Year 11 Geography Mock Exam

Revision Guide

Date: Thursday 6th December 2018 (PM)

Name:..

Topics covered:

From Y10:

Weather Hazards – Distribution, features and formation of tropical storms

Hot Deserts – Characteristics, challenges and opportunities

Coastal Landscapes – Features and their formation, management strategies

The Urban World – Urbanisation, rural – urban migration trends, attempts to improve quality of life in a named city in a NEE or LIC

From Y11:

Urban Change in the UK - Social opportunities, brownfield and greenfield sites, impacts of building on greenbelt land.

Urban sustainability – Sustainable traffic management strategies

The Development Gap – Human Development Index, Demographic Transition Model, causes and consequences of uneven development

Human Fieldwork – Selecting an appropriate title, assessing risk, data collection methods, data presentation methods

About the Exam

The exam will last for 1 and a half hours.

There are 88 marks.

There will be a mixture of 1, 2, 4 and 6 mark questions.

There will be one 9 mark question.

Advice for the exam

At the beginning of the exam

Find the part that asks questions about the Human Fieldwork Investigation and write down the title in the space provided.

Find the 6 and 9 mark questions. Begin the **BUG** process with these questions (**B**ox the command word, **U**nderline the key words).

Decide on the order in which you will answer the questions.

During the exam

Keep an eye on the time. You should be aiming for a mark per minute or faster.

Don't leave out any questions – have a go, even when you aren't sure.

For questions where you are asked to describe, use GCSE. GC: General Comment   SE: Specific Example.

For source based questions – make sure you refer to them in your answer.

If you think you are going to need extra paper – ask in plenty of time. Make sure you clearly write the question number on the extra paper and write 'see extra paper' in your exam booklet.

When you have finished

Finish the **BUG** process by going **B**ack to the questions and checking that you have answered them as well as you could have.

Weather Hazards

The Formation of Tropical Storms: Part One

- A tropical storm is a huge storm that develops in the Tropics.
- In the USA and the Caribbean these are called *hurricanes*. In south-east Asia and Australia they are called *cyclones* and in Japan and the Philippines they are called *typhoons*.

Clues that tell us where tropical storms form:
- Over warm ocean water (above 27°C).
- In the summer and autumn when sea temperatures are at their highest.
- 5-15° north and south of the Equator, where the Coriolis Effect causes the clouds to spin.
- Intense heat at the Tropics causes air to rise rapidly and helps form hurricanes.
- The most tropical storms each year occur in the Pacific Ocean.
- Hurricanes are most likely to affect the east coast of the USA between August and October.
- On average, 10 cyclones affect Australia each year.
- Tropical storms do not form at the Equator because there is not enough 'spin' from the rotation of the Earth.

Weather Hazards

The Formation of Tropical Storms: Part Two

1. A strong upward movement of air draws water vapour up from the warm ocean surface.
2. The evaporated air cools as it rises and condenses to form towering thunderclouds.
3. As the air condenses it releases heat which powers the storm and draws up more and more water from the ocean.
4. Several smaller thunderstorms join together to form a giant spinning storm. It officially becomes a tropical storm when winds reach 120km per hour.
5. The storm now develops an eye at its centre where air descends rapidly. The outer edge of the eye is the eyewall where the most intense weather conditions are felt.
6. As the storm is carried across the ocean by the prevailing winds, it continues to gather strength.
7. On reaching land the storm's energy supply is cut off. Friction with the land slows it down and it begins to weaken. If the storm reaches warm seas after crossing land, it may pick up strength again.

Weather Hazards

Structure and Features of Tropical Storms

- The eye of a storm is a small area where relatively cold air sinks towards the ground and warms up. There are no clouds here and conditions are calm.
- The eye wall is a tall bank of cloud either side of the eye, where there are strong winds in excess of 120 km/hour, heavy rain, thunder and lightning.
- Beyond the eye wall there are further banks of clouds with thunderstorms and occasionally tornadoes. There will also be strong gusty winds and heavy rain.

Category	Wind speeds
5	> 252 km/h
4	209-251 km/h
3	178-208 km/h
2	154-177 km/h
1	119-153 km/h

Weather Hazards

Changes to Tropical Storms

Distribution
- Sea surface temperatures have increased by 0.25 – 0.5 °C.
- Tropical storms may affect areas outside the current hazard zone, such as the South Atlantic and parts of the sub-tropics.
- In March 2004 the south-east coast of Brazil was struck by a Category 2 hurricane for the first time. Usually sea temperatures are too cool in this area for tropical storms to form.

Frequency
- Six of the ten most active years since 1950 have happened since the mid- 1990s.
- Some computer models indicate that the frequency of tropical storms may decrease in the future – but their intensity may increase.

Intensity
- Hurricane intensity in the North Atlantic has risen in the last 20 years. This appears to be linked to increases in sea surface temperatures.
- But more data will be needed to predict how this may change in the future.

Hot Deserts

Hot Deserts

Characteristics

Distribution of hot deserts
- Hot deserts are mostly found in dry continental areas, away from coasts, in a belt approximately 30° north and south of the Equator.
- There are some coastal deserts too, for example the Atacama Desert in South America.

The link between the climate of hot deserts and global atmospheric circulation
- The climate of hot deserts can be linked to global atmospheric circulation as at these latitudes air that has risen from the Equator descends, forming a persistent belt of high pressure.

The climate in hot deserts
- There is a diurnal temperature range in hot deserts because of the lack of cloud.
- This can mean very hot daytime temperatures of above 40°C, however, at night, the lack of cloud means that temperatures can plummet to as low as 5°C.
- Annual rainfall is usually less than 250mm per year.

Hot Deserts

Opportunities for Development: Part One

Named Example: The Thar Desert (north-west India and Pakistan)

Mineral extraction
- The desert region has valuable reserves of minerals which are used all over India and exported across the world.
- Gypsum – used in making plaster for the construction industry and in making cement.
- Phospherite – used for making fertiliser.

Tourism
- In recent years the Thar Desert, with its beautiful landscapes, has become a popular tourist destination. Tens of thousands visit the desert each year, many from neighbouring Pakistan.
- Desert safaris on camels, based at Jaisalmer, have become particularly popular with foreigners as well as wealthy Indians from elsewhere in the country,
- An annual Desert Festival is held each winter.
- Local people benefit by providing food and accommodation and by acting as guides or rearing or looking after the camels.

Hot Deserts

Opportunities for Development: Part Two

Named Example: The Thar Desert (north-west India and Pakistan)

Energy
- The Thar desert is a rich energy source for both renewable and non-renewable energy.
- Coal – there are extensive coal deposits and a thermal energy plant has been constructed at Giral.
- Oil – a large oilfield has been discovered in the Barmer district which could transform the local economy.
- Wind – recently there has been a focus on developing wind power. The Jaisalmer Wind Park was constructed in 2001 and is India's largest wind farm.
- Solar – ideal conditions. At Bhaleri solar power is used in water treatment.

Farming
- Subsistence farmers survive in the hot and dry conditions by grazing animals on the grassy areas and cultivating vegetables and fruit trees.
- Commercial farming – the construction of the Indira Ghandi Canal in 1958 has meant that crops such as wheat and cotton now thrive in an area that used to be scrubby desert. Other crops grown under irrigation include pulses, sesame, maize and mustard.

Hot Deserts

Challenges of development: Part One

Named Example: The Thar Desert (north-west India and Pakistan)

Extreme Temperatures
- Temperatures can reach up to 50°C in the summer.
- Working outside in the heat of the day can be very difficult, especially for farmers.
- High rates of evaporation lead to water shortages which affect people as well as plants and animals.
- Plants and animals have to adapt to survive in the extreme heat.

Accessibility
- There is a limited road network due to the extreme weather and the presence of vast barren areas.
- High temperatures can cause the tarmac to melt and the strong winds often blow sand over the roads.
- Many places are accessible only by camel, which is a traditional form of transport in the region.
- Public transport often involves seriously overladen buses.

Hot Deserts

Challenges of development: Part Two

Named Example: The Thar Desert
(north-west India and Pakistan)

Water Supply
- Population has grown and farming and industry have developed, increasing demand.
- Rainfall is low and strong winds and high temperatures increase rates of evaporation.
- There are few rivers and streams that flow through the desert. But these are intermittent and flow only after rainfall. Most settlements are found alongside these rivers.
- Some water can be obtained from underground sources (aquifers) using wells, but this water is salty and often not very good quality.
- Irrigation has improved water supply.

Coastal Landscapes
Coastal Marine Processes: Erosion

Erosion involves the removal of material and the shaping of landforms.

Solution: The dissolving of soluble chemicals in rocks e.g. limestone.

Hydraulic Power: The power of the waves as they smash into a cliff and trapped air is forced into cracks in the rock causing the rock to break. The explosive force from the trapped air is known as cavitation.

Attrition: Rock fragments knock against one another causing them to become smaller and more rounded.

Corrasion: Fragments of rock are picked up and hurled by the sea at a cliff. The rocks act like tools scraping and gouging to erode the rock.

Abrasion: The sandpapering effect of pebbles grinding over a rocky platform often causing it to become smooth.

Coastal Landscapes
Coastal Marine Processes: Transportation and Deposition

Transportation

Sediment of different sizes is transported in different ways.

Solution: Dissolved material (often from limestone or chalk) carried in the sea.

Suspension: Particles held in the water.

Saltation: A bouncing motion of particles too heavy to be suspended.

Traction: Large pebbles rolled along the sea bed.

Deposition

- Deposition takes place in areas where the flow of water slows down.
- Waves lose energy in sheltered bays and where water is protected by spits and bars.
- Beaches are found in bays because the energy of the waves is reduced.
- Mudflats and saltmarshes are found behind spits where there is very little flow of water.

Coastal Landscapes
Coastal Marine Processes:
Longshore Drift

- The movement of sediment on a beach depends on the direction that waves approach the coast.
- Winds drive the direction of the waves.
- If waves approach at an angle, sediment will be moved along the beach in a zigzag pattern.
- The swash of the waves carries sediment up the beach.
- The backwash of the waves carries sediment back down the beach.
- Longshore drift is responsible for the formation of beaches and spits.

Coastal Landscapes
Coastal Erosion Landforms

Headlands and Bays
- Usually formed on discordant coastlines where there are alternating bands of resistant and less resistant rock.
- Resistant rocks such as granite, limestone and chalk form cliffs and headlands.
- Softer rocks, clays and sands are more easily eroded to form bays.
- Geological structure includes the way that layers of rock are folded or tilted and influences the way that cliffs are shaped.

Cliffs and Wave cut platforms

- Waves erode cliffs at the high tide line to form a wave-cut notch.
- The notch gets deeper and deeper over time and eventually the cliff above it collapses.
- This process repeats itself again and again, causing the cliff to retreat. A wave-cut platform is left behind.
- This is gently sloping and smooth because of the process of abrasion. Rock pools are sometimes found on the platform.

Coastal Landscapes
Coastal Deposition Landforms

Beaches

- Sandy beaches are mainly found in sheltered bays. Constructive waves entering the bay have a strong swash and build up the beach.
- Some beaches are made up of pebbles, not sand because the waves have a stronger backwash and wash away the finer sand, leaving behind pebbles.
- A berm is a ridge left behind on the beach as the tide goes in and out. Seaweed and rubbish is often found on the berm that marks the high tide.

Sand dunes

- Embryo dunes form around deposited obstacles such as pieces of wood or rock.
- These develop and become fore dunes and tall yellow dunes.
- Marram grass has long roots which bind the sand together and stabilise the dunes.
- Rotting vegetation adds organic matter to the sand, making it more fertile
- More plants colonise the back dunes.
- Wind can form depressions in the sand called dune slacks, in which ponds may form.

Coastal Landscapes
Managing Coasts- Hard Engineering: Part One

Coasts need to be managed:

- To maintain a balance between the forces of nature and the demands of people.
- Because people need to be protected from coastal erosion and flooding.
- Because sea levels are predicted to rise in the future because of global warming, so more areas may need protecting.

Hard Engineering involves using artificial structures to control natural processes.

Sea Walls

- A concrete or rock barrier against the sea. Usually at the bottom of cliffs or top of a beach.
- Curved face reflects waves back into the sea walls.

Advantages:

-

Disadvantages:

- Look unnatural
- Very expensive (£10 000 per metre)
- High maintenance costs

Coastal Landscapes
Managing Coasts- Hard Engineering: Part Two

Groynes

- Timber or rock structures built out to sea.

Advantages:

- Create a wider beach, so popular with tourists.
- Provide useful structures for people who fish.
- Not too expensive: £150 000 each (need to be spaced every 200 metres).

Disadvantages:

- Because they interrupt longshore drift, they lead to increased erosion elsewhere.
- They are unnatural and rock groynes are unattractive.

Rock Armour

- Piles of large boulders at the foot of a cliff.

Advantages:

- The rocks force waves to break, absorbing energy and protecting cliffs.
- Relatively cheap and easy to maintain£200 000 per 100 metres.
- Often used for fishing.

Disadvantages:

- Rocks have to be transported from other places.
- Do not fit in with the local geology.
- Can be obtrusive (get in the way).

Coastal Landscapes
Managing Coasts- Hard Engineering: Part Three

Gabions

- Wire cages filled with rocks that are either built to support a cliff or as a buffer to the sea.

Advantages:

- Cheap to produce (Up to £50 000 per 100 metres).
- Can improve drainage.

Disadvantages:

- Eventually become vegetated and blend into the landscape.
- Look unattractive to begin with.
- Wire cages start to rust after 5-10 years.

Hard engineering is being use less than in the past because:

- They are expensive and involve high maintenance costs.
- They interfere with natural coastal processes.
- They look unnatural.

Coastal Landscapes
Managing Coasts- Soft Engineering: Part One

- Soft Engineering involves using less intrusive, more environmentally-friendly methods that work with natural processes to protect the coast.
- Soft engineering tends to be cheaper than hard engineering, but requires more maintenance.
- Soft engineering schemes also tend to be more sustainable.

Beach nourishment and Reprofiling

- Adding sand or shingle to an existing beach to make it higher or wider.

Advantages

- Relatively cheap and easy to maintain
- Blends in with existing beach
- Increases possible numbers of tourists because there is a bigger beach

Disadvantages

- Needs constant maintenance unless it is used with other structures that would stop the beach being washed away.

Coastal Landscapes
Managing Coasts- Soft Engineering: Part Two

Dune Regeneration

- Planting marram grass to stabilise dunes and to help them develop.
  Advantages
- Maintains a natural coastal environment
- Popular with people and wildlife
- Relatively cheap (£200 - £2000 per 100 metres)

Disadvantages

- Takes time to plant the grass
- Can be damaged by storms

Dune Fencing

- Fences are put up between the beach and the sand dunes to encourage new dunes to form

Advantages

- Cheap - £400 – £2000 per 100 metres
- Minimal impact on the environment
- Controls public access to protect the ecosystem

Disadvantages

- If fences become broken it can look unsightly
- Needs regular maintenance after storms

Coastal Landscapes
Coastal Management at Lyme Regis: Part One

- Lyme Regis is a small coastal town in Dorset. It is on the Jurassic Coast, which is a stretch of coastline famous for its fossils.
- The town is a popular tourist destination. In summer the population grows from 4000 to 15 000.
- Lyme Regis needs coastal management because much of the town has been built on unstable cliffs.
- The coastline is eroding very rapidly due to the powerful waves from the south west.
- Many properties have been damaged. Coastal erosion has occurred. The sea walls have been breached (waves have broken through or over) many times.

Scheme:

- Four phases
- Started in 1990s. Completed in 2015.

Hard Engineering included:

- Sea wall
- Rock armour
- Cliff stabilisation (nailing and piling)
- Groynes (stone)

Soft Engineering included:

- Beach nourishment

Coastal Landscapes
Coastal Management at Lyme Regis: Part Two

Positive Outcomes

- Increased visitor numbers to seafront businesses: Economic.
- Defences have stood up to recent stormy winters: *Environmental and Economic*.
- The harbour is better protected, benefitting boat owners and fishermen: *Social and Economic.*

Negative Outcomes

- Increased visitor numbers mean there is more traffic congestion and litter: *Social and Environmental.*
- Some people think the new defences have spoilt the natural coastal landscape: *Environmental and Social.*
- The new sea wall may interfere with coastal processes and affect other stretches of coastline: *Environmental.*
- Stabilising cliffs will prevent landslips that may reveal important fossils: *Environmental and Social.*

The Urban World

The Urban World

Urbanisation

- Global population has grown faster as it has grown bigger. This is called underlined exponential growth.

- Urbanisation is a process where an increasing percentage of a country's population live in towns and cities.

- The UK was one of the first countries in the world to become urbanised.

- In most of the world's richer countries over 60% of the population live in towns and cities.

- In different regions of the world the urban population is growing at different rates.

- Less developed regions (particularly in South America and Asia) have the fastest growing urban populations.

- The largest growth in urban population by 2050 will be in India, China and Nigeria. These three countries will account for 37% of the projected growth between 2014 and 2050.

The Urban World

Causes of Urbanisation and the development of Megacities

Urban populations grow because of:

1.Rural-urban migration
Push factors: people may want to leave the countryside because of: drought, flooding, lack of services, few opportunities, low pay and poverty.

Pull factors: people may want to move to cities because of: a higher quality of life, better services, improved housing and higher paid jobs.

2.Natural increase
When a high proportion of people aged 18-35 move into towns and cities they have children, this increases the population.

Megacities
These are cities with a population of over 10 million people. In 2015 there were 28 of these in the world. By 2020 there may be 50.

Slow growing megacity: Tokyo in Japan- HIC (no squatter settlements)

Fast growing megacity: Mumbai in India - NEE (over 20% in squatter settlements)

The Urban World: Social Challenges in Rio de Janeiro

Health
Challenges: Services for pregnant women and the elderly were poor. Many people live a long way from clinics.
Solutions: In the Santa Maria favela, medical staff have gone to give treatment in people's homes. Infant mortality has fallen and life expectancy has increased.

Education
Challenges: Only half of children continue education after the age of 14. Many drop out and become involved in drug trafficking.
Solutions: Local people have been encouraged to help in schools. Money has been made available for free sports lessons. A private university has been opened in Rocinha favela.

Water
Challenges: Half of the population did not have access to running water.

Solutions: Work has been done to improve the quantity and quality of water available. By 2014, 95% of the population had a mains water supply.

Energy
Challenges: The city suffers frequent blackouts as there is an electricity shortage. Many people in the favelas tap into the supply illegally, which is unsafe.

Solutions: 60km new power lines installed. A new nuclear generator has been built. A $2 billion hydro-electric complex has been built.

The Urban World

Economic Challenges in Rio de Janeiro

Unemployment
There was a recession in 2015 which increased unemployment.

There is a big gap between the rich and the poor. The richest 1% earn 12% of the total income.

The informal economy

Many people, particularly in the favelas earn money as street vendors or in work connected with crime. They have no job security and pay no taxes.

Tackling the problems:

- Schools of Tomorrow: improves education for young people.
- UPPs: Pacifying Police Units to stop gangs running the favelas.

Economic Growth has boosted the city's economy.

- Large companies have invested in Rio.
- The formal economy (where people have job contracts and pay taxes) is growing.
- A growing number of jobs are in the tertiary (services) sector.

The Urban World

Economic Challenges in Rio de Janeiro

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The Urban World

Improving the Environment in Rio de Janeiro

Air Pollution
Challenges: Rio is the most congested city in South America. The steep mountains and high numbers of cars, plus high crime levels all make the problem worse.

Solutions: The metro (underground) system has been expanded. New toll roads reduce congestion. A new one-way system is in place during rush hours.

Water pollution
Challenges: Guanabara Bay is highly polluted, threatening wildlife. Pollution is from sewage, industrial waste, oil spills and ships emptying fuel tanks.

Solutions: 12 new sewage works have been built. Ships are fined for dumping fuel, 5km of new sewage pipes have been installed.

Waste Pollution
Challenges: Main problem is in the favelas which are built on steep slopes and are hard for vehicles to access to collect waste.

Solutions: A power plant has been built that uses methane from rotting rubbish.

The Urban World

Improving favelas in Rio de Janeiro

Since the mid- 1980s the authorities have begun to improve the favelas.

Favelo Bairro Project: A Site and Service Scheme

Improvements: The local authority has provided land and services for residents to build homes. They have:

- Paved roads
- Put in a water supply
- Built new health facilities
- Given mortgages to allow people to buy their homes
- Set up a UPP (Pacifying Police Unit)
- New cable car to improve accessibility

Problems:

- Not enough money for every house to be improved.
- Newly built infrastructure not maintained.
- More needed to improve literacy and employment.

Urban Change in the UK and Urban Sustainability

Urban Change in the UK

Social Opportunities in Bristol

- People are moving to Bristol because of the good transport links, for example it only takes 70 minutes to get to London on the electrified rail line.
- Bristol is becoming more ethnically diverse as people move in from other parts of the world.
- A reason for Bristol's youthful population is that the people moving in may then start families.

Leisure and Recreation
- Bristol Rovers FC are relocating to the edge of the city as it is a cheaper part of the city to build in. It is less crowded than the inner city. There is less traffic congestion here.

Shopping

- People preferred to go to the out of town Cribbs Causeway shopping park because it is more modern and easier to park there than in the city centre.
- In response to this, Cabot Circus is a new shopping centre in Bristol City Centre. It opened in 2008 and cost £500 million. It has shops, offices, a cinema, a hotel and 250 apartments.
- At Bristol's harbourside, former workshops and warehouses have been converted into bars and nightclubs and cultural venues.

Urban Change in the UK

Bristol's Integrated Transport System

Challenges

- In 2012, Bristol was the second most congested city in the UK.
- Rush hour journeys took 31% longer than at other times of the day.

Positives

- The ITS links different forms of public transport (bus and trains) within the city and surrounding areas.
- Three bus routes link the main Temple Meads railway station with the city's park and ride sites.
- Transport becomes more sustainable as well as reducing traffic congestion.
- People are also being encouraged to cycle more.
- 57% of Bristol's population regularly walk or cycle.

Negatives

- Bristol has a rising population which may put an increased strain on the ITS.
- It has taken time to put in place: work started in early 2015 and did not start operating until 2016.

Urban Change in the UK

New Housing in Bristol: Greenfield versus Brownfield sites

Greenfield Sites

Advantages

- Land is cheaper.
- No time and money needed to clear the site.
- The development can be planned as a whole.

Disadvantages

- Need to build new infrastructure (roads, services etc.).
- Loss of open space and countryside.
- Contributes to urban sprawl.

Brownfield Sites

Advantages

- Improves contaminated land and derelict buildings.
- Enables people to live and work in the centre of the city.
- Makes use of historic and interesting buildings.

Disadvantages

- May take a lot of time and money to make the site clear and safe.
- Can lead to development happening bit by bit rather than as a whole.
- Historic listed buildings may not be suitable for modern occupation.

Urban Change in the UK

New Housing in Bristol: Building on the green belt

- The green belt was created to prevent urban sprawl on the rural-urban fringe and the merging of cities such as Bath and Bristol.
- Only 5% of the green belt around Bristol is controlled by the city authorities.
- Three neighbouring local authorities are in charge of planning on the rest of the green belt land.
- Many people commute to Bristol because it is an important regional centre (there are lots of jobs there)
- Wotton-under-Edge and Clevedon are examples of commuter settlements.

Problems with building on the greenbelt at Harry Stoke (north of Bristol)

- Increased congestion, road traffic noise and poor air quality.
- Loss of habitats e.g. the Great Crested Newt.
- Loss of open space.
- Impact on existing community services and facilities.
- Will increase local flood risk.

Urban Sustainability

Sustainable Traffic Management: Part 1

The need to reduce the traffic in cities:
- Traffic congestion can lead to air pollution.
- There are also negative economic effects of increased journey times, higher fuel consumption and greater risk of accidents.

Example 1: Freiburg

- Tram system is connected to bus routes. (Integrated Transport System).
- Low fares on the tram.
- Tickets for events e.g. concerts include tram ride.
- 70% of the population live within 500m of a tram stop.
- 400 km of cycle paths and 9000 parking spaces for bikes, plus 'bike and ride' facilities at railway and bus stations.

Effectiveness
- Compared with other German cities, Freiburg has a low car density with less than 500 cars per 1000 residents.
- Tram journeys have increased by over 25 000 in one year, while car journeys have reduced by nearly 30 000.

Urban Sustainability

Sustainable Traffic Management: Part 2

Example 2: Singapore, Asia (NEE)

- Limited space, so traffic congestion is a major problem.
- Development of overhead railway system and efficient bus network.
- Financial incentives for using cars only at weekends.
- Advanced electric monitoring and control to keep traffic moving.
- Government car sharing schemes. Restricted entry to the city centre during rush hours.
- Quota system to reduce the number of car owners.
- High petrol prices.
- High vehicle registration fees.
- Strict requirements for obtaining a driving licence.

Effectiveness:
- As a result of transport policies there is 45% less traffic and 25% fewer accidents in the city.
- Traffic on the roads into the city centre reduced by 40%.
- 2/3 of daily journeys are now by public transport.
- Car ownership down by 1% since 2000.

Urban Sustainability

Sustainable Traffic Management: Part 3

Example 3: Beijing China (NEE)

- Expansion of the public transport system.
- 30 new metro lines and a rapid bus transit system to be built by 2020.
- Car sales limited: only 20% of people who apply to own vehicle are allowed to.
- Restrictions on vehicle use. Cars are banned from the city one day a week, based on a number plate system.
- Increased parking fees to help improve air quality.

Effectiveness
- There are still an estimated 5 million cars in Beijing.
- The city centre is often gridlocked.
- Since the Olympics in 2008, strategies implemented have led to a 12% drop in the use of car parks in the city centre.
- But building and widening roads has encouraged car use instead of cycling.

The Development Gap

Human Development Index

Measures a combination of indicators:

Economic – GDP

Social – Life expectancy and literacy

Scores all countries between 0 and 1, where 1 is the highest score.

Advantages

- It links wealth to health and education and so it shows how people within a country are benefiting from economic growth.
- HDI uses a range of factors, so it is likely to be a more accurate measure of development.

Disadvantages

- It only uses economic and social measures.
- It does not look at environmental factors, such as the impact of a difficult climate.

The Development Gap

The Demographic Transition Model

Stage 1 – Low, stable population e.g. rainforest tribes

Death rate high: poor health care and poor sanitation

Birth rate high: low levels of contraception, low levels of education for girls

Stage 2 – Rapidly expanding population e.g. Afghanistan

Death rate: falls because of improvements in healthcare.

Birth rate high: low levels of contraception, low levels of education for girls

Stage 3 – Growth begins to slow e.g. Brazil

Death rate: continues to fall

Birth rate: falls as contraception is introduced and girls are educated more

Stage 4 – High, stable population e.g. UK

Death rate and birth rate balance

Stage 5 – Population Decline e.g. Japan

Death rate: starts to increase because of an ageing population

Birth rate: continues to fall

The Development Gap

Causes of uneven development

Physical

- Many landlocked countries are found in Africa. With no access to the sea, they cannot easily trade with other countries.
- Tropical Africa, South America and Asia have more climate-related diseases and pests than cooler parts of the world e.g. mosquitoes which can spread malaria.
- Extreme weather such as tropical storms can slow development and it can be costly to repair damaged infrastructure.
- The lack of adequate supplies of safe water means that it is difficult to farm, people can waste time collecting water and people become ill from drinking dirty water.

Economic

- Most of the world's trade is between richer countries.
- Richer countries want to pay as little as possible for their raw materials, which often come from LICs.
- Processing of raw materials, which adds value to them, often happens in richer countries.
- Some countries are in debt because they have borrowed money to help industrialise.

Historical

- Many countries in South America, Asia and Africa were colonised by European countries in the past.
- In the process of becoming independent countries, many former colonies have had civil wars, meaning money was spent on armaments instead of development.

The Development Gap

Consequences of uneven development

There is a global imbalance between rich and poor

- Some countries, particularly in Africa and parts of the Middle East, have lower levels of development and a poorer quality of life than richer western countries.

Imbalances also exist within countries

- Areas of considerable poverty can be found in parts of the UK and USA, and great wealth in some of the world's poorest countries.
- Inequalities exist at all scales and in all countries.

LICs

- In Low Income Countries, only 2 in every 10 deaths are amongst people aged 70 years and over, whereas in High Income Countries 7 in every 10 deaths are amongst people aged 70 years and over.
- In Low Income Countries, complications of childbirth are one of the main causes of death, whereas in High Income Countries only 1 in every 100 deaths is among children under 15 years.
- In Low Income Countries, infectious diseases including lung infections, HIV/AIDS, diarrhoea-related diseases, malaria and TB are the main cause of death, whereas in High Income Countries the main causes of death are diseases such as heart and lung diseases, cancer, dementia or diabetes.

The Development Gap

Consequences of uneven development

Migration:

- An <u>immigrant</u> is a person who moves into a country.
- An <u>emigrant</u> is a person who moves out of a country.
- An <u>economic migrant</u> is a person who moves to seek a better life such as a better-paid job.
- A <u>refugee</u> is a person forced to move from their country of origin as a result of civil war or a natural disaster.
- A <u>displaced person</u> is a person forced to move from their home but who stays in their country of origin.

Middle East Refugee Crisis, 2015
- Civil war began in Syria: 2011
- Number of people killed: 470 000
- Number of refugees: 4 million
- Temporary camps in: Turkey, Jordan and Lebanon.
- Journey across the Mediterranean: In overcrowded and unsafe boats.
- Germany 2015: Germany welcomed migrants, prompting a mass exodus across Europe.
- March 2016: Turkey given political and financial benefits for taking back refugees.
- January 2016: Sweden announced it was going to deport 80 000 migrants

The Development Gap

Consequences of uneven development continued

Economic migration to the UK.

- History: The UK has a long history of immigration and is known for its tolerant approach and multi-cultural society.
- Since 2004: Over 1.5 million economic migrants have moved to the UK. Two thirds of them are Polish.
- Advantages of migration: Migrants pay tax, which is good for the economy and they are prepared to work hard in manual jobs e.g. farm labouring.
- Disadvantages of migration: Pressure on services such as health and education.
- The impact of Brexit: This is likely to reduce EU immigration in the future.

Reasons to migrate:

- The unemployment rate in Poland is over 10%. A push factor.
- People can earn up to five times as much in the UK. A pull factor.
- Money is often sent home to friends and relatives.

Problems in countries with high emigration:

- If the most educated and skilled people leave, there is a 'brain drain' effect.

Human Fieldwork

Selecting an appropriate title

The title of our enquiry is:

HOW HAS REGENERATION IN LOUGHBOROUGH IMPROVED THE LOCAL ENVIRONMENT?

Link to theory: Regeneration of a brownfield site; urban sustainability.

Location: Close to school (easy to access, some prior knowledge). In the centre of town. On previously derelict land (had been used as a hospital, which closed in 2003)

Sub-questions:

1. Has the quality of the buildings improved?

2. Has the perception of the area improved?

3. Do people feel more inclined to visit the area?

These questions were selected to enable us to make an overall judgement about whether the regeneration has made social, economic and environmental improvements to this part of Loughborough.

Human Fieldwork

Assessing risk / Hazard

Traffic: Potential Hazard: Main road (A6) and Baxter Gate are both busy roads. We could have been easily distracted by the fieldwork tasks. Our familiarity with the area could have led to us taking chances we would not in an unfamiliar environment.
Hazard managed by: We only crossed roads when it was safe to do so, and when in groups, when our teacher told us to. We made sure we were aware of our surroundings and the direction of traffic flow.

The General Public: Potential Hazard: We needed to make sure we did not get in people's way as it was busy. We needed to interview the public and therefore we had to talk to them.
Hazard managed by: We tried not to block entrances or the pavement. We wore our uniform so it was clear we were on a school trip. We were polite and interviewed people in small groups.

Weather: Potential Hazard: It was October and quite cold.
Hazard managed by: We wore suitable footwear and coats. We were prepared for rain.

Human Fieldwork

Data Collection Methods: Part One

Primary Data:

Traffic and Pedestrian Counts: Quantitative. traffic and pedestrian counts at different places along Baxter Gate (systematic sample). Each carried out for 5 minutes at 9 different time in the day.

Interviews: Quantitative and Qualitative (a mixture of multiple choice scores and free responses). Carried out near the market. Opportunistic sample – we approached as many people as possible. 38 people interviewed.

Field sketch and photos: Qualitative. Photos taken along all parts of Baxter Gate. Field sketch of the new development, paying particular attention to urban greening.

Street Transect: Qualitative. We mapped the land use (types and names of business) along both sides of Baxter Gate.

Noise Survey: Quantitative. Survey carried out at the top, middle and bottom of Baxter Gate. Scale of 1-6. 6 was 'Severe Noise'.

Environmental Impact Survey: Quantitative. Carried out at the new development. A number of aspects surveyed including vandalism and street furniture (benches / bins etc.)

Human Fieldwork

Data Collection Methods: Part Two

Secondary Data

Newspaper Articles:

We used articles from the *Loughborough Echo* written between 2013 and 2017. These told us:

- About the progress of the development, for example it opened in May 2016
- The number of jobs created: 250
- The different types of land use: cinema, restaurants, bars and new flats.

Google Earth

We use Google Earth to locate our fieldwork sites.

We also used the tool on Google Earth that showed aerial photographs of the site in the past.

We compared the changes in site between 2003, when the hospital first closed; 2011, when the site was derelict and 2017, when the site had been redeveloped.

Human Fieldwork

Data Presentation Methods: Part One

Simple Methods

Colour coding: We took the 'free response' comments from the interviews and colour coded them to show if they were positive or negative responses.

Pie charts: To show the age groups of the people interviewed.

Bar chart: To show the mean average score for interview questions.

Divided Bar Chart: To show the results of the traffic counts for different areas surveyed. The bars were divided to show the different types of traffic e.g. car, bus, van.

Human Fieldwork

Data Presentation Methods: Part Two

Sophisticated Methods

Located graphs and charts: We located line graphs showing the amount of traffic at different times of the day, at different parts of Baxter Gate onto GIS maps from Google Earth.

We also located pie charts showing the different types of traffic observed at different locations onto GIS maps from Google Earth.

Flow line map: We used different thicknesses of arrow to show the number and direction of pedestrians around the new development. We added this to a GIS map from Google Earth.

Desire line map: We produced a map showing the number, distance and home location of the people we interviewed.

Human Fieldwork

Evaluation: Part One

Effectiveness of data collection methods

Traffic and Pedestrian Counts:

Effective: Systematic. Wide range of sites. Members of the class had specific type of transport / direction to count which meant the count was more accurate. Counts done at several times throughout the day, meaning that trends could be analysed.

Limitations: Possibility of miscounting.

Could be addressed by: Using a 'clicker' (tally counter) or videoing the counts

Interviews:

Effective: We interviewed in the busiest part of town.

Limitations: More people from the older age groups.

Could be addressed by: Going back later in the evening.

Field sketch and photos:

Effective: Opportunity to look at our surroundings in more detail.

Limitations: Not necessarily accurate.

Could be addressed by: Taking a photo of the same location to add detail back at school.

Human Fieldwork

Evaluation: Part One contd.

Effectiveness of data collection methods

Street Transect:

Effective: Stratified technique. Enabled us to see how land use changed along the street.

Limitations: Was difficult to get the scale right and to map places correctly, for example opposite buildings on the other side of the street.

Could be addressed by: Could have used a pre-printed outline map and just filled in the business names and types.

Noise Survey:

Effective: We had descriptions to match the noise scores e.g. 'severe'

Limitations: Quite a subjective method. Results depended on the amount of traffic at any one time.

Could be addressed by: Taking a median or modal average of scores from each person

Environmental Impact Survey:

Effective: Enabled us to compare a range of factors

Limitations: Subjective

Could be addressed by: Taking a modal average of scores

Human Fieldwork

Evaluation: Part Two

Effectiveness of data <u>presentation</u> methods

Simple Methods

<u>Colour coding:</u>
Effective: Enabled easy identification of positive and negative comments.

Limitations: Did not rank or score how negative or positive the comments were.

Alternative to consider: Scoring each comment.

<u>Pie charts:</u>
Effective: Showed proportions of types of traffic in the area.

Limitations: Needed to use with more data to analyse fully.

Alternative to consider: Locating pie charts onto a GIS map to see where the different types of traffic were seen.

Human Fieldwork

Evaluation: Part Two contd.

Effectiveness of data <u>presentation</u> methods

Sophisticated Methods

<u>Flow line map:</u>
Effective: Showed which were the busiest areas and that more people were walking past the new development than into it.

Limitations: Did not show who the people were e.g. age group.

Alternative to consider: Combine this method with an age group pie chart of people interviewed.

<u>Desire line map:</u>

Effective: Showed where people had come from

Limitations: Did not show why they were visiting

Alternative to consider: Combine with the results of the interviews and have different coloured lines depending on reason for visit.

Practice Questions

From Paper 1:

Weather Hazards

1. Describe the global distribution of tropical storms (2 marks)
2. In which ocean do the most tropical storms occur? (1 mark)
3. Explain why tropical storms do not form at the Equator. (2 marks)
4. Describe the weather conditions at the eye of a tropical storm. (2 marks)
5. Describe two features of a tropical storm (4)
6. Explain the formation of a tropical storm (6)
7. Discuss how and why tropical storms may change in the future in terms of distribution, frequency and intensity. (9+3)

Hot Deserts

1. Describe two characteristics of the hot desert climate (4)
2. Describe the distribution of hot deserts. (2)
3. Explain why temperatures in hot deserts are much cooler at night. (4)
4. Describe the opportunities in a named hot desert environment. (4)
5. Describe the challenges in a named hot desert environment. (4)
6. 'Deserts can support increasing population sizes'. To what extent do you agree with this statement? (9)
7. Assess the extent to which challenges outweigh the opportunities for development in a named hot desert environment (9)

Coastal Landscapes

1. Name a coastal landform or feature created by erosion. (1)
2. Name a coastal landform or feature created by deposition.(1)
3. For one of the natural coastal features you identified in Questions 1 or 2 explain how it is formed. You may use a diagram (4)
4. Identify the differences between hard and soft engineering strategies used to manage coastlines. (4)
5. Using named examples, explain why coastal areas need to be managed. (6)
6. For a coastal landscape you have studied, explain why different engineering methods have been used to manage the coastline (6)

From Paper 2:

The Urban World

1. Define the term 'mega-city'. (2)
2. Suggest two reasons why the rate of urban growth is increasing more rapidly in developing countries.(2)
3. Explain why there are differences in the proportion of people living in urban areas in different parts of the world. (4)
4. Describe push and pull factors associated with rural to urban migration (4)
5. Considering the evidence from an urban area you have studied, explain how growth in cities in LICs or NEEs can create challenges for their populations. (6)
6. Outline attempts to improve the quality of life for the population of a named urban area within an NEE or LIC. (6)
7. Using a named example from an urban area in a LIC or NEE, evaluate the success of attempts to improve the quality of life within squatter settlements. (9 + 3)

Urban Change and Sustainability

1. Explain why it might be necessary to use green belt land to build houses. (2)
2. Explain the difference between 'Brownfield' and 'Greenfield' sites (4)
3. Discuss the success of attempts to improve transport systems in a named UK city. (6)
4. Outline how urban change has helped create social opportunities within a named UK urban area. (6)
5. With reference to specific examples, outline strategies used to manage traffic congestion in urban area. (9 +3)

The Development Gap

1. Give two reasons for changes in birth rates in countries with higher levels of development. (2)
2. Explain why some countries have higher life expectancies than others. (2)
3. Suggest how increasing economic development can affect the birth rate in Stages 3 and 4 of the Demographic Transition Model. (4)
4. Explain the advantages and disadvantages of using the Human Development Index to measure the development of a country. (6)
5. 'Uneven development is the result of historical causes'. To what extent do you agree with this statement? (9)

From Paper 3:

Human Fieldwork Investigation

You will be asked to write the title of your investigation

1. Explain how you managed one of the risks associated with your primary data collection. (2)
2. Describe two of the primary data collection methods you used in your enquiry. (4)
3. Justify the location you used for your investigation (4)
4. Explain how your data collection methods could be improved. (6)
5. Assess the effectiveness of your data collection and presentation methods in helping you to answer your original question in your human fieldwork investigation. (9+3)