N5 Course Revision Notes

You will find all notes for:

Unit 1: Physical Environments

Unit 2: Human Environments

Unit 3: Global Issues

- **Some map skills, graph description and world map description questions are not included as these can only really be learned in class**

National 5 Course Work Notes

Unit 1. Physical Landscapes

River Landscapes

Identifying map work Features:

		
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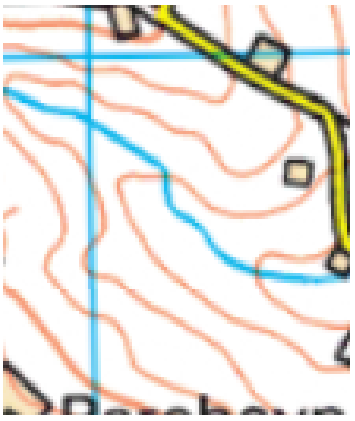
		
Ox bow lake	Floodplain	V-shaped Valley

V-shaped valley

		
Stage 1	**Stage 2**	**Stage 3**

Stage 1

- Abrasion when sand grit and gravel in water wears away the land deepens the valley
- Hydraulic action when bubbles in the water are repeatedly forced into cracks shattering the rock deepen the valley

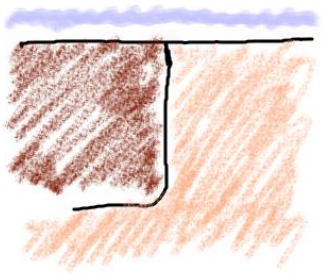
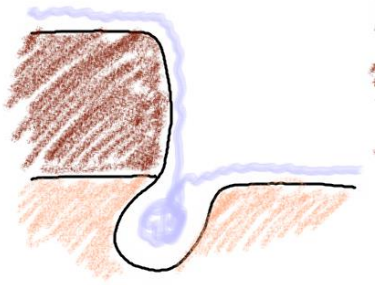
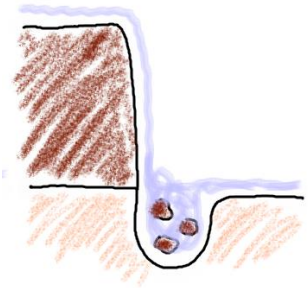
Stage 2

- Vertical erosion happens deepening the valley's v-shape

Stage 3

- As erosion continues a system of interlocking spurs forms
- Eroded material is washed away downstream
- A v-shaped valley typically forms in the upper course of the river

Waterfall

		
Stage 1	**Stage 2**	**Stage 3**

Stage 1

- A river travels over a nick point where hard and soft rock rock meet.
- Differential erosion causes the soft rock to wear away faster.
- Abrasion when sand grit and gravel in water wears away the soft rock
- Hydraulic action when bubbles in the water are repeatedly forced into cracks shattering the rock and undercutting the overhang

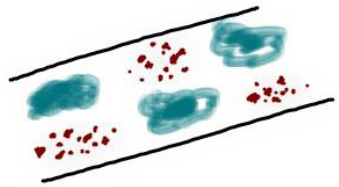
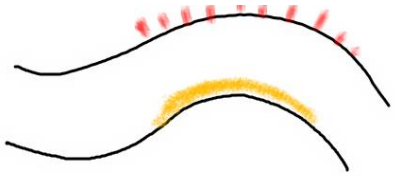
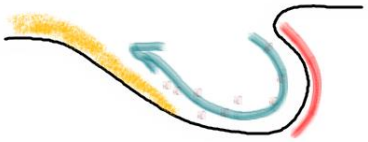
Stage 2

- The hard rock is undercut and left overhanging without support.

Stage 3

- The hard rock overhang collapses and the waterfall retreats upstream.
- The hard rock fragments swirl and erode a plunge pool.

Meander

		
Stage 1	**Stage 2**	**Stage 3**

Stage 1

- A middle to lower course river has fast shallow riffles and slow deep pools which make the river swing.
- Lateral, side to side erosion take place.

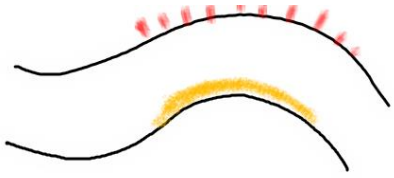
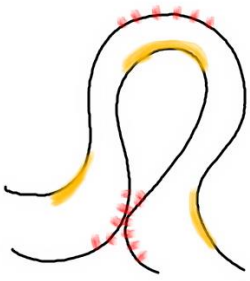
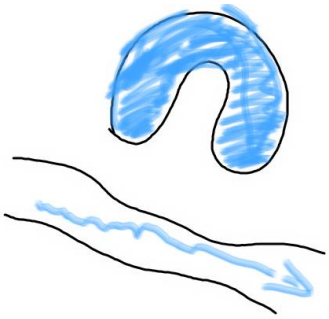
Stage 2

- Abrasion when sand grit and gravel in water wears away the banks of the river
- Hydraulic action when bubbles in the water are repeatedly forced into cracks shattering the rock shaping the bend.
- The outer bend is faster flowing so erosion of a cliff happens.
- The inner bend is slow flowing so deposition of a beach happens.

Stage 3

- Helicoidal flow helps to transfer material from the outside bank to the inside bend's beach.

Ox-bow lake

		
Stage 1	**Stage 2**	**Stage 3**

Stage 1

- Lateral erosion causes the creation of a meander bend
- The slower flowing inner bend deposits a beach
- The faster flowing outer bend erodes a cliff

Stage 2

- Abrasion when sand grit and gravel in water wears away the banks of the river
- Hydraulic action when bubbles in the water are repeatedly forced into cracks shattering the rock shaping the bend.
- Over time two outer bends form a neck point.

Stage 3

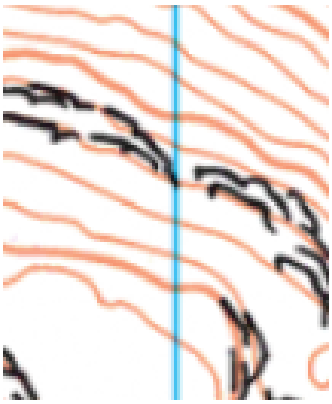
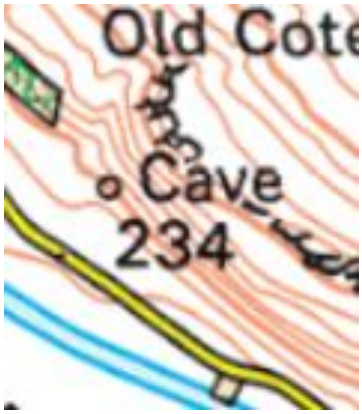
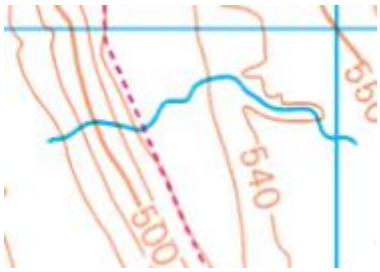
- Continued erosion breaks the neck and a new river course is formed.
- A pond of water called an oxbow lake is left behind and eventually dries up.

Levee/Flood plain

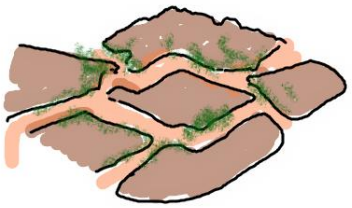
- When a river floods is breaks its banks and deposits bedload across a flood plain.
- The deposits are sorted in order of size, heaviest first.
- The heaviest deposition happens nearest the river and over time builds levees.
- The bluff line marks the end of the flood plain.
- Wide flat flood plains with levees are typically found in the lower course of the river.

Limestone Landscapes

Identifying mapwork features:

		
Pot hole/swallow hole	Pavement	Scar
		
Cave	Intermittent drainage	

Limestone Pavement

		
Stage 1	**Stage 2**	**Stage 3**

Stage 1

- Marine snow builds on the ocean floor. Under pressure, heat builds and cooks the layers into bedding plains of limestone.

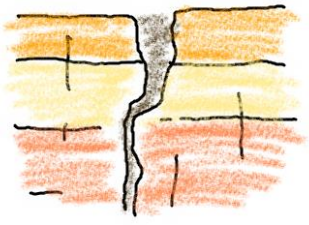
Stage 2

- The sea level drops and over a very long time a glacier covers the limestone. As it moves, a process called abrasion happens when rocks stuck in the ice wear away at the rock and scrape the surface of the limestone clean.

Stage 3

- Mildly acidic rain falls and dissolves the rock in a process called carbonation.
- Vertical cracks called joints, formed during earthquakes, are widened into grykes the areas left over in between are called clints.
- Biological weathering can increase the size of the grykes as plant roots weaken and break up the rock.

Limestone Swallow Hole/Pot Hole

		
Stage 1	**Stage 2**	**Stage 3**

Stage 1

- Bedding plains are fractured in earthquakes and form vertical cracks called joints

Stage 2

- Mildly acidic rain dissolves the rock in a process called carbonation.
- The joints are widened into grykes, one might become super deepened into a swallow hole.

Stage 3

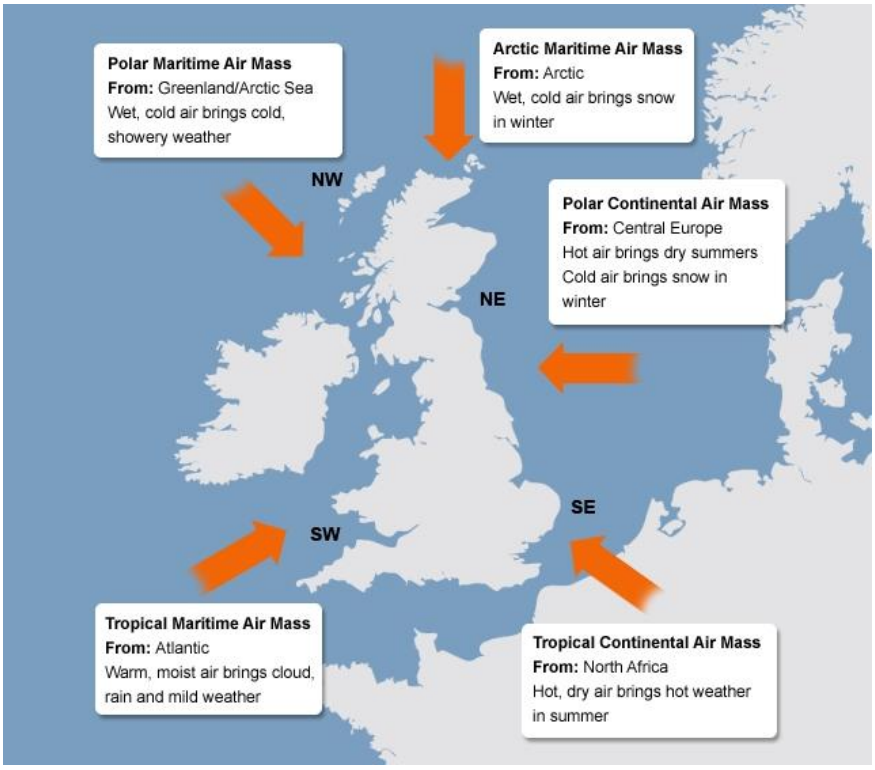
- A swallow hole will form in a limestone pavement. It might be widened further by biological weathering as roots weaken and break down the rock.

<u>Cavern, Stalactite, Stalagmite and Rock Pillar</u>

- Mildly acidic rain dissolves limestone and washes the solution down through joints and bedding plains.
- A bedding plain is widened by this process into a cavern.
- As the solution drips from the cave ceiling it deposits a small amount of calcite behind and a stalactite builds up.
- As the drips land they splash and deposit calcite building up slowly into a stumpy stalagmite.
- Sometimes a stalactite and stalagmite can join up to form a rock pillar.

Weather

Air Masses



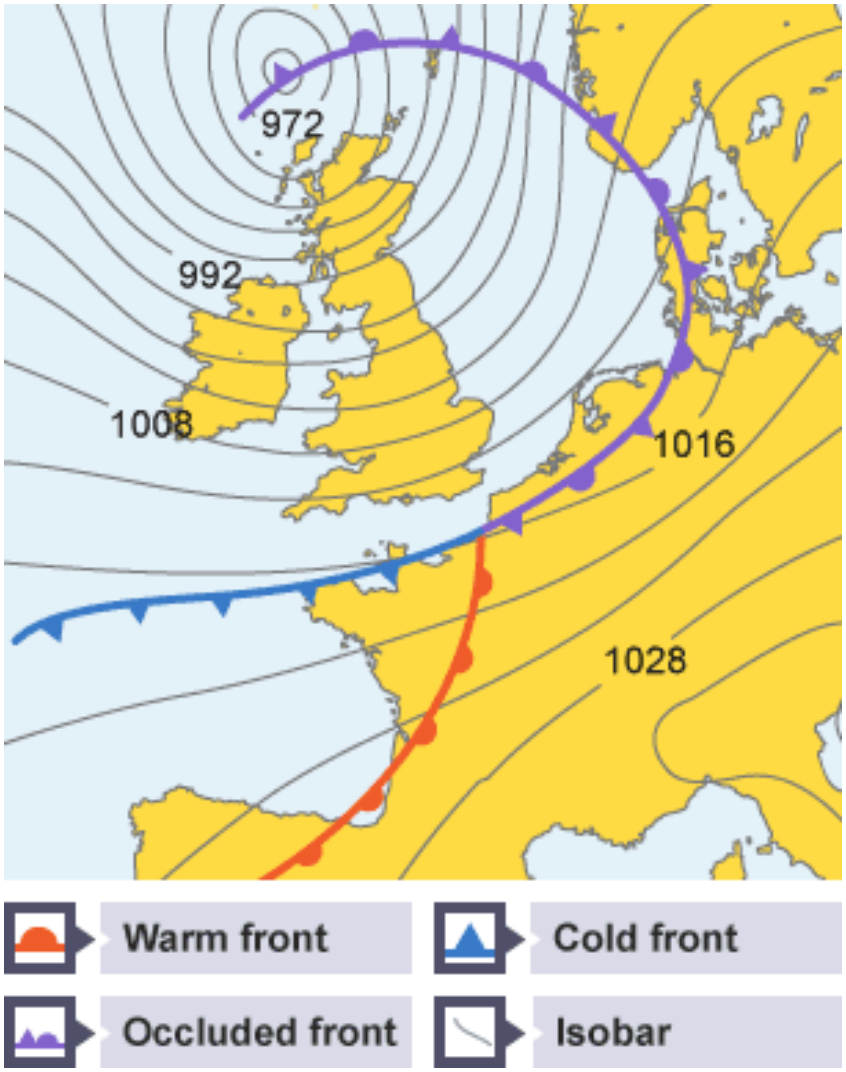
Air mass	Describe/Explain	Effects
Tropical Continental	Arrives from Desert areas so is hot and dry	Leads to drought, hose pipe bans, increased sales of summer goods like ice cream, health warnings for sun stroke.
Tropical Maritime	Arrives from hot ocean areas so is warm and moist	Leads to pleasant mild conditions ideal for days out, some sports may be affected by rain, good growing conditions of crops
Polar Continental	Arrives from cold dry areas of land so is cold and dry	Bitterly cold days, crisp clear conditions ideal for outdoor events or sports, heating bills will rise, elderly or vulnerable at risk in cold snap, pipes may burst.
Polar Maritime	Arrives from cold ocean areas so is moist and cold	Rainy conditions, events may be cancelled, snow can fall so roads and traffic affected, heating bills may rise
Arctic Maritime	From the north over sea so very cold and wet	Bitter wet conditions, can bring cold weather health warnings, dangerous driving conditions through ice and snow.

Climate Factors

- Altitude – Temperatures are colder on high ground. Temperature drops by 1 degree every 100m.
- Latitude – Temperatures are colder nearer the poles away from the equator as sun is less concentrated on the earth further North
- Ocean Currents – warm currents bring mild temperatures and moisture to West Britain
- Heat Island – Cities release and store a great deal of heat making them warmer
- Aspect – South facing slopes receive more sun so are much warmer.

Depressions

Depression maps show the movement of a storm as it travel from left to right across the map. The weather changes as each part passes overhead:



Warm Front

- Front edge of a warm air mass
- Red bumps show direction it is moving.
- It drags warm air behind it so temperatures will rise.

- Warm fronts typically have lighter cloud which explains lighter rainfall.

Cold Front

- Front edge of a cold air mass
- Blue triangles show direction it is moving.
- It drags cold air behind it so temperatures will drop

- Cold fronts typically have heavy cloud which explains heavier rainfall.

Isobars

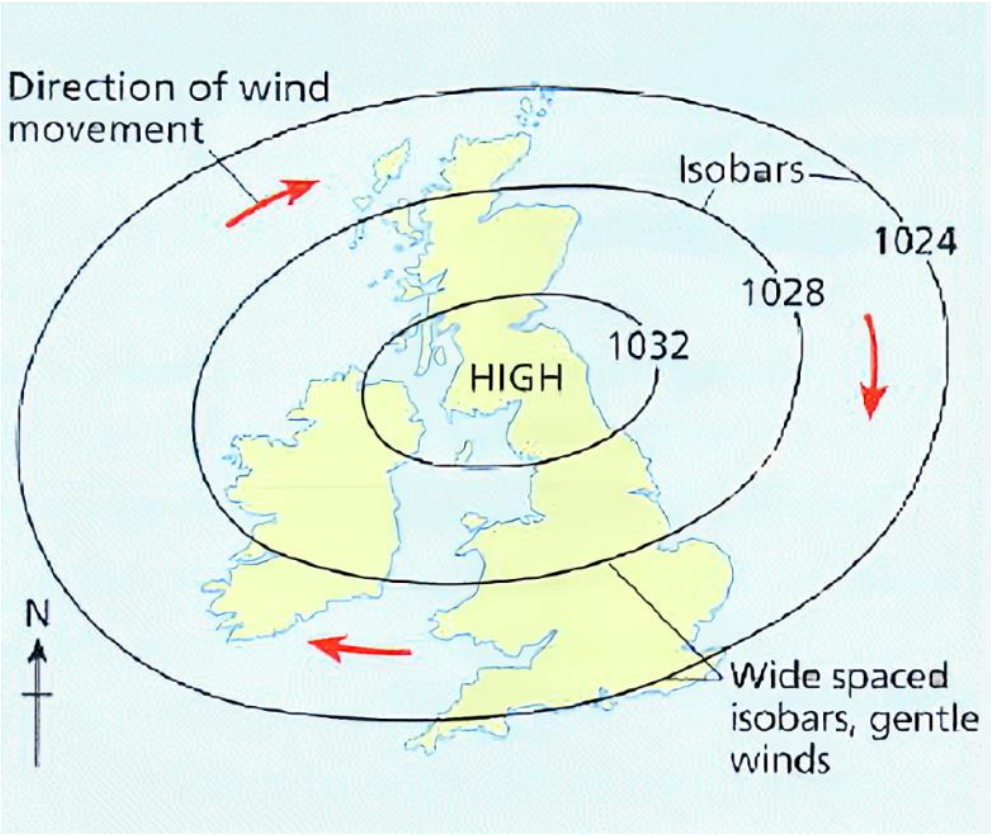
- These are the black lines – they show wind speed. If they are close together the wind is fast, if they are far apart the wind is slower.

Warm Front	Isobars	Cold front
Light cloud so light rain	Show wind speed	Heavy cloud so heavy rain
Warm sector follows so temperature rises	Also show wind direction	Cold sector follows so temperatures drop

Anticyclones

Anticyclone maps show a sunny day happening. If it is winter the weather will be different to summer.

Summer conditions	Winter Conditions
Isobars are far apart so wind is slow	Isobars are far apart so wind is slow
High pressure air so no clouds	High pressure air so no clouds
No clouds so no rain	No clouds so no rain/snow
Moisture trapped on ground so dew on grass	Moisture trapped on ground so frost or black ice on grass/roads
No clouds so high temperatures	No clouds to trap heat so very bitter cold



Rural Land Use

Which land uses go where?

Sheep Farming in the Lake District:

- High ground as woolly sheep can withstand the cold
- Steep ground as sheep are excellent climbers
- Remote and open as lots of space is needed for grazing
- Access needed for farmer to tend to flock

Forestry in the Lake District:

- High ground as trees can grow in cold conditions
- Steep ground as trees are a profitable use of poor quality land
- Remote and open area needed as forestry takes up a lot of space
- Access needed for equipment to fell and transport trees

Wind Turbines in the Lake District:

- High ground as it is windier there
- Remote location as they are considered ugly and noisy
- Open location as they require a large area of space
- Access needed for engineers to maintain equipment

Quarrying in the Lake District:

- Remote location as blasting is noisy
- Road access for vehicles and equipment
- Not in a protected area as environmentally harmful

What are the conflicts between land Uses?

Tourist Versus Farmer

- Sheep are stressed by dogs off leash – costs farmer money as lambs miscarry
- Tourists climb over and break walls – costs farmer time and money to repair
- Tourist can leave gates open – costs farmer money as animals can escape and get involved in traffic accidents.
- Tourists feel they can not walk where they like – due to farmers zoning their land for other uses like wind turbines or shooting
- Tourists are frustrated by farmers – due to slow moving farm equipment on roads

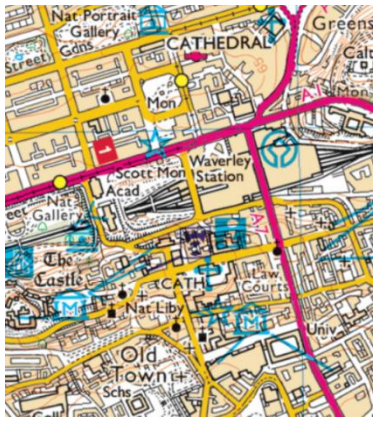
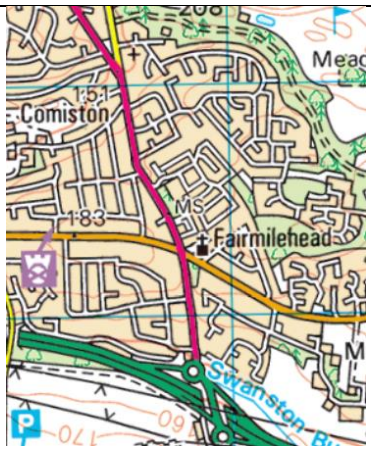
What are the management strategies for land use conflicts?

- Build styles (steps) over walls to effectively stop them being broken
- Install self-closing gates to help keep animals safely contained in fields
- Signs warn against letting dogs of the lead- farmers can legally shoot dogs worrying their sheep.
- Signs along roadsides warn tourists to look out for livestock or farm equipment in roads.

Unit 2. Human Landscapes

Urban

City zones

CBD	Inner City	Suburbs
		
Main Features	**Main Features**	**Main Features**
Cluster of churches Route centre Tourist attractions Train and bus stations Grid iron street pattern	Large factories/ warehouses Train lines Gap sites Grid iron streets of flats	Curvilinear street pattern Dead end streets Parks/recreation spaces Commuter routes to town On edge of town

Changes in Edinburgh's' CBD

- Shops have closed as internet shopping means people stay at home
- There are less pedestrians and customers due to out of town shopping centres
- The CBD has changed to attract people back by:
    - Pedestrianizing areas to make them safe and enjoyable
    - Improving bus links to make it easier to get in
    - Encouraging events like the fringe/Christmas market to attract visitors
    - Statement buildings like the St James Centre offer luxury undercover shopping to compete with out of town centres.

Changes in Edinburgh's Inner City

- Factories have largely closed and warehouses have become derelict leading to inner city looking tired and poorly maintained
- Gap sites where old factories have been destroyed are used to build new student accommodation or cheap flats
- Brownfield land is redeveloped into new shopping arcades such as Fountain Park in Edinburgh
- Old train lines and canal paths are regenerated into cycle paths to improve access and attractiveness of the area.

Changes in Edinburgh's rural/urban fringe

- Small out of town villages are swallowed up by the expanding city
- Villages near the urban fringe lose their identify as they are swallowed up by newer housing.
- Large retail spaces like IKEA at Straighton Retail Park can threaten local small business in the area.
- New construction of houses such as those at Cammo Meadows are built on green space which harms habitats.

Problems and solutions in Rio de Janeiro's Favelas

Problem	Solution
No sanitation – disease like Cholera spreads	Site and service schemes provide basic sanitation to improve hygiene standards
No rubbish collection – disease like Leptospirosis spreads in rat pee.	Recognising addresses means that locals pay taxes and can fund rubbish collection.
Over crowded conditions – spreads disease like Covid more easily	Redevelopment and slum clearance means improves conditions however destroys communities
Narrow streets with home made electricity cables spread fire easily	
Crime and drugs and gangs lower life expectancy and discourage tourism	Pacification police aggressively clear whole neighbourhoods of crime and this can make the areas more appealing to tourists. Also can make rents go up and force poor locals out as it is safer.

Farming

Changes in MEDC Farming

Mechanization

- Increases speed and efficiency of harvest.
- Compacts soil, causes erosion and pollution.
- Forces workers out of a job and encourages rural depopulation as workers move away to city.

GM crops – legal in the USA

- Can cross breed with other plants and affect natural systems.
- Can be resistant to pests which increases yields.
- Can cost a lot for seeds so small family farms can't compete with big farm companies.

Diversification – doing things like go karting on your farm land.

- Spreads risk for farmer as there is another way of making money other than crops.
- Means farmer does not over produce food

Biofuels – growing crops for use as fuel

- Is an environmentally friendly way of producing fuel
- Means farmers may turn away from food production entirely

Changes in LEDC Farming

Mechanization

- Increases speed and efficiency of harvest.
- Equipment is too expensive so must be shared between farmers, poor family farms are out competed by large company farms.
- Forces workers out of a job and encourages rural depopulation as workers move away to city which encourages growth of slums.

GM Crops

- E.g. Golden rice which has added vitamin A and this can tackle child hood blindness.
- Increases yields as it is drought resistant and disease resistant.
- Can require more water to grow which is bad in already dry areas.

Biofuels

- Growing crops for fuel makes price of fuel more affordable
- More environmentally friendly than oil/gas/petrol
- Provide another crop which farmers can turn a profit from.

Population

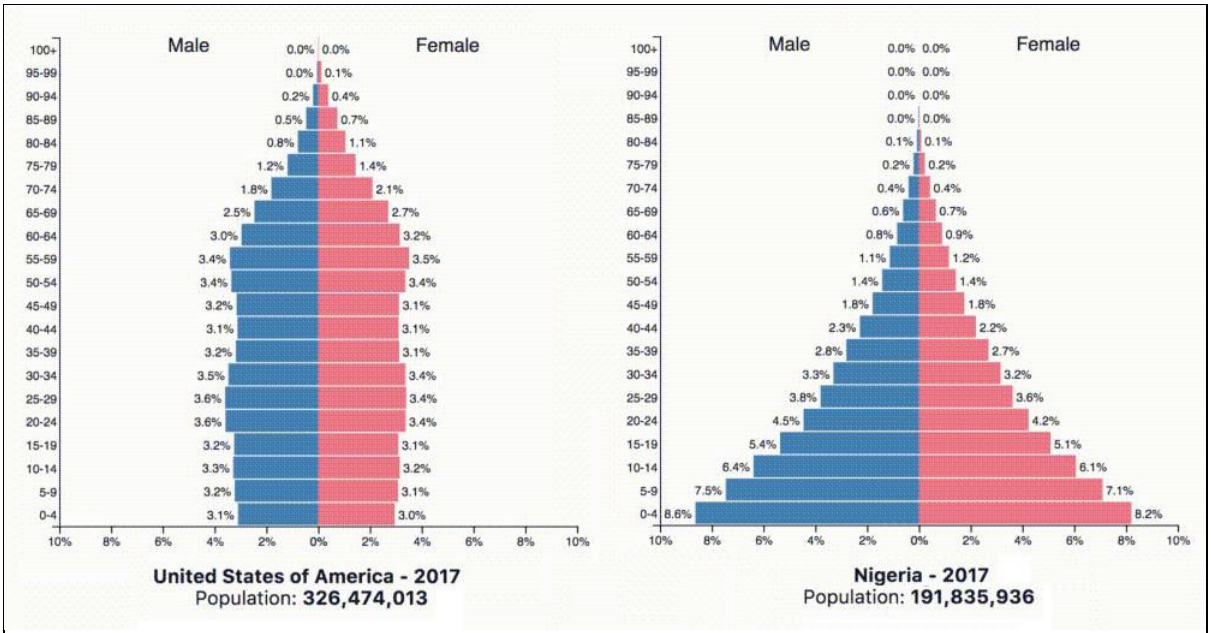
Population Density

Physical reasons why are areas less crowded (less dense)	Human reasons why areas are more crowded (denser)
Sahara desert – too hot for comfort so people don't live there	New York city has lots of job opportunities and higher wages
Rainforest areas are difficult to access with roads	Coastal areas are near to sea for trade and food supply
Himalayas are too steep and high for easy construction	Infrastructure such as good healthcare services, internet connection and education facilities in cities such as London
Antarctic has no farmable soil so no food can be grown	Nodal points such as where many rivers join e.g. Berlin make trade and communication easier.

Birth Rates and Death Rates

Birth rates are high because	Death rates are high because
• Children are needed as a work force • Children are needed to care for elderly • Access tocontraception is limited • Females have low status	• Warfare in e.g. Syria/Ukraine/Yemen • Poor sanitation spreads disease • Poor education means symptoms are spotted • Poor countries can' vaccinate population easily.
Birth rates are low because	**Death rates are low because**
• Well educated population understands family planning and contraception • Women have careers so delay child birth • Cultural expectation of women to have children is old fashioned and unpopular • Children are economic burden and too expensive	• Good diet and knowledge of nutrition • Good education means symptoms are spotted early • Well funded healthcare system can provide lots of vaccines • Well funded elderly care lengthens life spans • Work place is safer in developed countries

Comparing Population Pyramids



MEDC: USA	LEDC: Nigeria
Low birth rate – narrow base Low death rate – sides don't go in In-migration - Bulges at sides	High birth rate – wide base High death rate – sides taper rapidly No bulges at sides – no in-migration
*Note also females are outweighed by males in every age group to a higher degree than in MEDC USA. This is due to lower status of females in society who therefore receive less access to nutrition and healthcare.	

Development Indicators

Social Indicators	Economic Indicators
Birth rate – tells about access to education, healthcare, women's status in society, the need for child workers, the need for replacement babies. **Death rate** – tells us about the access to healthcare, quality of food supply, safety (crime/war/workplace) **Literacy rate** – tells us about funding available for schools, teacher training, number living in cities with access to school buildings	**Unemployment** – tells is if it is a strong economy, if the population has skills and is educated. **GNI** (means the money made by the country). Tells us if the country is industrialised or not, if it has natural resources to sell.

Tourism

Causes of Mass Tourism to Spain

- Availability of cheap flights online
- Advertising on internet and TV shows showing off life in sunny climates
- Increased amount of holiday time gives opportunity to travel.
- Holiday pay means people can afford to travel.
- Tour operators and travel agents make it easier to book a holiday to cheap resorts.
- People want to experience new cultures and places.

Impacts of Mass Tourism to Spain (Barcelona, Spain)

- Holiday resort swimming pools can cause water stress in some areas.
- Properties are rented out to tourists driving rents up for locals
- Tourism can cause overcrowding e.g. Las Ramblas in Barcelona
- Tourists can cause littering and pollution on beaches
- Locals feel like their identity and culture is being eroded by mass tourism
- Mass tourism raises awareness of nature such as Donana National Park and its rare bird life.

Management of Mass Tourism in Spain

- Charge a tourist tax to pay for improvements to things like transport systems
- Cracking down on Stag nights reduces impact of anti social behaviour
- Allowing locals priority access to things like Park Guell.
- 'Spatial Dispersal' means spreading tourist attractions around the city to reduce their impact in any one location
- Town planning laws reduce the availability of rental flats and ensure rents are controlled
- Site hardening – toughens paths to reduce the impact of foot path erosion in areas of natural beauty.

Causes of Eco-Tourism to Costa Rica

- Aims to **educate** tourists about the natural environment of an area
- Aims to provide **funding** for the maintenance of national parks
- Aims to incorporate local tribes and indigenous people into **decisions** about tourist activities on the land.
- It aims to provide **training and employment** to often poor local people.
- Aims to promote tourism which **actively conserves** local environment
- Aims to promote understanding of the **culture and traditions** of local people.

Impacts of Eco-Tourism to Costa Rica (In the Cloud Forest of Costa Rica)

- Money raised can benefit local conservation and **improve development** level of locals.
- Raises local and international **awareness** of this delicate ecosystem and protects it.

- Developed countries like the UK promote tourism in Costa Rica as a way to **control and reduc**e global rainforest deforestation rates.
- Tourists are often now more environmentally conscious and want to '**offset**' the carbon footprint of their travel by adding to something good at their destination.
- Promotes knowledge and awareness of local **culture and traditions.**
- Provides **training, education and employment** for often poor local people

Management of Eco-Tourism to Costa Rica

- Local guides ensure tourist are educated in how to behave responsibly to reduce impact on environment. Also to respect local culture and traditions. 'Take only memories leave only footprints'.
- Over 30 National Parks are set up to protect the environment by law.
- A limit is applied to the number of people allowed to access the Cloud Forest (450 per day)
- Tours must be small to limit disturbance to animals and habitat.
- El Silencio Lodge is a hotel with a zero carbon footprint, the water is supplied locally, all electricity is solar powered to reduce environmental impact.

Environmental Hazards

Causes of Volcanoes

- Destructive plate boundary causes heavy ocean plate to slide under lighter continental plate
- Subduction zone occurs and destroys oceanic plate
- Sea water is dragged down also and mixes with magma to form bubbly explosive lava.
- Lava forces its way up through faults (cracks) caused by earthquakes
- Lave builds up in the crust as a magma chamber
- The pressure of the magma chamber becomes too great and the lava explodes out.

Impacts of Volcanoes: Monserrat

- Bramble Airport closed completely.
- South side of island designated an exclusion zone.
- 2/3 of people were evacuated to the UK
- Soufriere hills pyroclastic flow killed 19.
- Ash fall covered most of island and blocked roads and essential services.
- Ash fall was a great fertiliser for the islands sugar cane industry.

Management of Volcanoes: Monserrat

- An exclusion zone was set up to avoid further deaths
- A new airport 'Gerald Airport' was built at to replace Bramble Airport for supplies
- 2/3 of people were evacuated to the UK
- Specialist rescue teams were sent to recover bodies from the exclusion zone.
- The British Government offered Aid money through the Department for International Development.
- Royal Marines were sent to island to assist in recovery. HMS Southampton dispatched to assist with supplies.

Causes of Earthquakes

- Friction and pressure build along a sliding plate boundary.
- The friction is overcome at the focus and an earthquake is triggered.
- The energy moves outwards as seismic waves.
- The energy hits the surface at the epicentre.
- Should this happen under the sea a Tsunami will form.
- If the focus is not very deep in the crust the earthquake will be stronger.

Impacts of Earthquakes: Sendai Japan

- Local water and sea life poisoned for years by nuclear reactor melt down after being flooded by Tsunami
- 9000 people died in first 24 hours
- 500,000 were forced to evacuate the region

- 4.4 million homes were left without power and 1.5 million without water
- A series of tsunamis as high as 40m struck the East coast of Japan
- The coastal defence wall was overwhelmed and land flooded for up to 10km.

Management of Earthquakes: Sendai Japan

- Many countries sent rescue teams and food, water and medicine.
- US sent aircraft carriers to supply on board hospitals and water supplies.
- 100,000 members of Japan's self defence force were mobilised.
- Emergency action centres set up in Tokyo in first hours.
- 300,000 were displaced to temporary shelters for up to two years after the quake.
- There is an early warning system which alerts you mobile phone of an approaching tsunami.

Causes of Hurricanes

- The sea needs to be over 27◦C
- The warm sea makes the air above rise and draw moisture up with it.
- The rising air is low pressure so it forms thick clouds.
- A concentration of thunder storms will result
- The spin of the earth causes the hurricane to spin anticlockwise
- The Hurricane travels East to West due to surface winds blowing it along.

Impacts of Hurricanes: Hurricane Katrina

- 1.2 million people evacuated from New Orleans.
- 10,000 people had to shelter at the Super Dome sports arena.
- The storm surge broke the defence levee in 50 places.
- The city was 80% flooded up to 5m in depth
- 1800 people died during the storm.
- People were trapped on the roofs of their houses because of the speed of the storm as it arrived.

Management of Hurricanes: Hurricane Katrina

- The Super Dome was used an emergency evacuation point for 10,000 people.
- The National Guard were called in to assist with the rescue, keeping the peace and clearing dead bodies.
- X codes were used to mark houses which had been searched and which ones contained bodies.
- Pumps were used to clear the flood waters and sand/gravel bags dropped by helicopter to repair the broken levees.
- Houses were boarded up to stop looters whilst people were evacuated.
- FEMA (Federal Emergency Management Agency) eventually organised drops of food and fresh water but it took several days. A hospital ship was organised to sit off the New Orleans coastline.