyms can encourage people to exercise

MALARIA

Causes:

- In developing countries malaria is likely to be found in areas where the female anopheles mosquito lives
- Malaria is spread by the female anopheles mosquito
- The mosquito breeds in areas where temperatures are above 23°C
- Especially in areas where there is stagnant water for the mosquitos to breed in
- Malaria is caused when a human is bitten by the female anopheles mosquito
- And a parasite is passed into the bloodstream
- A mosquito can also pick up the parasite from an infected human
- And then pass it on when it bites someone else
- Lots of people living in close proximity to each other means the mosquito can spread the disease more quickly by biting an infected person and passing on the parasites easily to other people
- In shanty towns there may be lots of pools of stagnant waste water
- As the population increases there are more rice paddy fields which can be an ideal breeding ground for the anopheles mosquito.

Consequences of disease for population in affected area:

- Malaria is the second biggest cause of death from infectious disease in Africa countries (e.g. Nigeria, Uganda)
- Symptoms include fever, shaking, chills, sickness, vomiting and muscle pains
- The people who survive malaria become very weak through illness
- As medical care can be expensive, the burden of care for the sick usually falls on family members
- When a person becomes ill with malaria they often cannot work
- And are therefore unable to earn money
- With little or no money coming in families may suffer as they cannot afford essentials (e.g. food, shelter, education for the young)
- As more people contract malaria, and become unable to work earning power of the affected area is reduced
- As a result, the government may divert investment away from other services (e.g. education) to the maintenance of health care facilities and the purchasing of drugs for treating malaria.
- Few tourists want to visit the country because of the threat from malaria, further hitting the country economically

Strategies used to control/manage the disease

- Use of insecticides to destroy the eggs (e.g. malathion)
- Use of anti-malarial drugs (e.g. chloroquine)
- Water released from dams to drown immature larvae
- Scientists could use genetic engineering to produce sterile male mosquitos
- Breeding areas are drained
- Planting eucalyptus trees to soak up moisture
- Use of small fish to east larvae
- Mustard seeds to drag larvae below surface to drown them
- The use of bed nets
- Educating people on the spread of malaria