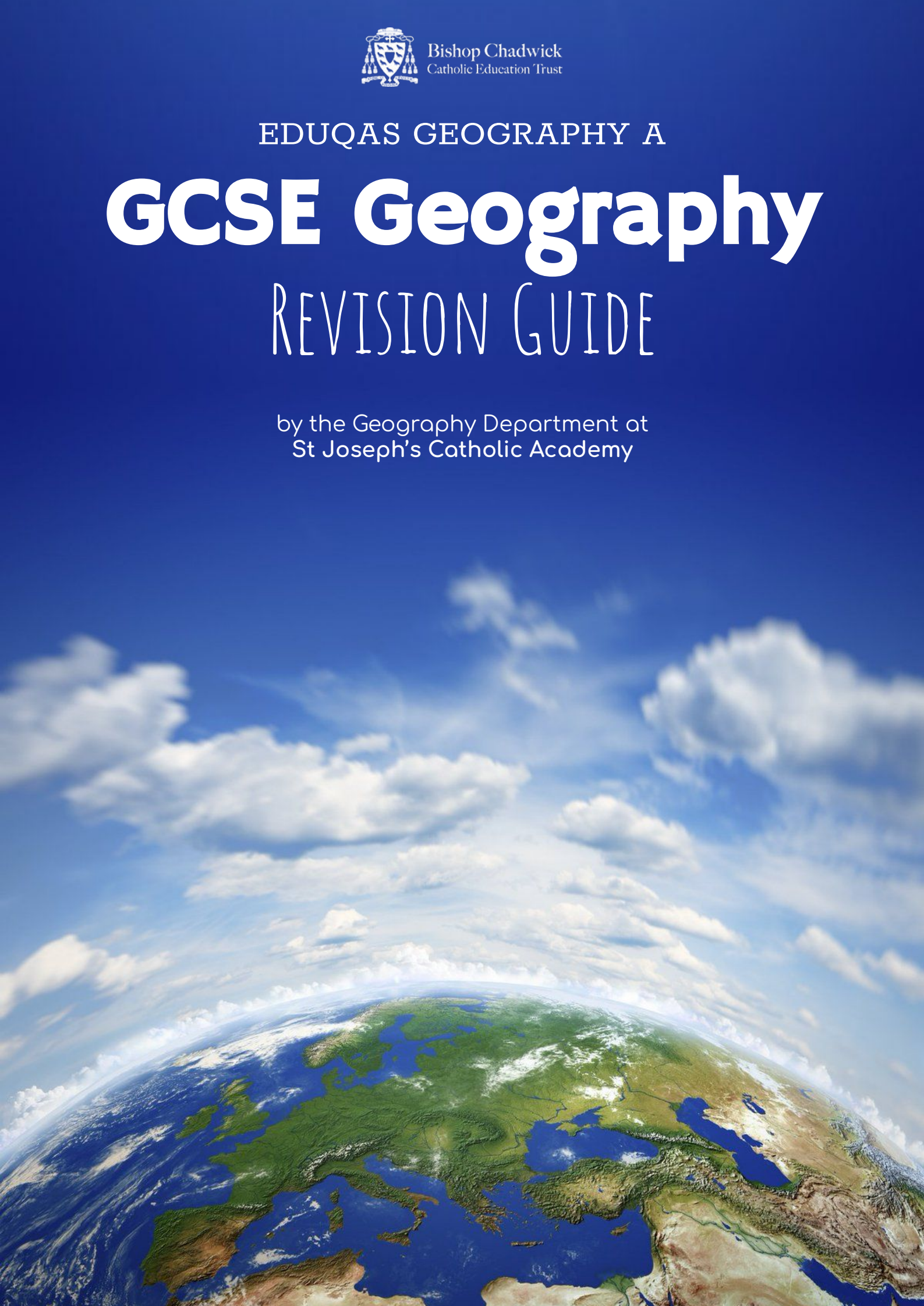
Bishop Chadwick
Catholic Education Trust

EDUQAS GEOGRAPHY A

GCSE Geography

Revision Guide

by the Geography Department at
St Joseph's Catholic Academy



Bishop Chadwick Catholic Education Trust
GCSE Geography Revision Guide

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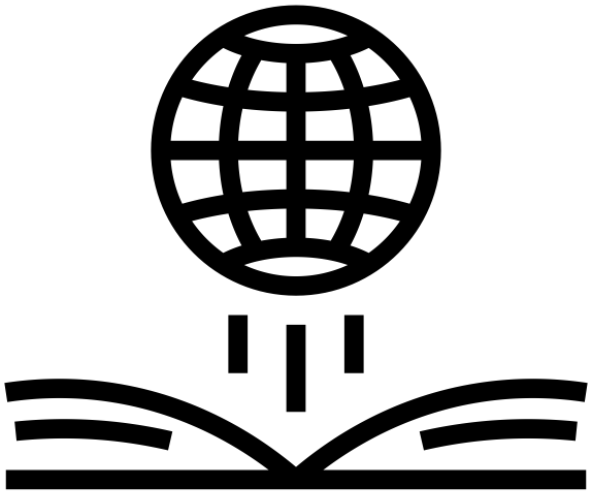

Version 0.4β (15/07/2020)

NAME:

This guide

is provided **free** to you to use for classwork, homework and revision. If you lose it or require a new one, you will need to pay for it. **A new guide costs £2.00**

An alternative revision guide

is available online, if you want to purchase one. It is provided by Hodder Education but you do not need to buy anything extra unless you want to.

My Revision Notes: WJEC GCSE Geography A

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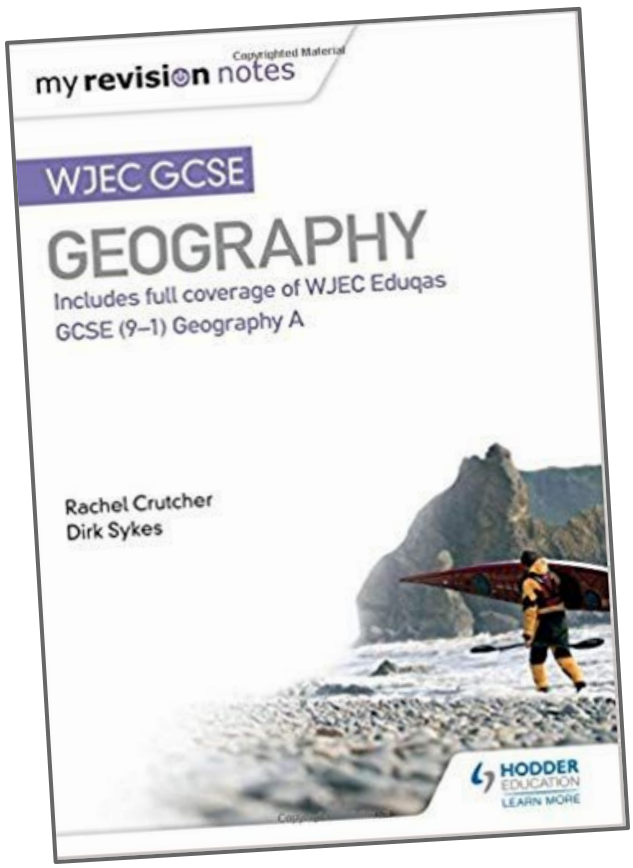


How to use this guide...

This guide contains the core theory you need to know for your GCSE exams. It does not contain loads of case study facts (which you could research yourself).

You should revise in your normal way using this guide, THEN do the 'NOW TRY IT...' tasks.

Each page has a YouTube code. This takes you to a five minute explainer clip. So if you're struggling with some of the theory you can click the YouTube icon on the digital version, or search for the code on the site if you have a paper copy.

The channel is called:
Five Minute Geography Lessons

Search YouTube for: FMGL-INT

Try this one now to get an introduction to the channel

Each page also has a:

TASK you can do to complement your own revision

CHALLENGE to take your revision further with research

QUESTION to test your understanding of the content. Answers are at the back of this guide

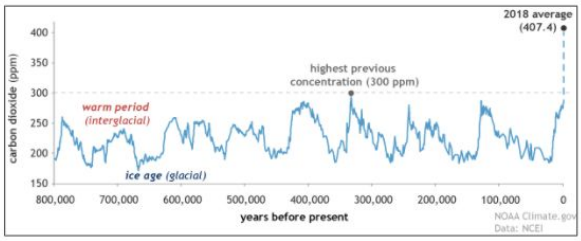
THEME 5: Weather, climate & ecosystems

Search YouTube for: FMGL5.1 *Watch a 5 min explainer by searching for this code on YouTube*

5.1 Climate change

Climate change is a phenomenon which can have natural and human influences. We have evidence that climate change happens on predictable natural cycles over the last 400,000 years BUT the in the last 100 years we've seen significant changes to this pattern.

Graph 1

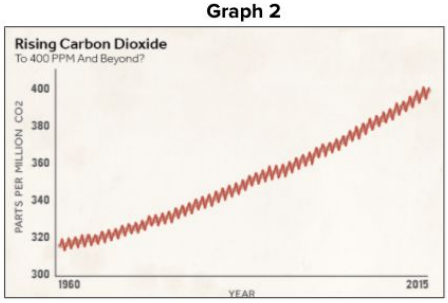


Trends

We have observed that the planet goes through periods of **cooling** (glacial periods) and **warming** (inter-glacial periods). This is shown in graph 1.

The graph shows the amount of carbon dioxide (CO_2) in the atmosphere. CO_2 is released from ice when it melts

Graph 2



Keeling curve (Graph 2)

In the last 60 years the amount of CO_2 in the atmosphere has dramatically increased (Look at the end of Graph 1 for the record in 2018).

Graph 2 shows the level of CO_2 in the atmosphere in recent years – it shows a sharp increase.

There are other factors which suggest climate change is increasing, including:

- **Increased melting of glaciers** and ice sheets
- **Increasing air temperatures** measured by the Met Office

Evidence: where do we get the data

Fossils of animals which could not live in our current climate today

Ice cores showing carbon dioxide levels in past years

Tree rings (dendrochronology) shows how long the growing season was each year

Past glacial features and processes in places with no ice now

NOW TRY IT...

Task:
Create a symbol for each of the 4 pieces of evidence. Annotate each to show how it is used to describe historic climate change

Challenge:
Research "climate change hockey stick graph" and write a paragraph explaining what it shows.

Question:
Describe the trend of CO_2 in the atmosphere over the last 400,000 years. (Graph 1) **[3] (AO1)**

THEME 1: Landscapes & physical processes

Search YouTube for: FMGL1.1

Watch a 5 min explainer by searching for this code on YouTube

1.1 Distinctive landscapes

The UK is made up of different features and landforms we call landscapes. Many of these are unique to a location, so we call them distinct landscapes. Such as the upland area of Snowdonia in Wales...

Snowdonia's Geology
Shaped by volcanic eruptions and glaciation;
Glacial features such as u-shaped valleys, corries & arêtes;
Highest mountain in Wales (1085m).

Snowdonia's Land Use
Slate mining history;
Pastoral farming (raising animals);
National Park – tourism.

Snowdonia's flora & fauna
Diverse range of plants and animals;
Rare species of beetle (Snowdon Beetle) and lily (Snowdon Lily).

People and Culture
Rich history and World Heritage Sites
(Celtic shrines & fortresses);
Welsh language.

Uplands – mountains and hills

Map 1

Lowlands – flat lands near sea level

NOW TRY IT...

Task:
Summarise this page into 4 short sentences.
Challenge:
Research South Tyneside as a lowland area (geology, land use, flora/fauna & people).
Question:
Describe, using Map 1, the distribution of upland and lowland areas of the UK. **[3] (AO1)**

Search YouTube for: FMGL1.2

1.2 Human impacts

The Lake District in Cumbria is a honeypot site. This is a place of special interest that attracts lots of visitors/tourists.

Carrying capacity

Carrying capacity is the maximum population the environment can handle. Honeypot sites will often exceed their carrying capacity.

Positives of human activity

Increased rural income from visitors;
Investment in tourism creates new jobs;
Diversification of farming economy – cafes, B&Bs, camping pods.

Negatives of human activity

Footpath erosion from lots of visitors walking trails;
Congestion on roads;
House prices increase due to people buying second homes.

Environmental challenges

These are issues caused by increased visitor numbers (visitor pressures), causing damage to the environment or draining natural resources.

Repairing the impacts of human activity

Footpath erosion in the Lake District is a significant issue. The National Park has:

- Closed popular footpaths for a period of time for the vegetation to recover
- Replacing footpaths with hard wearing stone and planting more vegetation
- Dedicated car parks and banning 4x4s from driving over the area

NOW TRY IT...

Task:
Create a spider diagram with 3 arms: positives, negatives, responses.
Challenge:
Classify the positives and negatives into social, economic or environmental.
Question:
Explain why honeypot sites are more likely to suffer environmental damage. **[4] (AO2)**

Search YouTube for: FMGL1.3

1.3 V-shaped valley

In the upper course of the river the river valley is described as being v-shaped. The river is small and the land around it is very steep.

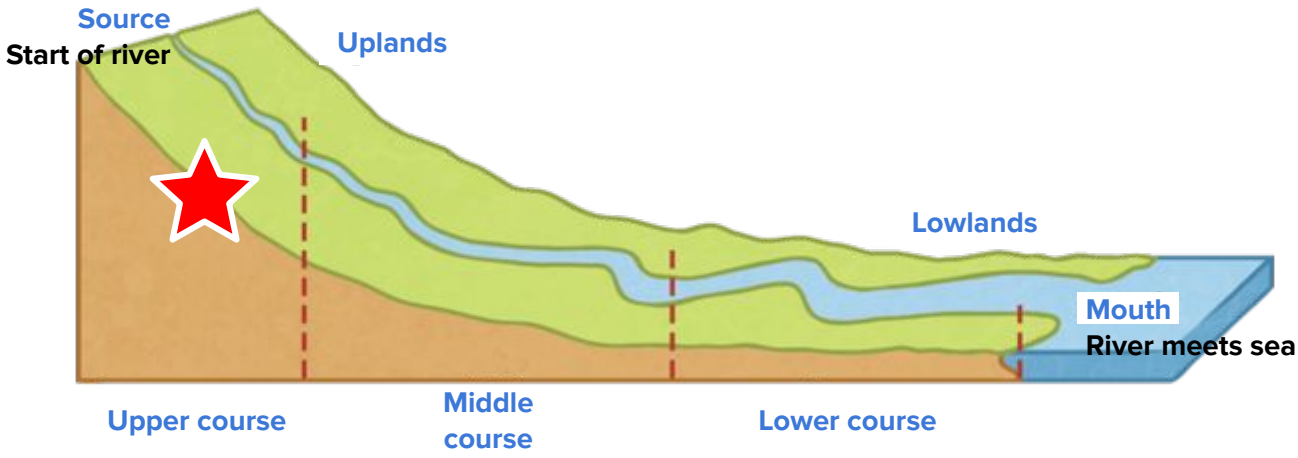


Photo 1

Interlocking spurs
Shoulders of dense and resistant rock are hard to erode so the river weaves in between these in a zig-zag pattern. These are called interlocking spurs.

Steep valley sides

River is narrow and winds around interlocking spurs

Loose material
The weathered material rolls down the valley into the river creating a rocky channel. Some smaller material is washed down stream.

Vertical Erosion
Water is pulled down by water, creating erosion on the river bed. This makes the channel cut deeper into the landscape, creating steep sided valleys.

Weathering
Freeze-thaw (water gets into cracks in rocks and freezes at night) and biological (roots get into cracks and expand them) weathering breaks down soil and rocks in the valley sides.

Very narrow valley floor

NOW TRY IT...

Task:
Draw your own sketch of a v-shaped valley and annotate the features. Use photo 1 to help.
Challenge:
Research "formation of v shaped valleys" and create your own set a diagram to explain the formation
Question:
Outline the characteristics of a v-shaped valley **[2] (AO1)**

Search YouTube for: FMGL1.4

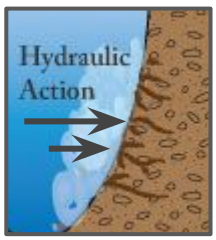
1.4 Main processes

Coasts & rivers are both changed by erosion. There are 4 main forms of erosion which can be applied in 2 different directions.

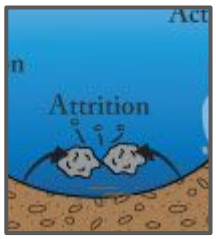
Coast & river erosion processes

Vertical erosion
This is when gravity pulls down on water and debris to erode the riverbed. This occurs in the upper course of the river.

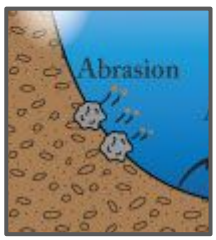
Lateral erosion
In the lower courses, where land is flat and close to sea level erosion is focused at the sides of the river channel



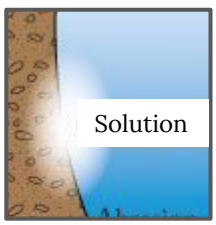
Hydraulic action
The sheer force of the water against the rock, trapping air in cracks which explosively forces the cracks bigger.



Attrition
Pebbles and stones hit each over in the water, clipping awat rough edges making them smoother and smaller.



Abrasion
The sandpaper effect - small pebbles are grated against the rock face, slowly rubbing away material from the face.



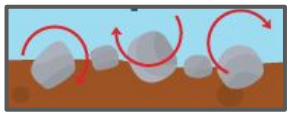
Solution
The slightly acidic water reacts with the carbonates in the rock, dissolving it slowly over time.

High energy

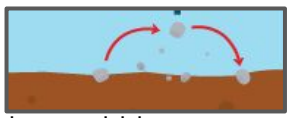
The amount of energy required for processes to happen. Rivers have the most energy in the upper course and the least energy in the lower course

Low energy

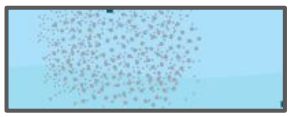
River transport processes



Traction
The heaviest material (such as large stones) in the river is rolled along the river bed.



Saltation
Small material such as pebbles and sand is bounced in a leap-frog fashion along the river bed.



Suspension
Tiny particles, such as silt and clay is carried in the water, it doesn't the river bed.

Solution
Some material will dissolve in the water and be carried as a solution (same process as erosion).

Coast & river deposition process

When there is not enough energy to carry the load, it will be dropped in place. This is called deposition.

NOW TRY IT...

Task:
Sketch and label a diagram showing the 4 main types of erosion

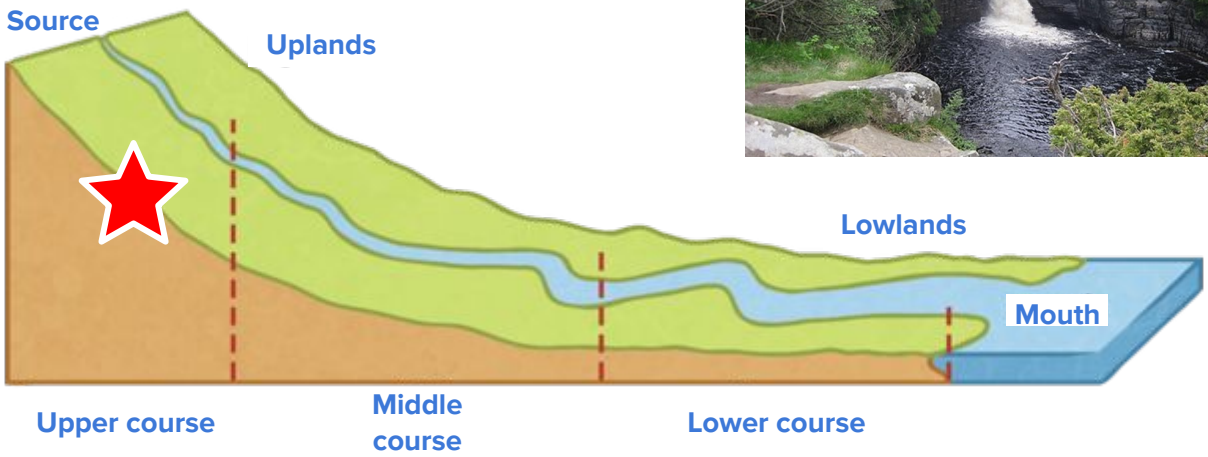
Challenge:
Draw a river long profile and locate where you would most likely find each type of erosion occurring

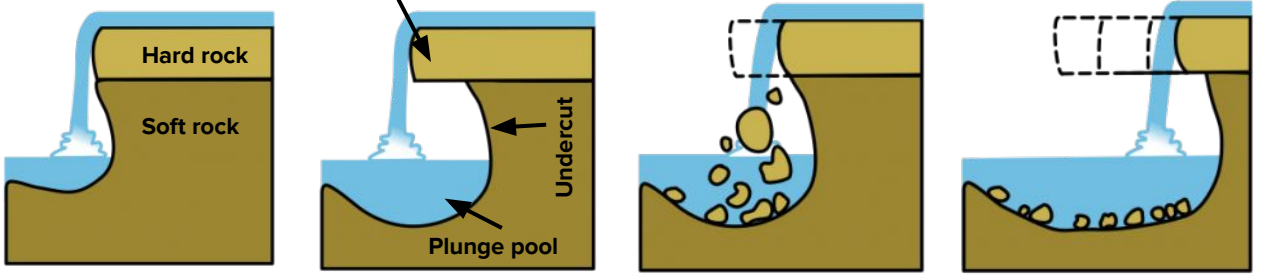
Question:
Describe how the type of transport changes along the long profile of a river **[4] (AO1)**

Search YouTube for: FMGL1.5

1.5 Waterfalls

In the upper course of the river we find waterfalls & gorges





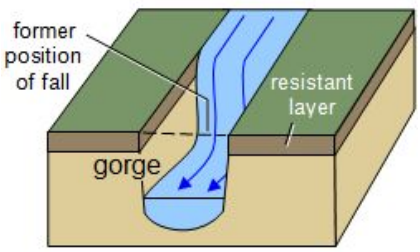
As the river bed crosses into soft rock from hard rock it is eroded at a faster rate by hydraulic action and abrasion. This creates a step in the river course.

As the water drops, hydraulic action continues to erode the soft rock underneath. Creating a plunge pool and undercut.

As the soft rock erodes further, the hard rock above loses support and collapses into the plunge pool.

This repeats over time and causes the waterfall to retreat back towards the source.

As the waterfall retreats it creates a tall, flat sided river valley, called a gorge. This gorge becomes longer and longer as the waterfall continues to retreat



NOW TRY IT...

Task:
Create a flow diagram which explains a waterfall formation, step by step. Remember to include why!

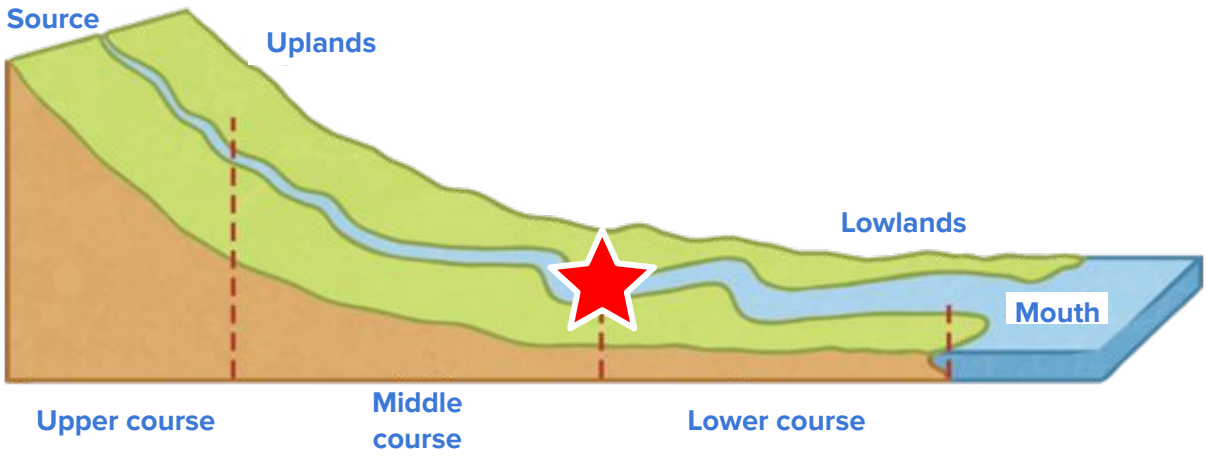
Challenge:
Find a photograph of High Force (like the one at the top of this page). Sketch your own version (or print the photo) and annotate the characteristics of this waterfall

Question:
Explain the formation of a waterfall **[4] (AO2)**

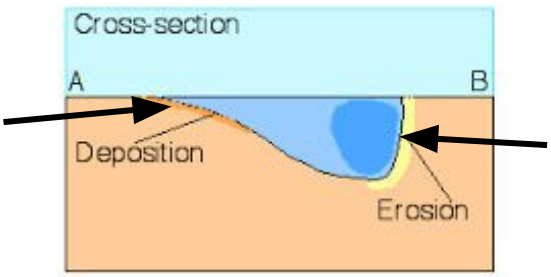
Search YouTube for: FMGL1.6

1.6 Meanders

Meander are 'turns' or 'bends' in the river. These are found in the middle and lower course of the river.

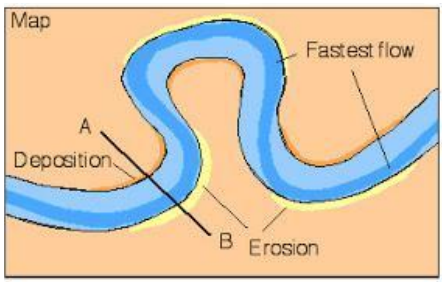


Inside bend
Water is slowed down on the inside bend due to low water depth creating fiction. The river loses energy here and drops its load (deposition). This creates a gentle slope called a slip-off slope or point bar or river beach.



Outside bend
Water flows faster on the outside bend of the river - so it has more energy here and erodes (hydraulic action & abrasion) the river bank, creating a river cliff and undercut.

Lateral erosion
When the river finds its way to lower levels, it is no longer constrained by mountains or interlocking spurs, so it is free to erode laterally



Over time
As theses erosional and depositional processes occur, over time the meanders migrate (move) across the valley floor.

NOW TRY IT...

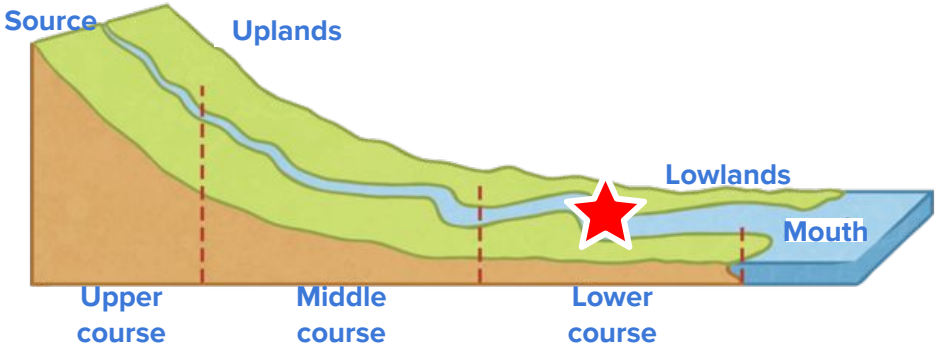
Task:
Sketch the meander cross section and label the features mentioned in the text
Challenge:
Research meander migration and write/sketch/annotate how this happens
Question:
Describe the characteristic of the inside bend of a meander **[2] (AO1)**

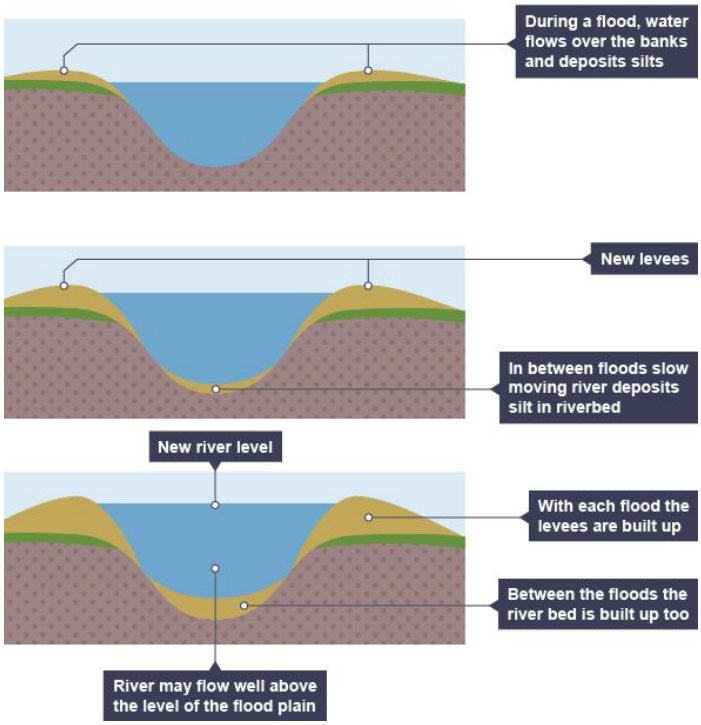
Search YouTube for: FMGL1.7

1.7 Floodplains

Floodplains are wide and flat expanses of land on either side of a river. These are found in the lower course of the river.

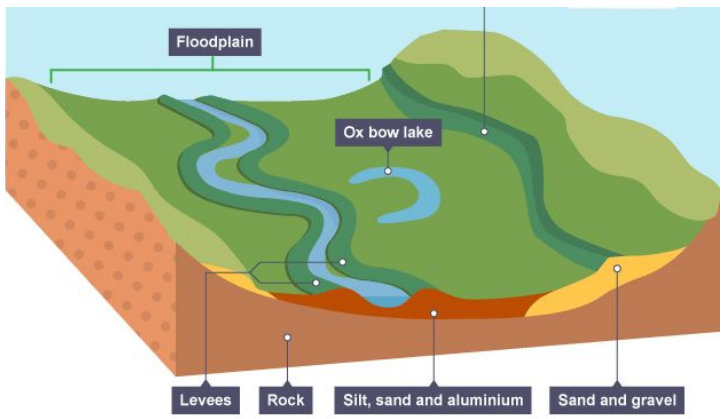
Humans
The flat and fertile land is attractive to mankind for farming or building. However the risk of flooding creates additional issues!





River banks
When the river floods, it will deposit the heaviest material first, right at the side of the river. This create natural walls at the side of the river called Levees.

Flooding
When a river floods the floodplain becomes covered in water. The water instantly loses energy and deposits the alluvium on the valley floor. This layers up becoming flat and fertile land.



River migration
As river meanders migrate (move across the valley floor), it levels out the valley floor as it erodes and deposits fresh alluvium (silt & sand).

NOW TRY IT...

Task:
Create a spider diagram with 3 arms: formation, characteristics, human uses and add notes to each arm
Challenge:
Write a paragraph which explains how meander migration helps create floodplains
Question:
Explain how levees are formed **[4] (AO2)**

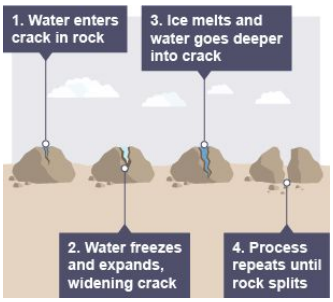
Search YouTube for: FMGL1.8

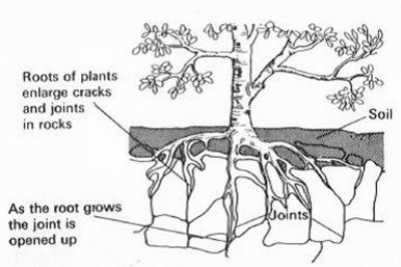
1.8 Coastal processes

Our coasts are shaped by several different processes including those mentioned in 1.4 (main processes). Below are some processes unique to the coast.

Freeze-thaw (Physical) weathering

Water trapped in cracks in the cliff face freezes overnight. When water freezes it expands, making the cracks larger. The water melts during the day and the bigger crack lets more water in ... the process repeats each night until the rock breaks free from the cliff



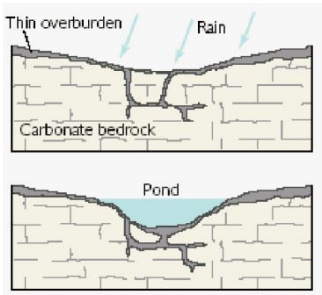


Biological weathering

The roots of plants or burrowing animals dig into the soil/rock around the cliffs. This weakens the soils/rock and starts to break away.

Chemical weathering

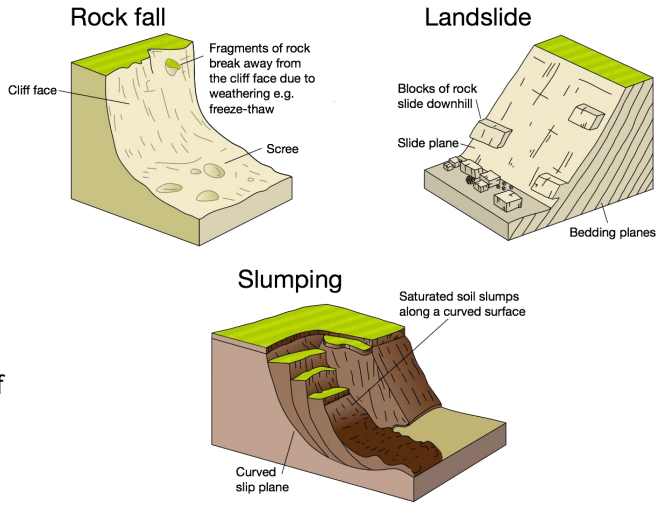
This is also called carbonation - rain and salt water can be slightly acidic. This reacts with the carbonates in the limestone rocks, creating cracks in the rock.



Mass movement

Mass Movement is the downhill movement of cliff material under the influence of gravity. There are 3 types of mass movement:

Rockfall As the weathering processes (above) weaken the structure of the cliff rock fragments fall away.
Landslide Large blocks of the cliff slide down to the base of the cliff due to erosion weakening the base of the cliff
Slumping When soft rocks like clay become too wet from rainfall and weakened by erosion, the entire cliff face slips down in a curve, making steps in the cliff



NOW TRY IT...

Task:
Create flash cards for each type of process, including each of the mass movements
Challenge:
Google a photo of 'Marsden Rock'. Explain how some of these processes have led to the formation
Question:
Explain how freeze-thaw weathering results in rock fall (mass movement) **[2] (AO2)**

Search YouTube for: FMGL1.9

1.9 Longshore drift

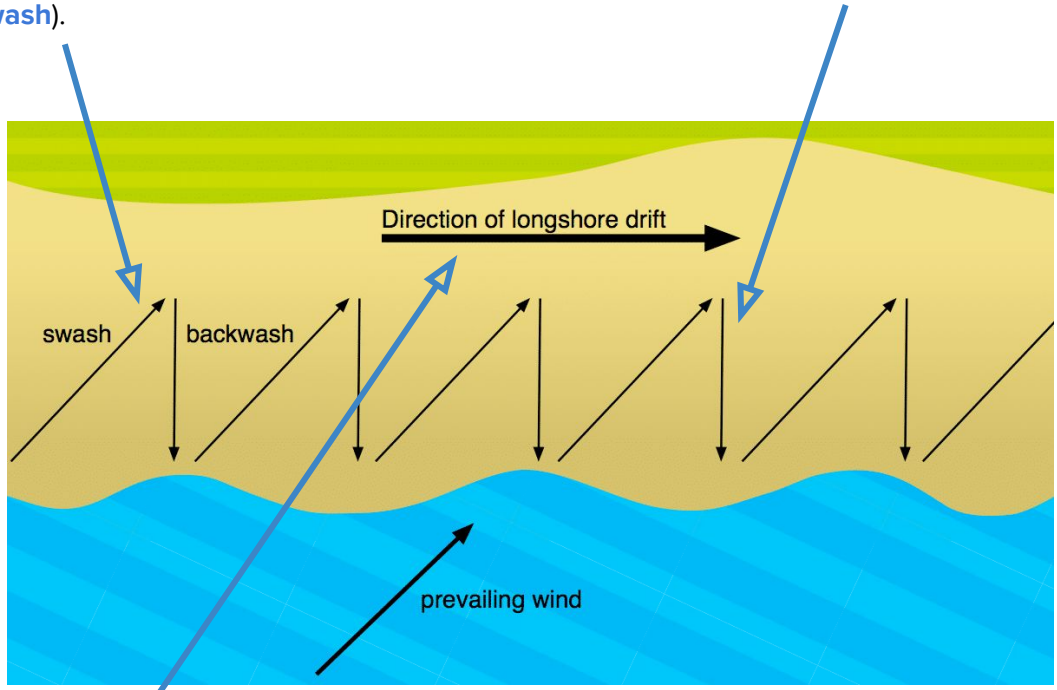
Material is moved along the coast by the process of Longshore Drift. This is a transport process which only occurs at the coast.

1

Prevailing winds
The dominant (prevailing) wind direction blows the waves up the beach at the same direct and angle as the wind. This carries any sediments in the water up the beach (**swash**).

2

Backwash
As the waves retreat back down the beach, the water is pulled by gravity at right angles to the coast. The wave picks up beach sediments along the way.



3

Continuous cycle
This process continues over and over again. The beach sediments are moved down the beach in the general direction of the prevailing winds.

In the UK...
Longshore Drift happens clockwise around the Island. Moving south-north on the west coast and north-south on the east coast.

NOW TRY IT...

Task:
Create a storyboard to outline the journey of a grain of sand down the coast
Challenge:
Research what problems longshore drift can produce and add these to your storyboard
Question:
Explain how sediment is transported at the coast **[3] (AO2)**

Search YouTube for: FMGL1.10

1.10 Coastline geology

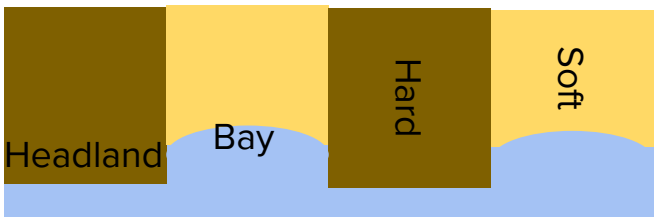
The geology of the coastal area can affect the types of landforms which develop. There are two major geological coastlines - concordant and discordant.

Concordant coastlines

The bands of hard and soft rocks run parallel to the coast.

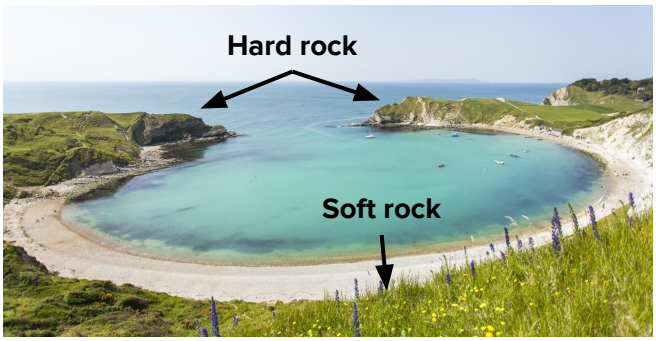
Discordant coastlines

The bands of hard and soft rocks run perpendicular to the coast.



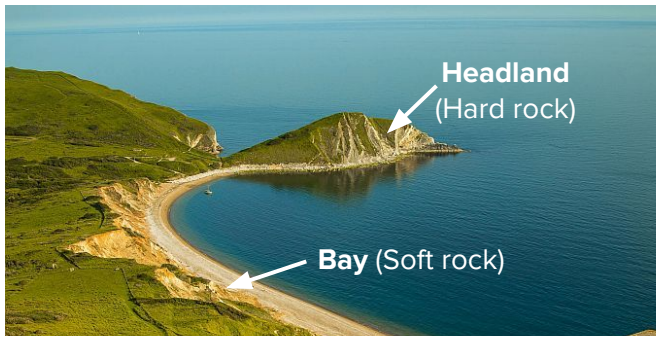
Coves

Coves are bays with narrow entrances due to the hard rock but expand wider into the soft rock



Bays and headlands

Bays are deep depressions in the cliff with wide open entrances. The hard rock acts like walls (**headlands**) on either side of the bay which stick out into the sea



Geology

Soft rocks

Soft rock, such as sand and clay, erode more quickly. They are weak structurally with loose material or wet clays.

Hard rocks

More resistant rock, such as chalk and limestone are stronger in structure with tightly compacted material. Some rock like granite is incredibly strong.

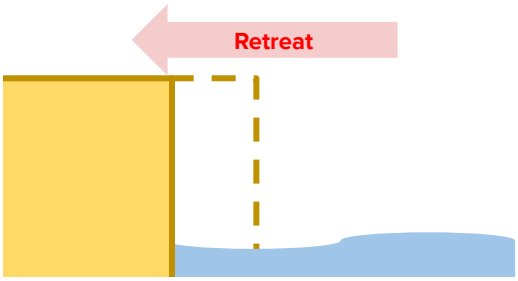
NOW TRY IT...

Task:
Create a table with two columns to show the differences between the two types of coastlines
Challenge:
Research 'Isle of Purbeck BBC Bitesize', copy the geology map and annotate the features
Question:
Which coastline would erode faster? Explain your answer **[2] (AO2)**

Search YouTube for: FMGL1.11

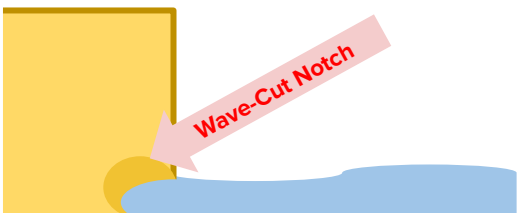
1.11 Wave-cut landforms

The erosion and retreat of the cliff produces 2 unique landforms wave-cut notches and wave-cut platforms.



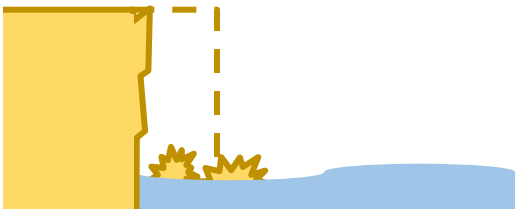
Cliff retreat

The sea attacks the base of the cliff between the high and low water mark. Erosion occurs on the cliff face causing collapse and this means the cliff retreats inland.



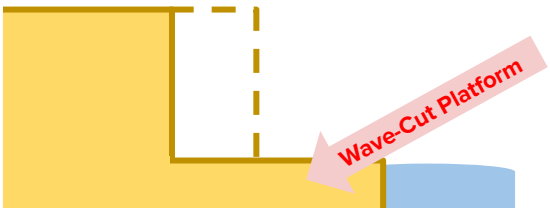
Wave-cut notch

As hydraulic action and abrasion erode the base of the cliff it creates an undercut called a wave-cut notch - this is a dent in the cliff usually at the level of high tide.



Cliff collapse

As the notch increases in size, the cliff becomes unstable as the wave-cut notch weakens the base of the cliff and the rock above collapses away. The backwash carries away the eroded material, leaving a wave-cut platform.



Wave-cut platforms

As this process continues and the cliff retreats it leaves a flat surface of rock below the high tide mark called a wave-cut platform

NOW TRY IT...

Task:
Make revision cards on each stage and get someone to test you
Challenge:
Create 1 diagram and add all the steps to it and annotate the processes which form them
Question:
Explain how wave-cut platforms are formed **[6] (AO2)**

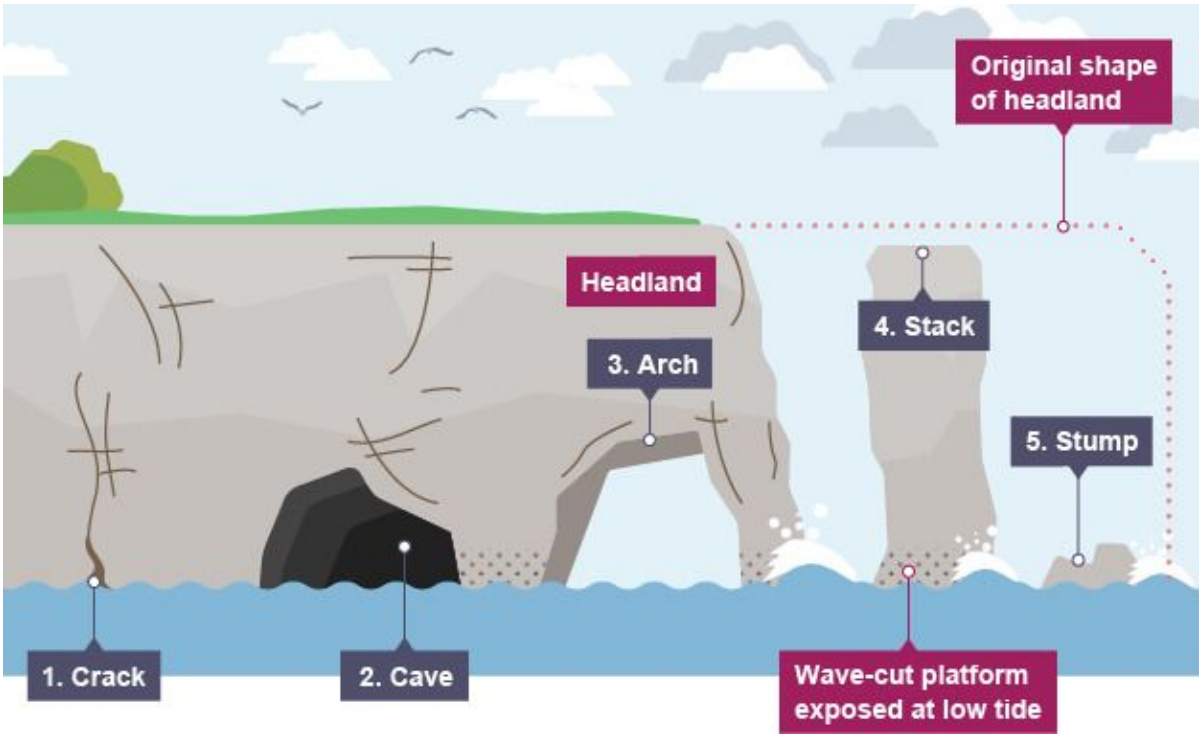
Search YouTube for: FMGL1.12

1.12 Coastal landforms

Headlands stick out into the sea and take the majority of the sea's erosional power (see 1.4, 1.8 & 1.11), creating the following features:

Arches
Caves occur on both sides of the headline. When they meet in the middle, it create a gap through the headland called an **arch**.

Stacks
Weathering and solution erode the bridge of the arch which eventually collapsed into the sea. This leaves a tower of rock left standing on its own called a **stack**.



Cracks are weakened areas of rock running up-down on the cliff face. Hydraulic actions and weathering forces these cracks to widen over time

Caves
When these cracks widen, abrasion can now occur and create a large undercut within the gap creating a **cave**

Stump
Over time, the stack continues to erode until it only just above the water line. This is called a **stump**

NOW TRY IT...

Task:
Sketch out a headland diagram and annotate the the features seen
Challenge:
Add additional annotations about the ersional from earlier pages in the guide (1.4, 1.8 & 1.11)
Question:
What is an arch? **[2] (AO1)**

Search YouTube for: FMGL1.13

1.13 Additional landforms

Beaches, spits and rock pools are produced by a variety of processes along the coastline.

Beaches
Formed by DEPOSITION
A beach is a build up of sand/shingle/stones which are deposited by the swash. Beaches build up due to constructive waves - these have a stronger swash than a backwash.

Spits
Formed by LONGSHORE DRIFT & DEPOSITION
The deposited beach material can be moved along the coast by longshore drift. When the coast changes direction the beach material is deposited in the sea which builds up into a long strip of land called a spit. When the sea current or wind direction changes, the direction of sediment build up also changes, creating a 'hook' at the end of the spit.

Offshore bars
Formed by DEPOSITION
In shallow seas where the waves break some distance from the shore. These can also form where steep waves break on a beach, creating a strong backwash that carries material back down the beach to form a ridge.

Rock pools
Formed by EROSION
As water draws back into the sea at low tide, abrasion scours the wave-cut platform is eddies (circles). Over time these eddies erode hollows into the wave-cut platform called rock pools.

NOW TRY IT...

Task:
Create your own mix and match of keywords and definitions to test yourself on each landform
Challenge:
Research where offshore bars most commonly occur and explain your choice.
Choose one from: **[at an estuary]** **[near tall cliffs]** **[in deep water]**
Question:
Use sketches and annotations to describe the formation of a spit **[3] (AO4)**

Search YouTube for: FMGL1.14

1.14 Changing landscapes

The rate at which a river or coast landscape changes can be due to a number of factors including - geology, climate, extreme weather & human activity

Clay
Loose, soft rock

Granite
Dense, hard rock

Geology
Some rock types erode faster than others (*sedimentary* limestone or clays erodes quicker than *metamorphic* granite). The direction rocks are layered in can also affect this eg. concordant or discordant coastlines (see 1.10).

High, strong waves during 2014 winter storm

Climate
The direction of the prevailing winds will influence the movement of longshore drift (loss of sand from the beach) and whether a wave is constructive or destructive. The winter brings stronger winds and more storms. If an area gets more rain then it will cause more erosion and flooding in rivers.

Storm Desmond, 2015

Extreme weather events
Powerful storms can increase the destructive nature of waves on the coast, or produce more water in rivers, which increases erosion and flooding events.

Footpath erosion leading to mass movement

Human activity
Humans can increase rates of change such as footpath erosion on cliffs or building on floodplains but humans can also put management in place is slow erosion or transport processes, like dams, groynes, river dredging & afforestation.

NOW TRY IT...

Task:
Come up with an mnemonic to remember each factor eg.: **G**iraffes **C**an **E**xercise **H**appily

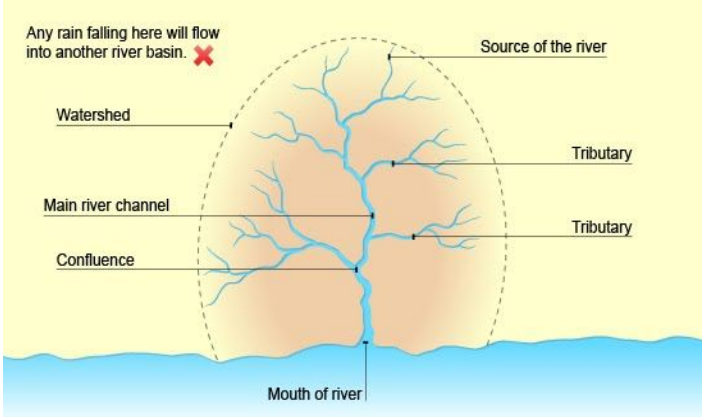
Challenge:
Research how Marsden rock has changed over time. How have humans shaped this change?

Question:
'*Human factors have a larger impact on coastal change and any other factor.*' To what extent do you agree with this statement? **[8] (AO3)**

Search YouTube for: FMGL1.15

1.15 Drainage basins

A drainage basin is an area of land drained by a river and its tributaries. For example, any rain that falls in Newcastle and Gateshead flows into nearby rivers and then into the Tyne.



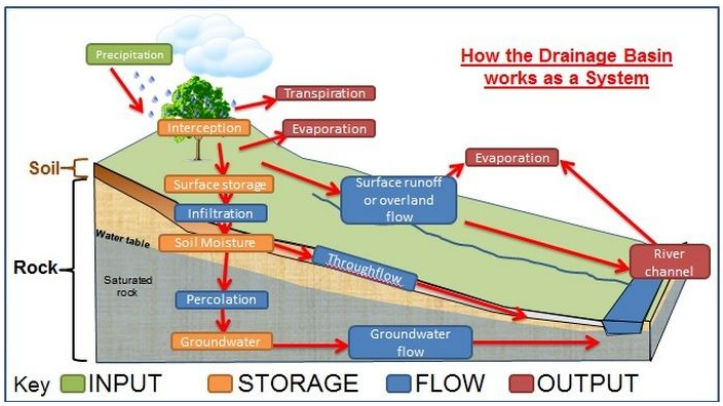
Features of a Drainage Basin

Each drainage basin has the following features:

- Source: This is where the river begins, starting a small stream on higher ground
- Tributary: This is a small river which joins a larger river (i.e. The Ouseburn in Newcastle)
- Confluence: This is the point at which two rivers meet
- Mouth: This is where the river enters the see (i.e. Tynemouth)
- Watershed: This marks the edge of the drainage basin. Any rainfall outside of the watershed is drained by a different river.

Drainage Basin Hydrological Cycle

The drainage basin hydrological cycle details the different ways in which water can move through a drainage basin. Water flows through, is stored in and taken out of the drainage basin.



Storage

- Interception: Trees can intercept rainfall
- Surface storage: Rainfall may collect in puddles on the ground
- Soil moisture: Water can be stored within the soil
- Groundwater: Water may makes its way through to rock beneath the ground and be stored as groundwater

Flow

- Infiltration: Rainfall flows into the soil
- Throughflow: Water flows through the soil
- Percolation: Water flows into rock beneath the ground
- Groundwater flows: Water flows through the rock beneath the ground
- Surface runoff: Water flows over the ground and into the river

Output

Water is taken out of the drainage basin by the river, evaporation and transpiration

NOW TRY IT...

Task:
Create revision cards for the features of a drainage basin and get someone to test you

Challenge:
Research 'transpiration' and 'evaporation' - describe the difference between the two processes

Question:
What is a drainage basin? **[2] (AO1)**

Search YouTube for: FMGL1.16

1.16 Causes of flooding

Rivers can flood due to a vast number of different reasons. It can be due to the climate, the type and amount of vegetation, if tarmac has been laid or the type of rock beneath the ground.

Heavy or prolonged rainfall
A high volume of rainfall will cause a river's discharge to increase rapidly, increasing the chances of the river bursting its banks.

Prolonged rainfall can cause the ground to become saturated. Any further rainfall will run quickly into the river

Snowmelt
If temperatures increase in area that has snow, the water produced by the snow melting will increase the discharge of the river

Steep Slopes
If the land surrounding a river is steep, rainfall will run quickly across the ground as surface runoff, increasing the river's discharge over a short period of time

Urbanisation
Urbanisation concerns the expansion of towns and cities into the surrounding countryside. Roads and pavements are built using a tarmac, an impermeable material. Rainfall flows quickly over tarmaced surfaces as it cannot infiltrate into the ground, leading to rapidly increasing discharge and the an increased likelihood of a river bursting its banks.

Geology
Geology concerns the rock type of an area. If a drainage basin has impermeable rock, water is unable to percolate into the rock. As a result, the rainfall flows into the river via throughflow and surface run off

Vegetation
Trees intercept rainfall as it falls from the sky. If there is a lack of vegetation, more rainfall reaches the ground and eventually the river, seeing a large increase in discharge.
An area may naturally lack vegetation that is capable of interception due to the climatic conditions of the area, or vegetation may have been deforested by humans.

NOW TRY IT...

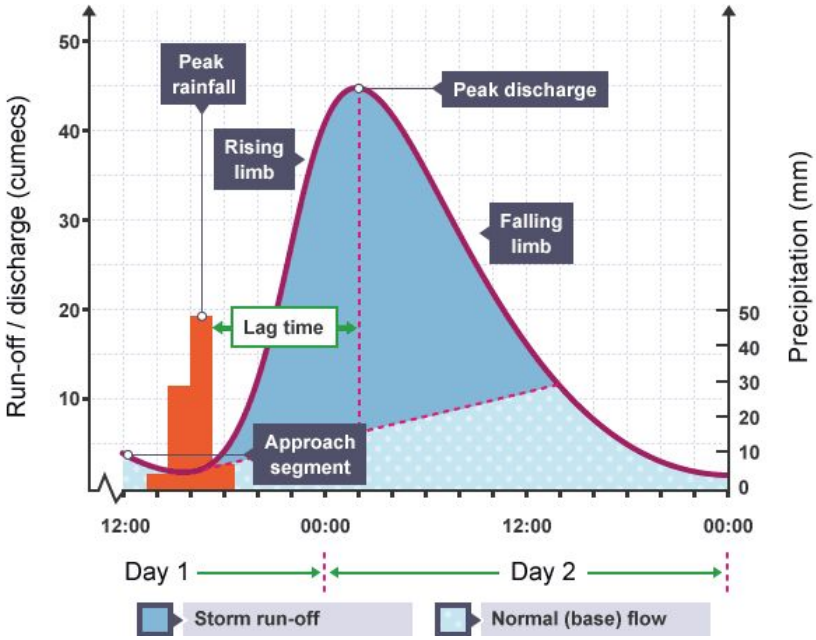
Task:
Create a mind-map on why rivers flood - include an image for each reason
Challenge:
Research the 2007 flood of Tewkesbury, Gloucestershire and explain why the flood occured
Question:
Explain why rivers flood **[4] (AO2)**

Search YouTube for: FMGL1.17

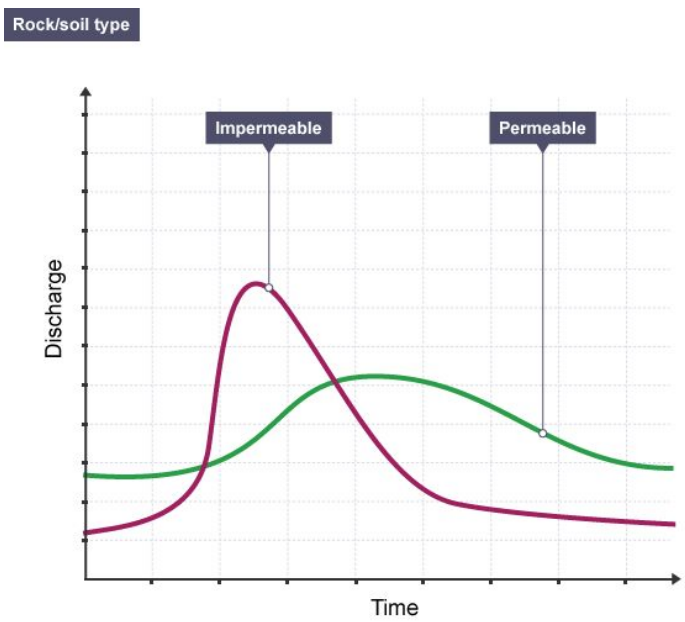
1.17 Flooding factors

A hydrograph shows two graphs - a bar chart showing rainfall, usually from a storm and a line graph showing discharge from before, during and after the rain storm shown in the bar graph. Basically, it shows you the ways in which a river is affected by a storm. This helps us to understand discharge patterns of a particular drainage basin and helps to predict flooding and plan flood prevention measures.

Peak rainfall is the time of highest rainfall.
Peak discharge is the time when the river reaches its highest flow.
Lag time is a delay between the time it takes for the water to find its way to the river.
Rising limb is the normal (base) flow of the river starting to rise when run-off, ground and soil water reaches the river.
Falling limb shows that water is still reaching the river but in decreasing amounts.



The shape of the graph tells us about the different factors of the drainage basin. A steep rising and falling limb suggests an **urban area** as water reaches the river quickly (short lag time) see the red line on the graph. Where as **rural areas** have shallow limbs and less discharge as water is intercepted by vegetation and infiltrates into the ground (longer lag time) see the green line on the graph



NOW TRY IT...

Task:
Sketch out an urban and rural storm hydrograph and add labels to describe its characteristics
Challenge:
Research some examples of storm hydrographs on River Tyne, Wear or Tees
Question:
'Humans are to blame for rivers flooding' Discuss **[8] (AO3)**

Search YouTube for: FMGL1.18

1.18 Flood management

Flooding can have devastating impacts on people and the economy. As a result, money and ideas are focussed towards managing rivers to either prevent them from flooding altogether or reduce the impact.

Hard Engineering

Hard engineering methods of flood management involve building structures or manipulating the natural environment to prevent the river from flooding at times of high discharge. Since hard engineering often involves construction, it is often expensive and may negatively impact the natural environment. However, hard engineering is often very effective at protecting towns and cities from floods.

One example of hard engineering is a dam. The dam stops the flow of the river and water can pass through in a controlled way. An advantage of dams is that when the water passes through, it can generate hydroelectric power. However, often when a dam is built the lands behind the dam is flooded, forcing people to move and destroying local ecosystems.

A second example is an embankment. An embankment is wall on the side of the river. An advantage of this that the river level can rise beyond the original banks of the river and still not flood onto the land either side. However, many argue that these structure look unnatural.

Soft Engineering

In contrast to hard engineering, rather than trying to change the natural environment, soft engineering attempts to work with the natural environment. Due to the fact that structures are not built, it is cheaper than its counterpart and has less of an impact on the environment. However, it may be argued that soft engineering is less effective at stopping flooding.

One example of soft engineering is floodplain zoning. This involves marking out a zone either side of the river that is not to be built on. Therefore, when the river floods there is little or no economic damage. An advantage of this method is that it is cheap. However, it does little to protect buildings that have already been built in close proximity to the river. In addition, due to increased demand for housing, there is an argument that such land should be used to build new homes.

NOW TRY IT...

Task:
Draw a table - compare and contrast hard and soft engineering
Challenge:
Research 'river dredging' and 'afforestation' - create a profile on each
Question:
Explain why local residents may oppose hard engineering to manage flooding **[4] (AO2)**

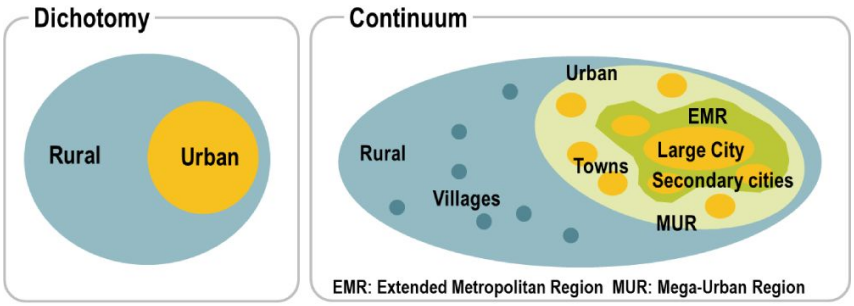
THEME 2:
Rural-urban links

Search YouTube for: FMGL2.1

Watch a 5 min explainer by searching for this code on YouTube

2.1 Rural-urban continuum

Settlements (places where people live) have often been categorised as rural and uban. Rural settlements are characterised by low populations and few services. In comparison, urban locations are characterised by high population density and a vast array of different services. However, we have a number of settlements between these two extremes, leading to the use of a rural-urban continuum.

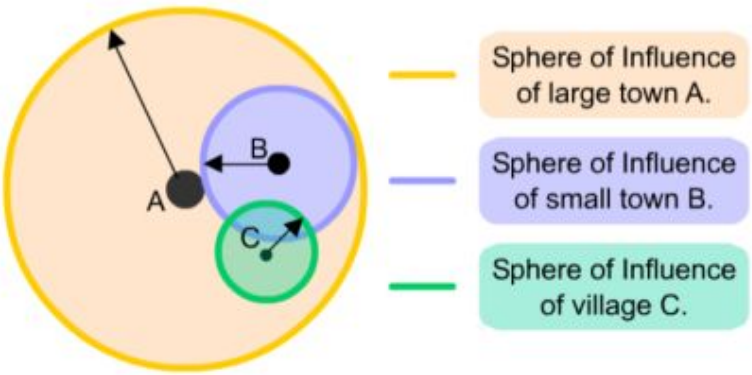


Rural-urban continuum

As can be seen from the diagram to the left, we categorise settlements along a continuum as there are many settlements that show both urban and rural features, sitting between the extremes of a lone house in the countryside and an expanding metropolis.

Service provision

As we move along the continuum from the most rural to the most urban locations, the number of services provided by each settlement increases. For example, in a small village there is likely to be a post office, a pub and possibly a coffee shop. However, in a large city that needs to provide for millions of people we see a large number of shops, supermarkets, banks, hospitals, modes of public transport and entertainment providers.



Sphere of Influence

Due to the vast number of services that cities provide, they attract people from the surrounding area who do not have access to these services locally. For example, someone living in Hebburn may travel into Newcastle to watch Premier League football - something which is not available locally. In addition, many people may travel into a city each day to go to their place of work. This magnet-like attraction of a city is known as a city's sphere of influence.
The sphere of influence is stronger if there is good transport into the city, if the residents being attracted are close by and if the city is large.

NOW TRY IT...

Task:
Assess Newcastle's sphere of influence - what draws people in? Is it accessible?
Challenge:
Research 'HS2' and explain why some argue this may increase London's sphere of influence
Question:
What determines the strength of a city's sphere of influence? **[3] (AO1)**

Search YouTube for: FMGL2.2

2.2 Counter-urbanisation

Since urbanisation is the process of people moving from rural to urban areas, counter-urbanisation is the opposite of this. Often in search of a more peaceful lifestyle, city dwellers pack their items and move to a rural location. This can negatively impact rural locations in a number of ways.

Why are people moving to rural locations?

- Often those moving are young families that a need a larger home. Homes may be more affordable in rural locations, particularly in comparison to cities such as London
- Due to improved transport, such as motorways and train lines, it is now easier to live outside of the city and commute into work
- Rural locations are often more peaceful and boast low crime rates, something that is particularly attractive to the elderly population
- Improved internet connection in rural areas means that it is now possible for many to work from home, eliminating the need to stay in the city
- Traditionally, many businesses would be located in city centres, but we are now seeing many businesses located on the edge of cities. This means that these workplaces can be easily accessed by those that live outside of the city.

How is counter-urbanisation impacting rural locations?

- If a rural location becomes more popular with city dwellers who are wanting a more peaceful lifestyle, house prices will increase. This may mean that those who have grown up in the village cannot afford housing
- With many travelling into the city for shopping, village shops will go out of business
- More cars on rural roads, adding to noise and air pollution
- Rural schools may become overwhelmed by an increase in the student population

NOW TRY IT...

Task:
Separate the reasons why counter-urbanisation takes place into push and pull factors

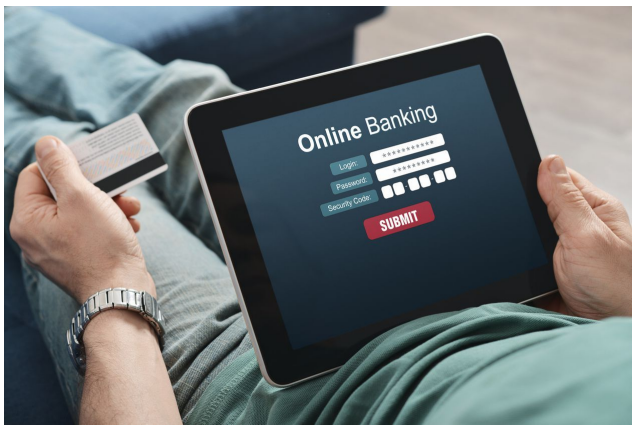
Challenge:
Research 'counterurbanisation London' and create a case study fact file

Question:
Explain two ways in which counterurbanisation negatively impacts rural settlements **[4] (AO2)**

Search YouTube for: FMGL2.3

2.3 Changing rural areas

Due to both a city's sphere of influence and counterurbanisation, rural locations are changing. There is less need for many of the services traditionally found in rural settlements. Technology has assisted the transformation, making it easier for people to commute to work and allowing people to access services online.



Rural deprivation

Deprivation is when an area has a lack of the services it needs to allow for a reasonable standards of living. This can include things such as jobs, transport, shops, schools and healthcare.

The process of rural deprivation can be understood as a **negative multiplier effect.** What this means is that one factor has a knock-on, negative effect.

In the case of rural deprivation the first negative factor is a lack of jobs, this causes people to move to urban settlements in search of work. As a result, there are fewer people using the services in the rural settlement, forcing services such as shops and post offices to close. Those working there lose their jobs and the process continues in the form of a downward spiral.

How are rural locations changing?

- Due to improved internet access in rural settlements, many choose to do their banking online. As a result, small bank branches in villages are forced to close
- With many able to quickly access urban locations as a result of improved road networks, shopping is regularly done at large supermarkets. Therefore, village shops lack customers and are also forced to close. In addition, shopping can be ordered online and delivered from large supermarkets
- Rural settlements that are well connected to cities become extremely popular, leading to increased house prices. Locals are unable to find affordable housing as a result
- With many of those moving to rural settlements having access to a car, the number of people using local bus services decreases to the point at which they no longer run

NOW TRY IT...

Task:
Create a mind map on why rural locations are changing - give examples
Challenge:
Research 'positive multiplier effect' and consider ways rural deprivation could be reversed
Question:
Explain how a lack of jobs in villages can leads to rural deprivation **[4] (AO2)**

Search YouTube for: FMGL2.4

2.4 Sustainable rural areas

Due to the deprivation of rural areas throughout the UK, attempts have been made to make rural communities more sustainable. Being sustainable means that the needs of residents are met now and into the future. Therefore, whilst aiming to meet the needs of resident, there is also a consideration of the environmental impacts of any changes. For example, whilst a large factory may provide jobs to those in a rural settlement, it may not be sustainable due to the environmental impact caused.

Egan's Wheel

Egan's wheel outlines the criteria that needs to be met for a community to be sustainable. There is a social, economic and environmental focus.

Socially, the community needs to be fair, safe and inclusive. This could mean there is a community action group, the crime rate is low and everyone can access the community (i.e. it is affordable to live there).

Economically, the community needs to offer jobs. This gives residents spending power, increasing the trade for local shops and services. Transport links should allow for people to easily access other settlements to ensure that they don't feel that they have to move.

Environmentally, the settlement should strive to not negatively impact the environment. For example, a village may use renewable energy to reduce emissions.

Making rural communities sustainable

Transport links: Providing public transport allows people to access urban settlements. This prevents people from leaving the rural settlement, avoiding rural deprivation

Jobs: Job availability in a rural settlement prevents people from leaving in search of work. It also gives residents money to spend at other shops and on other services

Education: Providing good quality education prevents families from leaving

Healthcare: Providing healthcare means that the community is inclusive. Those with long-term health conditions do not have to leave

Renewables: Using green energy reduces the environmental impact of the settlement

NOW TRY IT...

Task:
Write a checklist of what a community needs to be sustainable - think of an example for each point

Challenge:
Research 'rural regeneration' and explain how it is important for creating sustainable rural communities

Question:
Explain two ways in which rural communities could be made more sustainable **[4] (AO2)**

Search YouTube for: FMGL2.5

2.5 Changing populations

In mid-2018 the UK's population reached 66.4 million. The UK's population growth rate between 2017 and 2018 was just 0.6% - the smallest growth rate since 2004. There are multiple reasons for the UK's changing population. These reasons can be categorised into social, political and economic factors.

Social Factors

Universal healthcare: As a result of the NHS, residents of the UK are able to access the healthcare they need. Therefore, there is a high life expectancy and a low death. This can contribute to population growth as less people are dying.

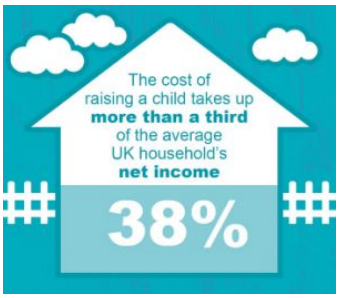
Culture: In many HICs, women go onto further education and pursue a career. Often women will wait until they've been in a job for a while before they have a child. This reduces a woman's fertility period, impacting their ability to have a large number of children. Statistics may reveal this with 1.88 children born per woman in 2018, placing the UK 137th in the world.

Contraceptives: Contraceptives are readily available and education is provided to children at school. This impacts the birth rate as there are less unwanted pregnancies.

Economic Factors

Cost of a family: The cost of raising a child increases year on year. Expenditure on clothes, food, clubs and childcare deters many couples from having a child or perhaps more than one.

Maternity pay: By law, businesses have to pay maternity pay. This may encourage some couples to start a family.



Political Factors

Migration: According to the Office for National Statistics, migration has been the main contributor to the UK's population growth in recent years. In addition, foreign-born woman have more children than British-born woman (a fertility rate of 2.08, compared to 1.76 in 2014).

Vaccination: Children in the UK are vaccinated. This reduces the death rate.

NOW TRY IT...

Task:
Create a spider diagram on the different factors that affect population growth

Challenge:
Research 'demography of the United Kingdom' and find statistics to explain why and how the UK's population has changed

Question:
Explain two social factors which affect population growth **[4] (AO2)**

Search YouTube for: FMGL2.6

2.6 Migration

The Office for National statistics found that migration has been the main driver of population growth in the UK since 1990. Due to the free movement of people, many migrants have come from EU member states. The reasons people have moved to the UK can be economic, social or political.

Why do people move to the UK?

Economic factors: There is an availability of jobs of all kinds, ranging from manufacturing to banking. In addition, jobs in the UK pay good wages.
Political factors: The UK is a stable, democratic society. Anyone of voting age can choose who they would like to run the country.
Social factors: The UK has a fantastic national healthcare system. State schools are of a high standard. Some will move to join family members already in the UK.

Impacts of migration

- Dangerous, low-paid jobs are filled
- Increase in young adults paying taxes
- Pressure on schools to provide for non-English-speaking pupils
- A more diverse culture, offering a variety of food, music and clothing
- House prices may increase in desirable areas due to increased demand
- Increased birth rate due to foreign-born mothers having more children

Natural population change vs. migration

Natural population change accounts for the difference between the number of births and the number of deaths. If there is a higher number of births, the population has increased. If there is a higher number of deaths, the population has decreased. In 2018, the UK experienced a natural change of 115,000 with 731,000 live births and 616,000 deaths – the lowest level of natural change since 2003.

Net migration is the the number of people who have entered the country, minus those who have left. An estimated 226,000 more people moved to the UK with an intention to stay 12 months or more than left in the year ending March 2019.

As can be seen from the statistics, migration is the most significant contributor to the UK's steadily increasing population.

NOW TRY IT...

Task:
Create two lists - one on the push factors that lead to people moving to the UK and one on pull factors
Challenge:
Research 'UK migration' and find statistics on how net migration has changed over time
Question:
Explain two positives of migration for the UK **[4] (AO2)**

Search YouTube for: FMGL2.7

2.7 Ageing population

Many developed countries are experiencing an ageing population, which is where low birth rates and death rates combined with increased life expectancies (people are living longer) means the median age of the population increases.

This can bring both opportunities and challenges for the country. Ageing populations have occurred in countries such as Japan, UK, France and Germany due to their high levels of development. People are living longer because they have more wealth, have better more varied and reliable diets, have access to improved medical care and medicines have advanced too.

Opportunities:

People are living longer and enjoying healthier lives.

An older population tend to have solid and traditional views and morals so they set a good example to the younger generations.

Grandparents and elderly relatives also play a crucial role in child care and the associated costs which allows parents to work to contribute to the economy.

Some older people are given the choice to work longer therefore they are contributing to the economy and their skills and experience are passed onto younger generations.

Some retired people have a disposable income and therefore contribute to the economy through their leisure and recreational activities.

Retired people sometimes volunteer, therefore providing essential work for the community which boosts the economy.

Challenges:

Older people put a strain on healthcare as they are more likely to require regular medical treatment e.g. for heart, eye and hearing weaknesses.

Pensioners do not work which contributes to a shrinking workforce, which reduces the economy and tax base.

Older people are more likely to get ill/injured, so longer opening hours for surgeries and better accessibility to health care staff are essential. This would cost the NHS millions.

Pensions have to paid for longer so it takes more money out of the economy. Some countries face a pension crisis, when there is not enough money to pay increasing demands for pensions.

Maintaining a good quality of life for the elderly is also a moral issue.

NOW TRY IT...

Task:
Categorise the opportunities and challenges of an ageing population into social, economic and environmental impacts.

Challenge:
Research a population pyramid for an ageing population and annotate it using key-words.

Question:
Explain the advantages and disadvantages of an ageing population **[4] (AO2)**

Search YouTube for: FMGL2.8

2.8 Sustainable urban areas

Just like rural areas, urban areas also need to be sustainable. This is a built up area in which there is minimal damage to the environment, the economic base is sound, resources and jobs are equally shared, there is a strong sense of community and local people are involved in making decisions.

Developing Sustainable Urban Areas
Greenfield vs. Brownfield Sites

Greenfield sites are those that have not been built on before. They are easier and cheaper to build on as there's nothing to knock down and there's more land available. But this isn't sustainable as it is destroying the natural environment and animal habitats.

Brownfield sites are those that have been built on before and is often derelict. Planning permission is often easy to obtain and there are already existing services. This is a more sustainable method of development however space is often limited and it can be expensive.

Sustainable urban areas should:

- Be active, inclusive and safe for all members of the community and there should be a strong sense of local culture.
- Have a thriving economy whereby local jobs and services flourish
- Be environmentally friendly and provide green spaces for people to enjoy.
- Conserve energy and water wherever possible, this includes installing solar panels, collecting rainwater and turning off appliances and taps.
- Be well connected with good transport and communication links to connect people to other people and their jobs. Integrated Transport Systems are a method of increasing connectivity and promoting public transport.
- Be fair to all and have effective governance where local people participate in decision making.

NOW TRY IT...

Task:
Create a mind map of the characteristics of a sustainable urban area.
Challenge:
Research some sustainable strategies implemented in the city of Newcastle
Question:
How can urban areas be sustainable **[3] (AO1)**

Search YouTube for: FMGL2.9

2.9 Changing UK retail

Retailing is the activity of selling goods or services and the process has undergone a transformation in the past 60 years which has impacted cities and towns within the Uk and the world.

In the past, people shopped to purchase goods. There were two main types of goods, **convenience goods** (necessities bought everyday such as milk and bread) and **comparison goods** (items purchased less frequently and were more expensive such as household appliances). Neighbourhoods therefore sold convenience goods in local shops such as butchers and bakeries whereas larger shops in the Central Business District would compete for prices of comparison goods.

Nowadays, shopping has become a hobby to be enjoyed as a leisure activity. People want to be able to do more than shop and are willing to travel further, hence the development of out of town shopping centres. The development of technology has also led to an increase of internet shopping which makes it possible for people to engage in retailing without even having to set foot in a shop. However there are positives and negatives of both out of town shopping centres and internet shopping.

Positives of out of town shopping centres	Negatives of out of town shopping centres
Large, free parking	Only really big chain stores
Less congestion on roads nearby	Attracts shoppers from city centre shops
More space for larger stores	Encourages more urbanisation in rural areas

Positives of internet shopping	Negatives of internet shopping
More convenient and often cheaper	Not everyone has access to the internet
Traffic in cities is reduced	More vulnerable to online/financial fraud
More jobs for delivery drivers	Can't see goods, might not be as expected

Changes in Retail

One of the most significant impacts of changes to retail in the UK is the decline of the high streets which has seen the closure of large stores such as Mothercare and Woolworths, and a reduction in local small businesses.

NOW TRY IT...

Task:
Create a table to compare the advantages and disadvantages of out of town shopping centres and internet shopping.

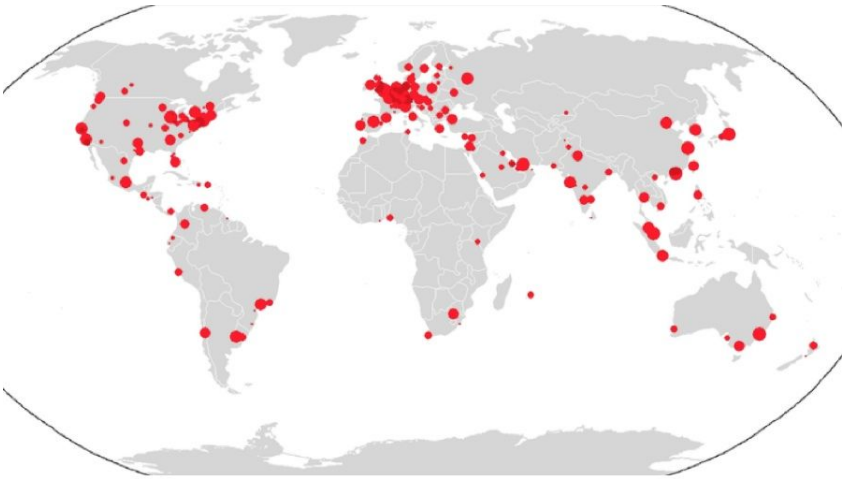
Challenge:
Research how changes in UK retail are impacting upon high streets..

Question:
What are the costs of out of town shopping centres? **[3] (AO1)**

Search YouTube for: FMGL2.10

2.10 Global cities

Global cities and megacities are different entities. Global cities are the most important cities in the world in terms of economic and cultural impacts. These cities, such as London, New York and Paris, are not always the largest cities in the world, but they play an important role in economic links with other countries. This map shows the distribution of global cities across the world.



<u>Global Cities are connected to each other and other places around the world by:</u>

Finance and Trade - global cities are the world's financial centres as banks locate their head offices in these cities and decisions regarding world trade are made here. This makes them very important places for the economy.

Migration and Culture - global cities attract economic migrants from all over the world. This pattern of migration results in cultural diversity which means that new languages, traditions, foods, celebrations and religions are brought to the country. For example in London over 250 languages are spoken.

Governance and Decision-Making - global cities are home to some of the most influential businesses and companies in the world where decisions made can influence the rest of the globe. For example the UN has headquarters in New York and yet employs 41,000 people worldwide.

Ideas and Information - global cities are home to many of the world's largest television and film industries, broadcasting all across the globe.

Transport Hubs - global cities are home to some of the world's largest airports which allow for the movement of people, goods and tourists across the globe. For example about 158 flights arrive at Dubai International Airport.

NOW TRY IT...

Task:
Summarise the information above into 5 bullet points.
Challenge:
Create a case study of a global city in a LIC and a HIC. Make sure to include the reasons for their growth and how they are connected across the globe.
Question:
Using the map above, describe the distribution of global cities across the world **[3] (AO1)**

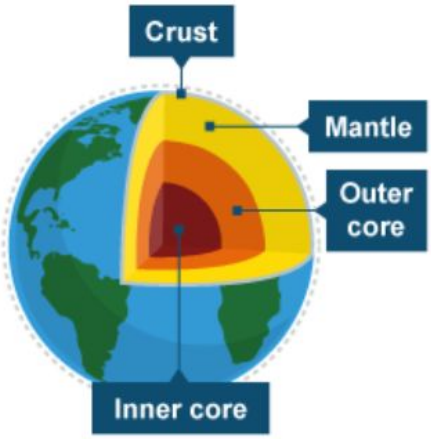
THEME 3: Tectonic landscapes & hazards

Search YouTube for: FMGL3.1

Watch a 5 min explainer by searching for this code on YouTube

3.1 Tectonics

The Earth's Structure

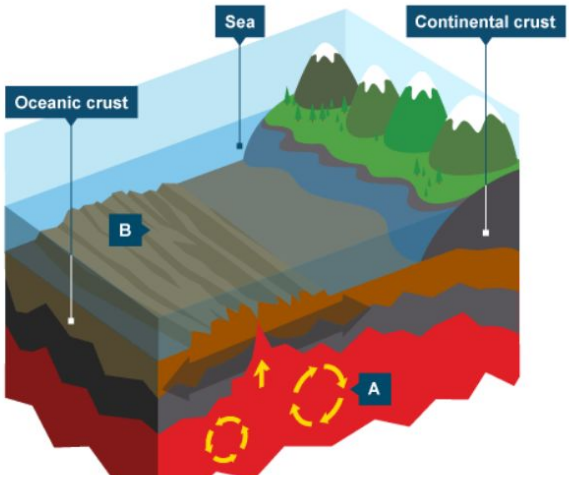


The Earth has four main layers - the inner core, the outer core, the mantle and the crust.

- The inner core is 5,500°C - extremely hot. It is a very dense solid made from iron and nickel.
- The outer core is 2,000 km thick and is a liquid.
- The mantle is semi-molten and about 3,000 km thick.
- The crust is the rocky outer layer. It is approximately 5 to 70 km thick

Plate Movement:

The crust is made up of pieces called plates. Heat from the core causes convection currents in the mantle and these currents slowly move the crust / plates around. There are two types of crust / plates: continental (land) and ocean (under the sea) and these have distinct different characteristics.



Oceanic Plates	Continental Plates
Young Denser Less than 200 million years old Will subduct Can be melted	Old Less dense Over 1500 million years old Will not subduct Cannot be melted

NOW TRY IT...

Task:
Create revision cards on the different layers of the Earth's surface and 2 different types of plates

Challenge:
Name all of the tectonic plates on the Earth's surface

Question:
Explain the differences between oceanic and continental plates **[2] (AO2)**

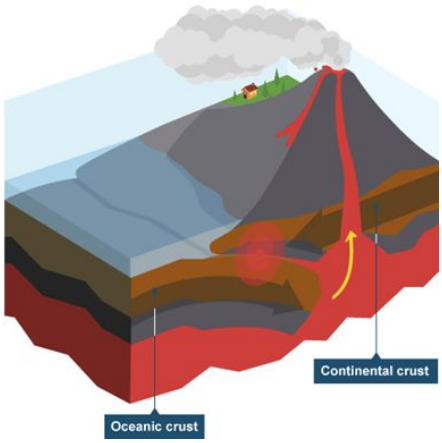
Search YouTube for: FMGL3.2

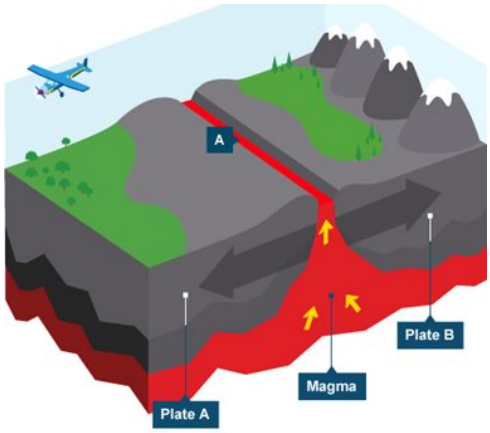
3.2 Plate boundaries

Tectonic plates are pieces of the rocky outer layer of the Earth known as the crust. These plates are constantly moving, and volcanoes and earthquakes are found at plate boundaries. There are a number of different types of plate boundary.

Destructive Boundary

A destructive plate boundary occurs when an oceanic plate is forced under the lighter continental plate. Friction causes melting of the oceanic plate and may trigger earthquakes. Magma rises up through cracks and erupts onto the surface as a volcanic eruption.



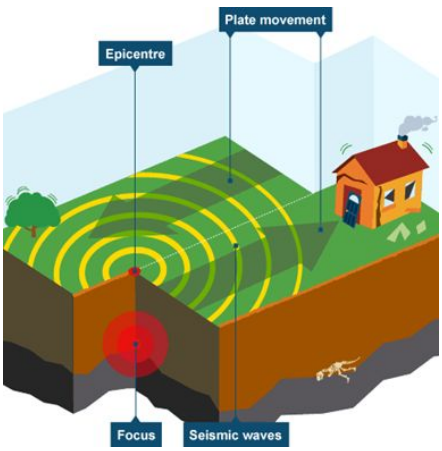


Constructive Boundary

A constructive plate boundary occurs when plates move apart. Volcanoes are formed as magma wells up to fill the gap, and eventually new crust is formed.

Conservative Boundary

A conservative plate boundary occurs where plates slide past each other in opposite directions, or in the same direction but at different speeds. Friction is eventually overcome and the plates slip past in a sudden movement. The shockwaves created produce an earthquake.



NOW TRY IT...

Task:
Draw annotated diagrams of the 3 different plate boundaries.

Challenge:
Can you find a case study for each plate boundary including naming the tectonic plates involved.

Question:
Describe the process occurring as a destructive boundary. **[3] (AO1)**

Search YouTube for: FMGL3.3

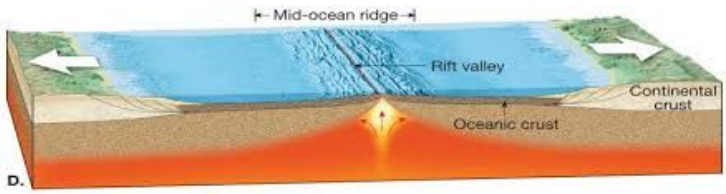
3.3 Tectonic landforms

There are 4 basic landforms that you need to know found at plate boundaries. These are fold mountains, mid ocean ridges, ocean trenches and types of volcano.

Constructive Plate Boundary Features

Rift Valley: A depression in the ground caused by tectonic plates moving away from each other. Rift valleys are found both on land and at the bottom of the ocean..

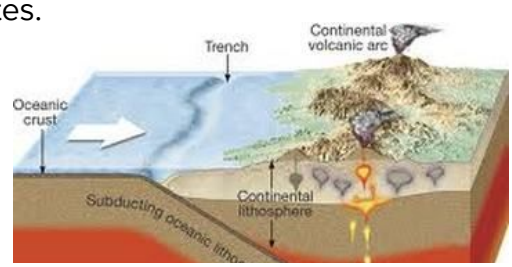
Mid-ocean ridge: An underwater mountain range caused by tectonic plates moving away from one another. Molten rock from the mantle wells up and hardens forming new oceanic crust.

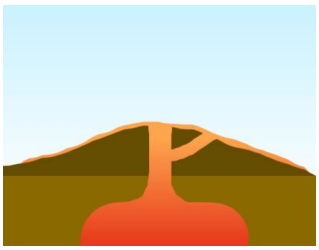


Destructive Plate Boundary Features

Fold Mountains: Large mountain ranges where the layers of rock within them have been crumpled as they have been forced together.

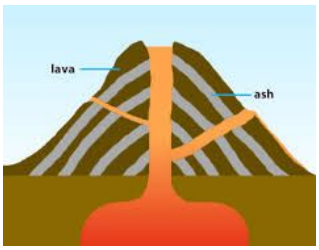
Ocean Trench: Deep water areas that run along a coastline, they are created by subduction and a gap forms betweens the two plates.





Shield Volcano

- Found at **Constructive** plate boundaries
- Non-acidic lava
- Runny lava
- Gentle sides as the lava flows for long distances before it solidifies
- No layers
- Less violent eruptions.
- Shorter periods between eruptions



Stratovolcano

- Found at **Destructive** plate boundaries
- Acidic lava
- Viscous (sticky) lava
- Steep sides as the lava doesn't flow very far before it solidifies
- Alternate layers of ash and lava
- Violent eruptions
- Longer periods of time between eruptions

NOW TRY IT...

Task:
Create a mindmap of the different tectonic landforms.

Challenge:
Research named examples for each of the different tectonic landforms and create a fact file.

Question:
Outline the characteristics of a stratovolcano **[3] (AO1)**

Search YouTube for: FMGL3.4

3.4 Physical volcanic risks

Physical volcanic risks are those that are created by the hazard. There are four main physical risks as a result of volcanic eruptions including, pyroclastic flows, ash clouds, lahars and lava flows.

Lahars (mudflows)

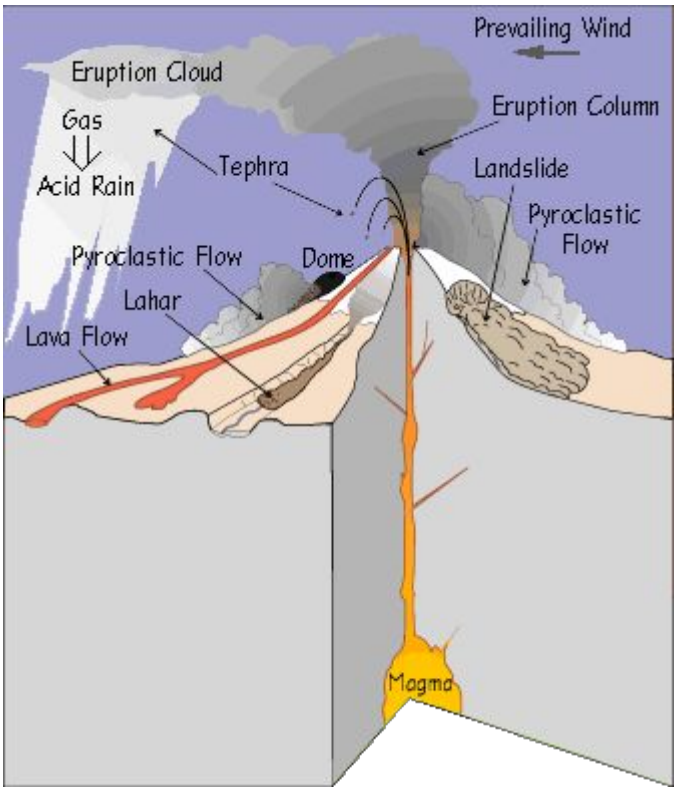
Lahars are mixtures of water, rock, ash, sand, and mud that originate from the slopes of a volcano. They can travel over 80 kilometers and commonly reach speeds of 35 to 65 kilometers per hour. Close to a volcano, they can rip huge boulders, trees, and structures from the ground. Farther downstream mud continues on to cover everything it passes.

Lava flows

Lava flows are streams of molten rock that can erupt relatively non explosively and move very slowly (a few meters to a few hundred meters per hour from stratovolcanoes) or they can move rapidly (typically down steep slopes from shield volcanoes).

Ash clouds

Large ash clouds are expelled into the atmosphere and drawn up and circulate. It can cover the sky blocking the sun and when the ash falls it can kill crops, collapse roofs and power lines and cause breathing problems . These risks are national/global spreading wide.



Pyroclastic flows

Pyroclastic flows are high speed avalanches of hot ash, rock fragments, and gas which move down the sides of a volcano during explosive eruptions. These flows can reach 1,000°c and travel at high speeds (160-250 kilometers per hour and up). They are extremely destructive and deadly.

NOW TRY IT...

Task:
Annotate a diagram of a volcano and the different physical volcanic risks

Challenge:
Rank the 4 volcanic risks in order of hazard. Explain your opinion.

Question:
Explain how physical volcanic risks can cause environmental damage **[2] (AO2)**

Search YouTube for: FMGL3.5

3.5 Volcanic impacts

Volcanic impacts are the consequences of volcanic eruptions. These impacts or effects are split into primary impacts (happen at the point of the hazard) and secondary impacts (happen after the hazard). These effects can also be split into social, economic and environmental.

Social - People

Economic - Money

Environmental - Land

Primary	Secondary
Ash clouds can cause breathing problems **Deaths** - from ash, pyroclastic flows, lava bombs **Injuries** - same as above **Evacuated from homes** - due to risk of the hazards	**Exclusion zones** keep people out of their homes **Temporary shelters** used for weeks/months after event occurs **Santry issues** from lack of toilets, clean water etc
Ash clouds cause travel disruption - cancelling flights	**Food/travel prices increase** due to restricted access to infrastructure **Loss of profits** from food production and tourism
Ash clouds can destroy crops and kill wildlife **Ash** - poisons rivers and water courses	**Farm land unusable** for years after event

NOW TRY IT...

Task:
Find a named case study for each of volcanic impact. Where did they occur and what happened?
Challenge:
Rank the primary and secondary volcanic impacts from most to least significant.
Question:
Secondary volcanic impacts are worse than primary volcanic impacts. Discuss **[3] (AO3)**

Search YouTube for: FMGL3.6

3.6 Physical seismic risks

Physical seismic risks are those that are created by the hazard, this means the effects of earthquakes. There are 4 main types of seismic risks: liquefaction, tsunamis, landslides and ground movements.

Liquefaction
The ground starts to act like a liquid, moving in waves and forcing water to the surface. It is a local impact, affecting the immediate environment. Buildings, roads, power and, gas lines are compromised.

Tsunamis
Huge omni-directional waves produced by underwater earthquakes. Travelling fast and with extreme energy, these colossal waves can devastate coastal areas and have national and global impacts.

Landslides
Intense ground shaking disrupts rocks or sediment layers on slopes/cliffs and causes the land to slip and rocks to fall. This impacts upon the local environment and can kill people, livestock, damage buildings and block roads.

Ground movement
When earthquakes occur the energy released travels through the ground 'shaking' it - this is called ground movement. This impacts upon the local environment and can destroy buildings, infrastructure and gas / water pipes.

NOW TRY IT...

Task:
Find a case study for each seismic risk. When did it happen? Where did it happen? What happened?
Challenge:
Assess the impacts of each physical seismic risk to decide which is most hazardous.
Question:
Describe the impacts of a landslide **[2] (AO1)**

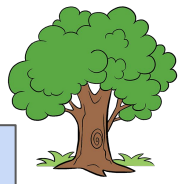
Search YouTube for: FMGL3.7

3.7 Seismic impacts

Seismic events relate to earthquakes or other vibrations of the earth and its crust. Impacts (or effects) are often split into primary and secondary.

Social
- **People**

Economic
- **Money**



Environmental
- **Land**

Primary = impacts that happen at the point of the hazard
Secondary = impacts that happen after the event

Primary	Secondary
The **shaking of the ground** can result in buildings and infrastructure to collapse.	Small earthquakes - called **aftershocks** - can occur up to days after the event.
The falling buildings and infrastructure can cause **death and injury.**	Lack of toilets and clean water causes **sanitary issues.**
Collapsing infrastructure such as buildings, roads and pipes	The collapsed infrastructure an restrict access which may **increase food/travel prices.**
Due to collapsed infrastructure, roads can be blocked which **disrupts travel and evacuation.**	**Loss of profits** due to lack of food production and tourism in the area.
Shaking of the ground can **disrupt habitats** and cause **trees to collapse**	Burst gas lines can cause **fires** which can destroy land.

NOW TRY IT...

Task:
Create a case study including primary and secondary impacts of a seismic event - try to include as many numerical facts.
Challenge:
Draw an image for each of the impacts you have found to use as a revision aid (dual coding)
Question:
Assess whether the primary or secondary impacts of an earthquake are the most hazardous **[8](AO3)**

Search YouTube for: FMGL3.8

3.8 Human vulnerabilities

Human vulnerabilities alter the risk of the hazard, the more vulnerable an area or population is the greater the potential risk from the hazard.

WEALTH

Poorer people cannot respond as well to a hazard as richer people. They do not have housing which is hazard-proof and are less likely to have insurance to repair the damage after the hazard. LICs will have less money to develop hazard-proof strategies and warning systems or to spend on education and emergency services this increasing their risk.

EDUCATION

People who have a good education will have more knowledge and understanding of local hazards and how to respond to them. They will be able to communicate the issue better and access help. Poor education also limits the ability to develop warning systems and alters to predict a hazard.

EMERGENCY SERVICES

HICs tend to have highly trained and well resourced emergency services who can respond quickly and effectively to a hazard. LICs do not have the money to spend on emergency services and so the emergency response is poorer and not as effective in responding to the hazard.

POPULATION DENSITY

Major cities with huge populations means that there will be more people living close together, this means when a hazard occurs there is a greater risk for high death tolls. Large populations also means more high rise buildings, these are more likely to collapse during a hazard causing death and destruction.

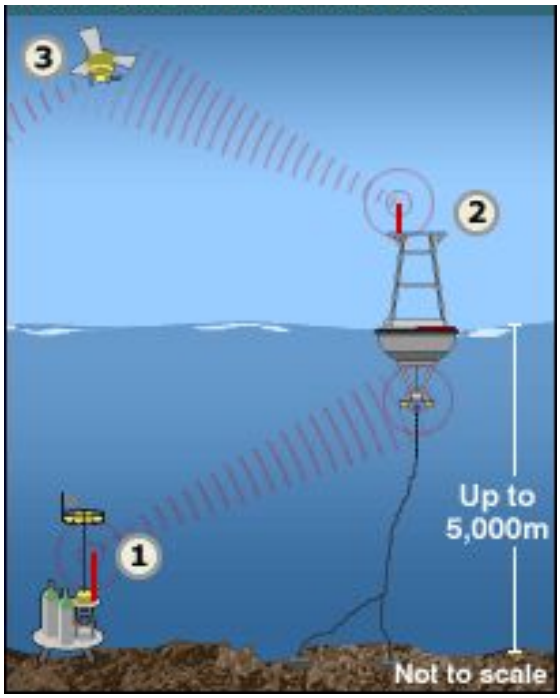
NOW TRY IT...

Task:
Draw a symbol to help you remember the impact each factor has on human vulnerability to hazard risks.
Challenge:
Rank the factors from in order of which you think makes humans most vulnerable to hazard risk.
Question:
Suggest how hazard risk would be affected by population increase? **[2] (AO2)**

Search YouTube for: FMGL3.9

3.9 Managing tectonic hazards

Tectonic hazards can be managed in a number of ways. Managing tectonic hazards can reduce the primary and secondary effects as well as reducing human vulnerability



Monitoring

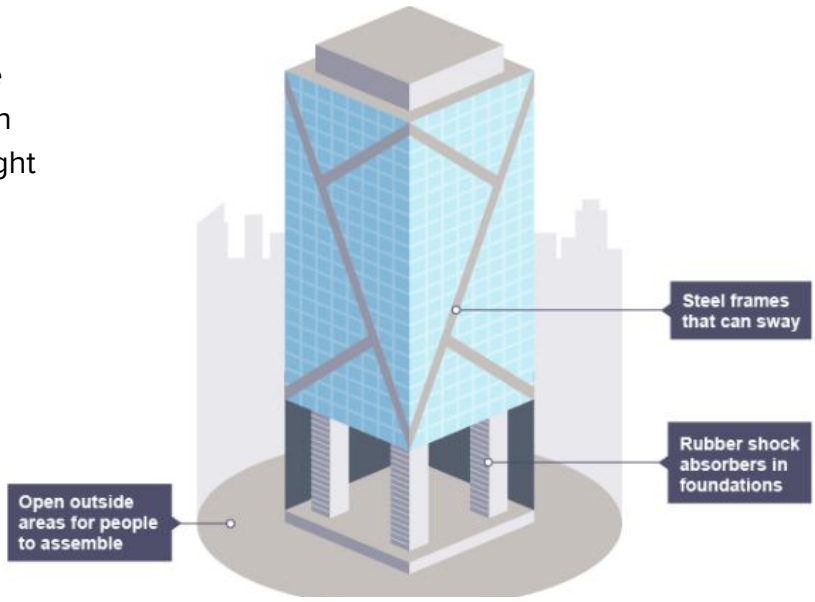
Seismographs - measuring small plate movements and can detect a hazard
Radon gas - detecting gases in the air which escape from the crust as it moves
Tsunami warning systems - monitoring earthquakes underwater
Remote sensing - thermal imaging of volcanoes
Tiltmeters - Monitoring the changing shape of the volcano

Hazard mapping

Governments and agencies map out where past hazards have occurred and which areas were worst affected. They use this information to reduce access to the most dangerous areas, plan which areas to evacuate first and avoid building in these areas.

New building technology

Earthquake-proof buildings are designed to absorb and redistribute the energy from the earthquake. They have steel frames that can sway during earth movements and lightweight roofs and safety glass to reduce injury and damage.



Emergency planning

Exclusion zones (see hazard mapping)
Homes to make a **'hazard pack'** including emergency food and water supplies
Evacuation routes
Public education via media (TV/Radio/internet) on what to do during a hazard

NOW TRY IT...

Task:
Choose your top 3 management strategies and explain why you think they are most likely to reduce vulnerability to tectonic hazards
Challenge:
Design a hazard proof building that would withstand a tectonic hazard. Use the information provided and research some other building designs.
Question:
Describe how hazard mapping could reduce damage and death caused by a tectonic hazard **[2] (AO1)**

THEME 5: Weather, climate & ecosystems

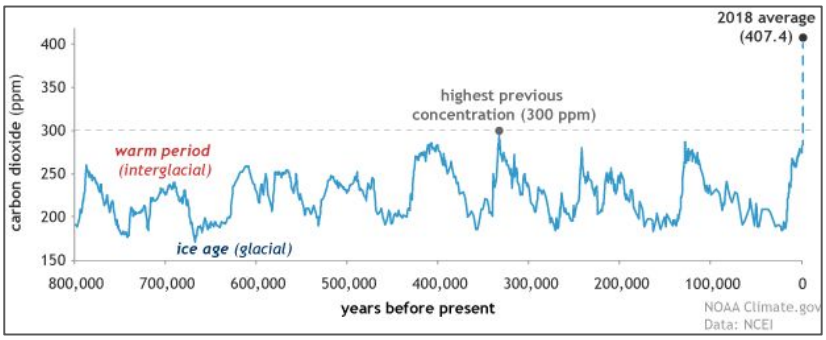
Search YouTube for: FMGL5.1

Watch a 5 min explainer by searching for this code on YouTube

5.1 Climate change

Climate change is a phenomenon which can have natural and human influences. We have evidence that climate change happens on predictable natural cycles over the last 400,000 years BUT the in the last 100 years we've seen significant changes to this pattern.

Graph 1

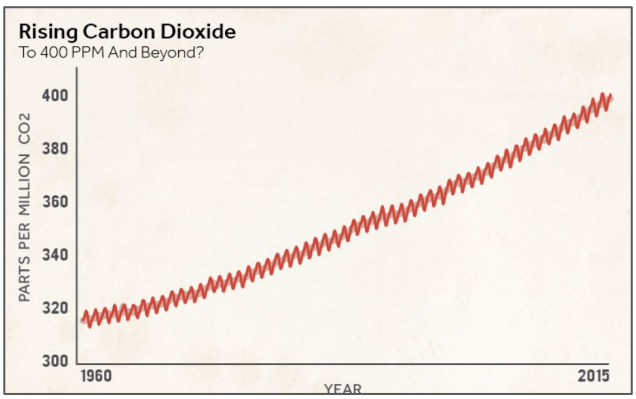


Trends

We have observed that the planet goes through periods of **cooling** (glacial periods) and **warming** (inter-glacial periods). This is shown in graph 1.

The graph shows the amount of carbon dioxide (CO_2) in the atmosphere. CO_2 is released from ice when it melts

Graph 2



Keeling curve (Graph 2)

In the last 60 years the amount of CO_2 in the atmosphere has dramatically increased (Look at the end of Graph 1 for the record in 2018).

Graph 2 shows the level of CO_2 in the atmosphere in recent years – it shows a sharp increase.

There are other factors which suggest climate change is increasing, including:

- **Increased melting of glaciers** and ice sheets
- **Increasing air temperatures** measured by the Met Office

Evidence: where do we get the data

Fossils of animals which could not live in our current climate today

Ice cores showing carbon dioxide levels in past years

Tree rings (dendrochronology) shows how long the growing season was each year

Past glacial features and processes in places with no ice now

NOW TRY IT...

Task:
Create a symbol for each of the 4 pieces of evidence. Annotate each to show how it is used to describe historic climate change

Challenge:
Research "climate change hockey stick graph" and write a paragraph explaining what it shows.

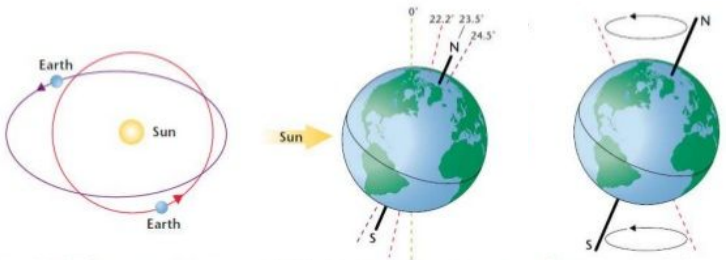
Question:
Describe the trend of CO_2 in the atmosphere over the last 400,000 years. (Graph 1) **[3] (AO1)**

Search YouTube for: FMGL5.2

5.2 Causes of climate change

As mentioned in 5.1, climate change is a phenomenon which can have natural and human influences. There is a lot of debate around whether climate change is man-made or not. Let's look at what evidence there is for both sides.

Figure 1 - Milankovitch cycle



Eccentricity
Earth's orbit moves closer or further away from the sun

Obliquity
Earth's axis tilts so one pole receives more sun than the other

Procession
Earth 'wobbles' on its axis change the focus of the **tilt**

Natural - Milankovitch cycle
The climate changes because the Earth's orbit is not rigid.

Sometimes the planet is closer to the sun, sometimes further away (warmer/cooler). The Earth also 'wobbles' on its axis so seasons can change as different part of the planet are focuses towards (or away) from the sun.

Greenhouse effect
The greenhouse effect is natural but humans have worsened the impacts.

Carbon Dioxide and Methane are greenhouse gases which trap heat in the atmosphere. As more gases build up more heat is stored, warming the planet.

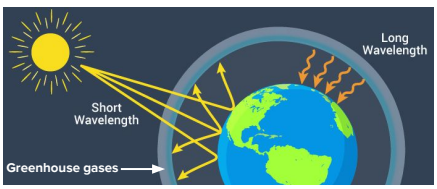
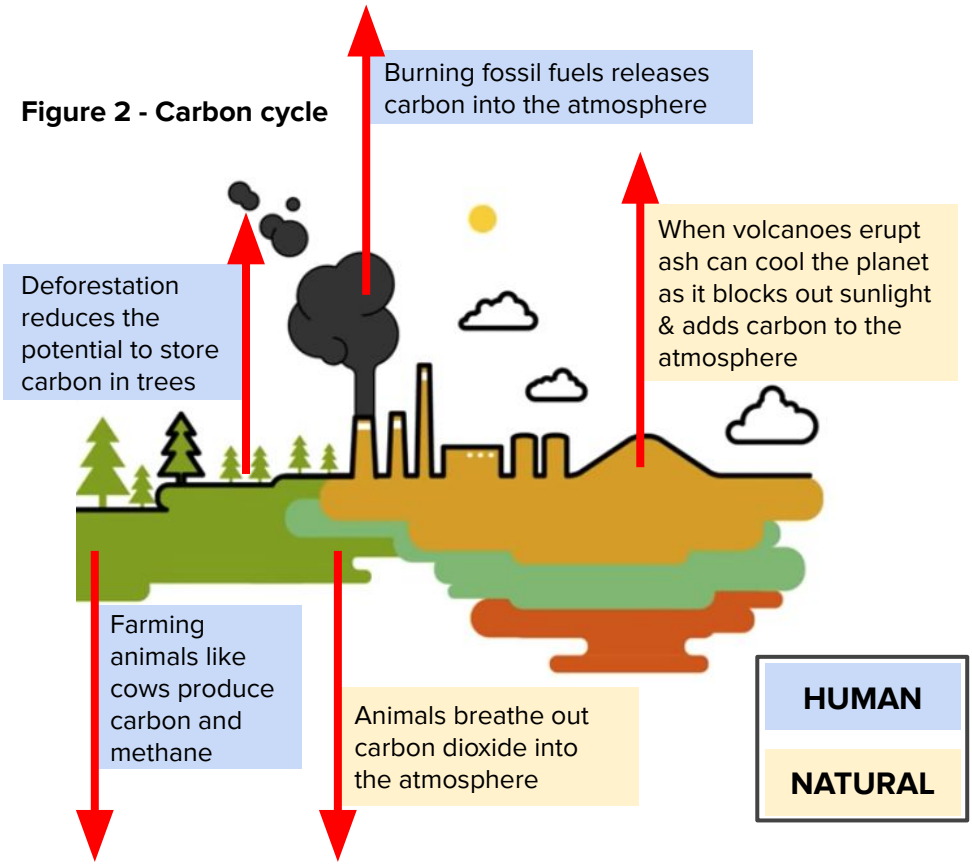


Figure 2 - Carbon cycle



NOW TRY IT...

Task:
Create a table of natural and human causes of climate change (describe each cause in detail)

Challenge:
Research the "carbon cycle" and add the carbon sinks/stores to **figure 2** (factors which take carbon out of the atmosphere). Draw arrows that point TO the diagram and label them

Question:
"Climate change is more the result of natural factors than human ones" To what extent do you agree with this statement? **[8] (AO3)**

Search YouTube for: FMGL5.3

5.3 Atmospheric circulation

Most weather and climate processes are formed from the interaction of the global atmospheric cells. These cells are fuelled by the uneven heating of the Earth's surface by the sun.

High pressure

As the air cools in the outer atmosphere it becomes heavier and starts to sink. This air moves back to the ground. This is called **HIGH PRESSURE.** As the air reaches the surface it starts to warm again and the cycle continues.

Low pressure

Warm air rises because it is less dense. When it reaches the edge of the atmosphere it cannot rise any further and moves north and south. The edge of the atmosphere is cold and so the air cools too.

Closer to the poles, receives less insolation as it is spread over a wider distance, making it cooler (**A**). The equator is tilted towards the sun, so this region gets a concentrated 'beam' of insolation making it hotter there (**B**)

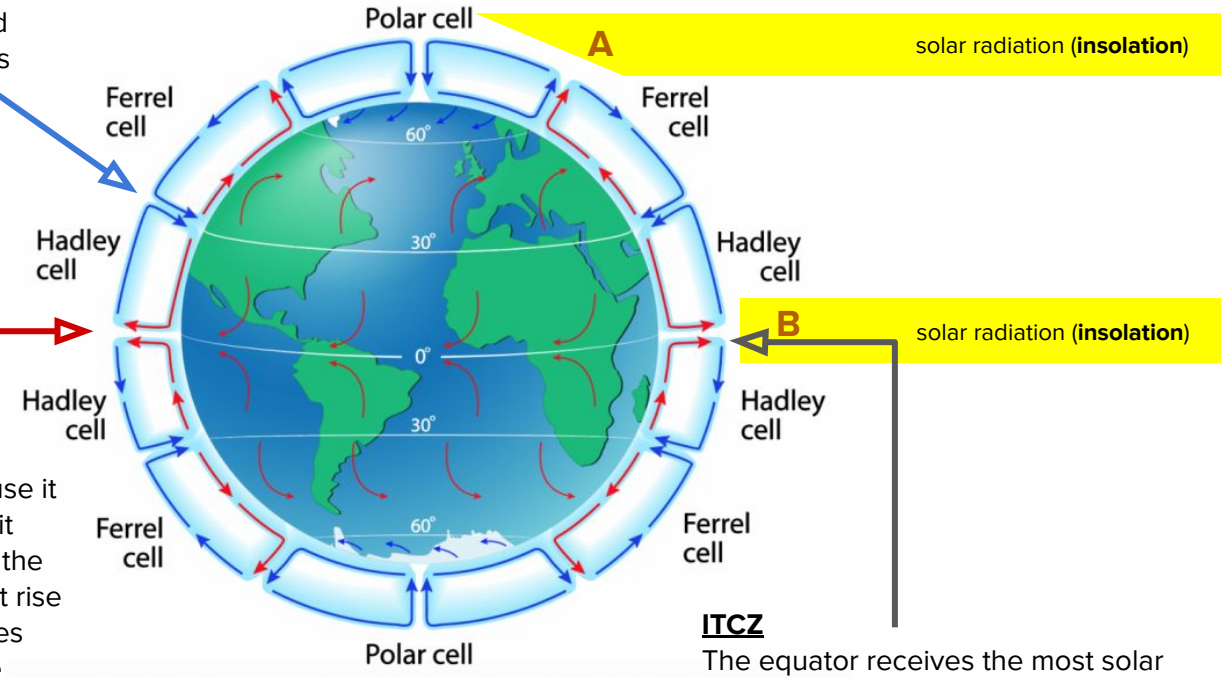


Diagram 1

ITCZ

The equator receives the most solar radiation (**insolation**). This heats the ground and air. Warm air rises this is called **LOW PRESSURE** - the intense heat at the equator creates an intense area of rising air/low pressure called the **inter-tropical convergence zone (ITCZ)**

Atmospheric cells

These areas of high and low pressure cycles are called cells. Where 2 cells meet are where the points of greatest high or low pressure. There are 3 cells (Hadley, Ferrel & Polar) which are mirrored north and south of the equator.

NOW TRY IT...

Task:
Create a storyboard which outlines the movement of air in the Hadley cell. Caption it with keywords.

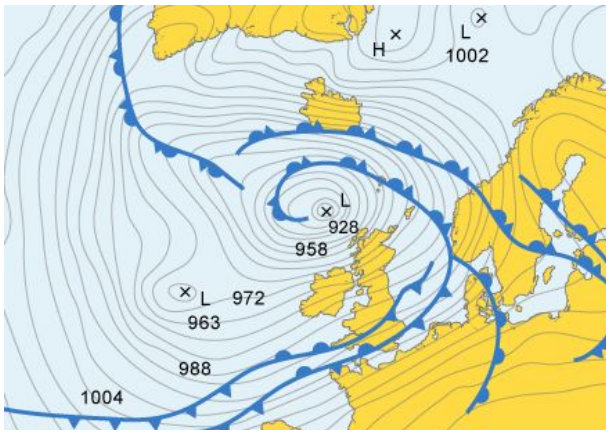
Challenge:
Look at the polar cells on Diagram 1. Research how/why COLD AIR RISES here instead of warm air.

Question:
Explain why there is low pressure at the equator **[2] (AO2)**

Search YouTube for: FMGL5.4

5.4 Low pressure systems

Low pressure systems are formed by warm, rising air. Due to the fact that the air is rising, moisture is drawn upwards and condenses to form clouds. Low pressure systems are also called depressions, which bring our rainy and stormy weather.



Low pressure on a weather map

To the left is a weather map of the UK. It shows a low pressure system.

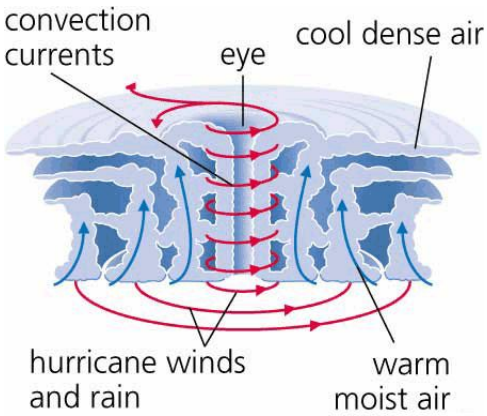
The low pressure system has the lowest amount of pressure at the centre (eg. 928 mb north of Scotland). The isobars are clustered very close together representing quick changes in pressure.

In this instance, the North of the UK would experience strong winds and rains. It could possibly bring strong storms in winter too. In warmer oceans it can also produce **tropical storms** (hurricanes)

Causes of a tropical storm

Tropical storms can only form over large/deep bodies of water

- Ocean temperatures of at least 27°c
- Water depth of at least 50 meters
- Gentle winds in the upper atmosphere to draw air in from the water surface



Characteristics of tropical storms

- The move westward (anticlockwise in the southern hemisphere and clockwise in northern hemisphere)
- Travel 600 km per day, at speeds of over 120 kph
- Strong winds and and heavy rainfall are the main features
- They lose energy and die out when the storms reach land.

Cyclone Pam - Island chain of Vanuatu in the South Pacific (March 2015)

Cyclone Pam effects

11 people died
90000 homeless
Hospitals and schools destroyed
Widespread destruction of fruits, vegetables, root crops and livestock
Stormsurge flooded coastal areas and contaminated freshwater supplies

Cyclone Pam responses

Emergency aid sent by Australia, Fiji, New Zealand and UK
153 temporary school built
Repairs to infrastructure to provide safe drinking water
Blankets & tents given to those made homeless
28 schools used as evacuation centres

NOW TRY IT...

Task:
Describe the weather that low pressure systems bring and explain why this weather is produced

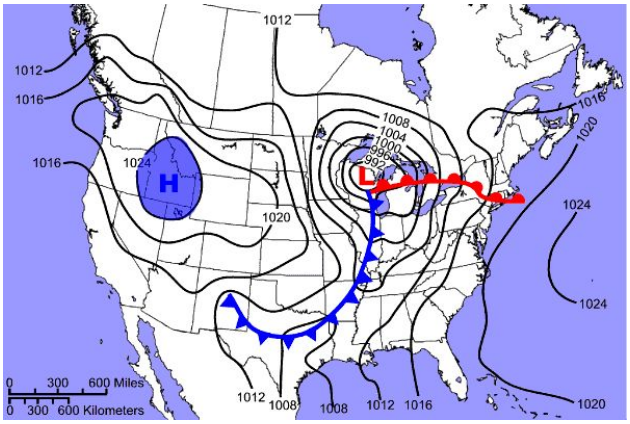
Challenge:
Research "How to read synoptic weather charts" and create a mini guide to the different features they show

Question:
Outline how one low pressure hazard you have studied had an impact on the economy **[4] (AO1)**

Search YouTube for: FMGL5.5

5.5 High pressure systems

High pressure systems are formed by cold, sinking air. Due to the fact that the air is sinking, moisture is not drawn upwards and in turn clouds do not form. In addition, high pressure systems, or anticyclones, bring light winds. This is because the isobars are widely spaced, meaning a gradual change in pressure.



High pressure on a weather map

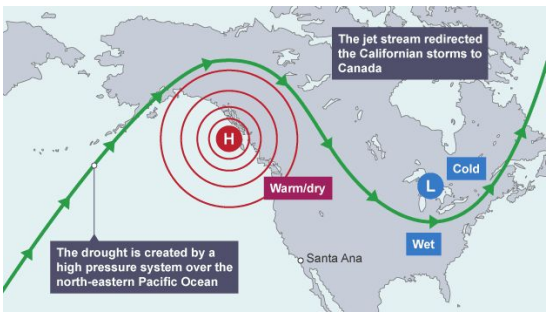
To the left is a weather map of the United States. It shows both a low pressure and a high pressure system.

The high pressure system has the greatest amount of pressure at the centre. Also, the isobars are widely spaced as compared to the low pressure system.

In this instance, the west of the US would experience clear skies. If this was the summer the temperatures would be high, but in the winter the clear skies would allow a frost to form.

Heatwaves

Due to the weather conditions that high pressure systems bring, they can often lead to heatwaves. A heatwave is an extended period of hot weather as compared to the usual temperatures at that particular time of the year.



The jet stream was further north that normal, pushing low pressure systems north and allowing high pressure systems to sit over the state

Drought

As a result of sinking air, high pressure systems can lead to drought. A drought is a lack of rainfall over an extended period of time.

California experienced a drought between 2012 and 2015. This affected the state in a number of ways:

- A hosepipe ban was introduced
- Homes were destroyed by wildfires
- Hydroelectric power dams stopped producing electricity
- Crops could not be grown and 17,000 agriculture jobs were lost
- Fish died as high temps caused oxygen decrease

NOW TRY IT...

Task:
Describe the weather that high pressure systems bring and explain why this weather is produced

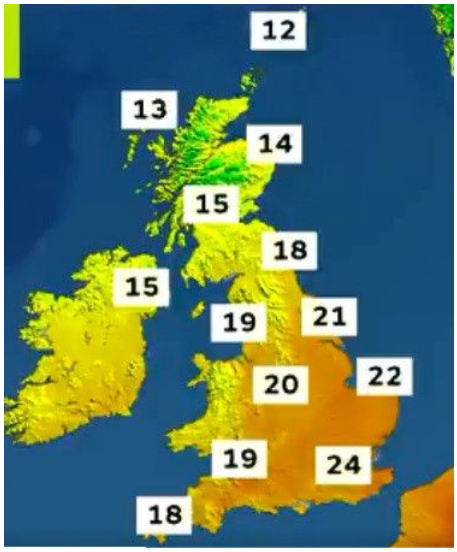
Challenge:
Research "blocking highs" and write a paragraph to explain what they are

Question:
Why do high pressure systems create light winds? **[2] (AO2)**

Search YouTube for: FMGL5.6

5.6 Variable UK weather

The UK experiences a variety of different weather types. The country as a whole may experience different weather types throughout the course of the year and different areas of the UK may experience different weather due to their geographical location.



Weather variation within the UK

Latitude: The temperature is lower in the north due to the different air masses that meet over the UK. Cold air comes from the north, whilst warm air comes from the south

Altitude: highland areas have colder temperatures. The low pressure at high altitude means the air is cooler.

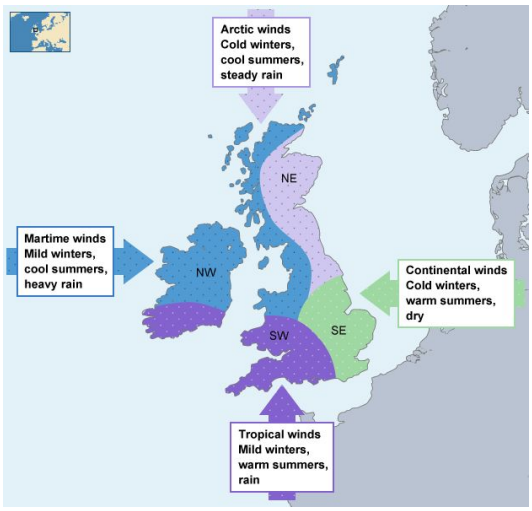
Coast/inland: The sea brings mild temperatures to coastal areas in the winter and cooler temperatures in the summer

East/west: Due to weather systems moving across the Atlantic, the west of the UK experiences more rainfall than the east of the UK

Air Masses

Different parts of the UK experience different weather due to the air masses that meet over the UK. An air mass is a body of air carrying a weather type.

- From the north we get the Arctic Maritime air mass, bringing wet, cold air
- From the east we get the Polar Continental air mass, bringing dry summer and cold winters
- From the south we get the Tropical Continental air mass, bringing hot, dry air
- From the south west we get the Tropical Maritime air mass, briring warm, moist air.
- From the north west we get the Polar Maritime air mass, bringing cold showery weather



Urban Heat Islands

Cities have what is known as a microclimate. Buildings release any internal heat, tall buildings block wind and tarmac absorbs heat. This creates higher temperatures.

NOW TRY IT...

Task:
Explain three reasons why weather varies throughout the UK. Add an image to represent each factor

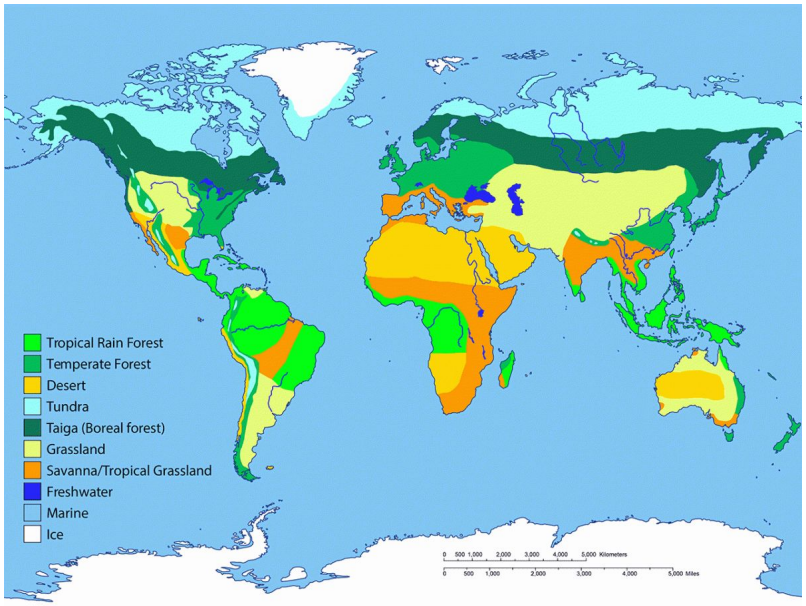
Challenge:
Research "microclimates" and provide information on two microclimates other than the city

Question:
Explain why weather varies throughout the UK **[6] (AO2)**

Search YouTube for: FMGL5.7

5.7 Ecosystems

An ecosystem is a system in which the plants, animals and the non-living things around them (i.e. soil and climate) are linked together. An ecosystem can be very small or very large. For example, a small pond in a back garden is an example of a small ecosystem. In comparison, the tropical rainforest is a large ecosystem.



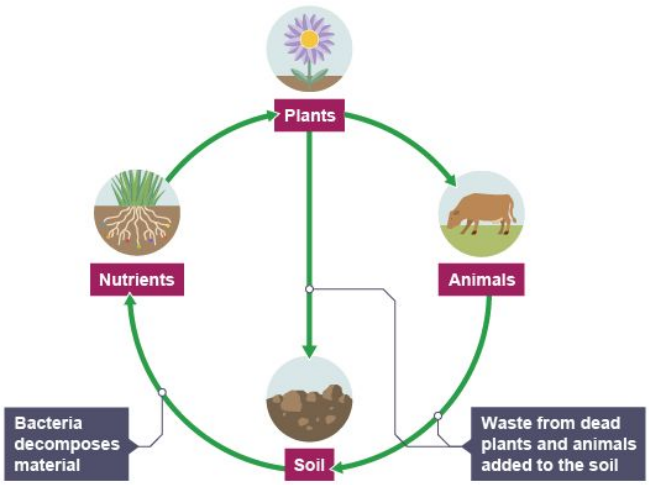
Biomes

A large-scale ecosystem is known as a biome. A biome is a large area which has the same climate, vegetation and soil.

The location of different biomes is determined by the climate. You can see from the map to the left that there are bands that go across the globe. These areas share similar climatic conditions hence why they are also share that particular biome.

For example, the Tundra covers almost all of the north of the earth due to the extremely cold temperatures at that particular latitude. The level of rainfall is also key; a place that receives less than 25cm of rain per year is classed as a desert.

It may be determined by both temperature and rainfall. The tropical rainforest is located either side of the equator because the temperature is high and so is the amount of rainfall, allowing for vast amount of plantlife to grow.



Biotic and Abiotic Relationship

Biotic means living and abiotic means non-living. In an ecosystem, the biotic relies heavily on the abiotic. Without the correct level of sunlight, rainfall and nutrients, the biotic would not be able to survive. Any changes in the abiotic therefore leads to changes in the biotic.

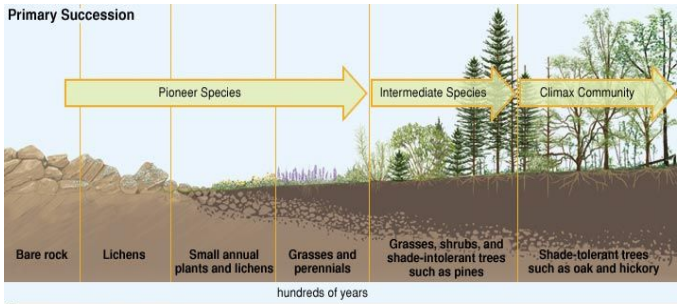
NOW TRY IT...

Task:
For the biomes on the map above, find out where they are found, the climate and plants & animals
Challenge:
Research "ecosystems" and draw a diagram to show the interconnections
Question:
Explain what determines the distribution of biomes **[4] (AO2)**

Search YouTube for: FMGL5.8

5.8 Ecosystem processes

Ecosystems rely on a number of important processes in order to function. Without such processes, or if they were to be significantly altered, biotic life would not be able to survive. These processes include the water cycle, carbon cycle, nutrient cycle and the food web.

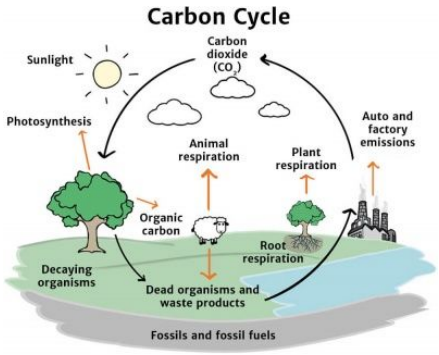


Succession

Ecosystems evolve as a result of succession. Succession is when a plant or animal community gives way to another until a climax is reached. A pioneer species colonises bare ground, the decay of plants produces nutrients which allows more plants to grow, soils develop to allow bigger plants to grow, finally a dominant species will invade and succession is complete

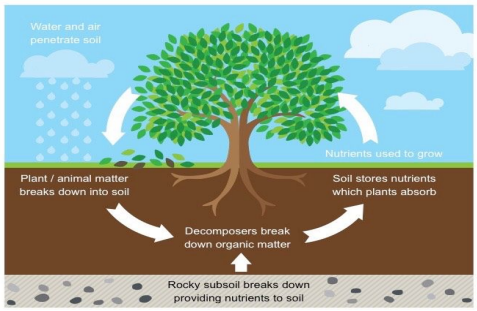
Carbon Cycle

1. Plants absorb CO_2 to carry out photosynthesis
2. Animals feed on plants, consuming CO_2
3. Animals release CO_2 during respiration
4. Animals die and as they decompose carbon is returned to the atmosphere. They may be buried and over millions of years be turned into fossil fuels



Nutrient Cycle

1. Plants absorb nutrients from the soil
2. Herbivores consume plants
3. Plants & herbivores die and decompose
4. Nutrients are returned to the soil



Water Cycle

The water cycle is the movement of water between the air, land and sea. Water evaporates, rising into the atmosphere as water vapour. It condenses to form clouds and then falls as precipitation.

Food Webs

The sun allows plants to grow. Plants are producers These are then eaten by herbivores, or primary consumers. Herbivores are then eaten by carnivores, or secondary consumers. The energy has moved through a food chain. The food chains are connected to form a **food web**.

NOW TRY IT...

Task:
Create 5 revision cards - one for each process

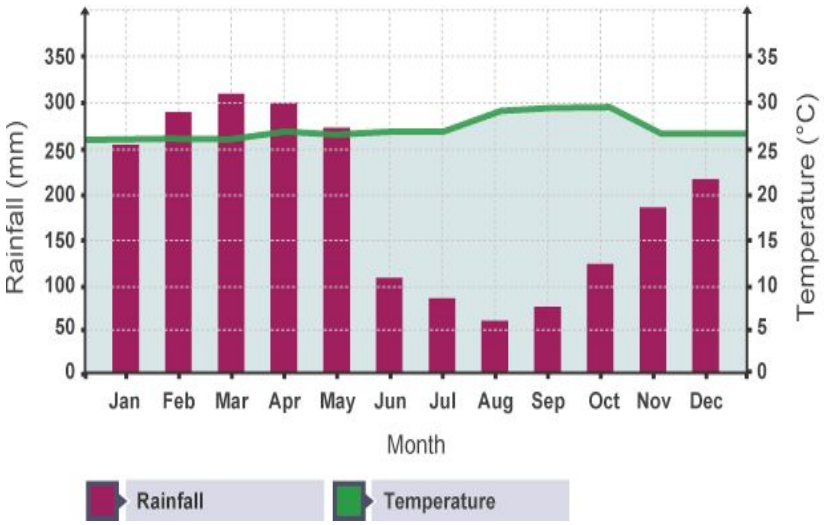
Challenge:
Research "food webs" and draw a food web for an ecosystem of your choice

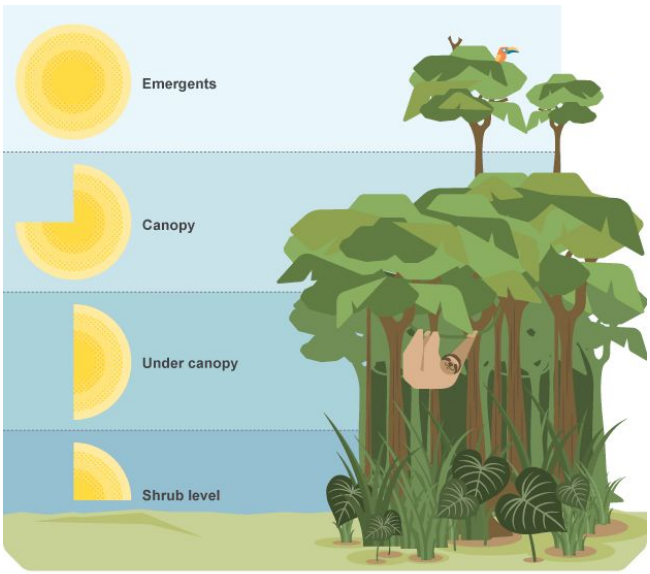
Question:
Explain how deforestation would affect the nutrient cycle **[2] (AO2)**

Search YouTube for: FMGL5.9

5.9 Tropical rainforests

Tropical rainforest biomes are found in equatorial countries in hot and humid climates. Human intervention has positive and negative consequences for people and this environment.The graph shows average rainfall and temperature in Manaus, Brazil, in the Amazon rainforest. The rainy season is from December to May.





Layers of the tropical rainforest

There are several different layers within the rainforest.
1.The **shrub layer**.
2.The **under canopy**.
3.The **canopy**.
4. The **Emergent Layer.**

Adaptations of the tropical rainforest

1. Lianas - woody vines that start at ground level, and use trees to climb up to the canopy where they spread from tree to tree to get as much light as possible.
2. Buttress Roots -Rainforests have a shallow layer of fertile soil, so trees only need shallow roots to reach the nutrients. However, shallow roots can't support huge rainforest trees, so many tropical trees have developed huge **buttress roots**. These stretch from the ground to two metres or more up the trunk and help to anchor the tree to the ground.

NOW TRY IT...

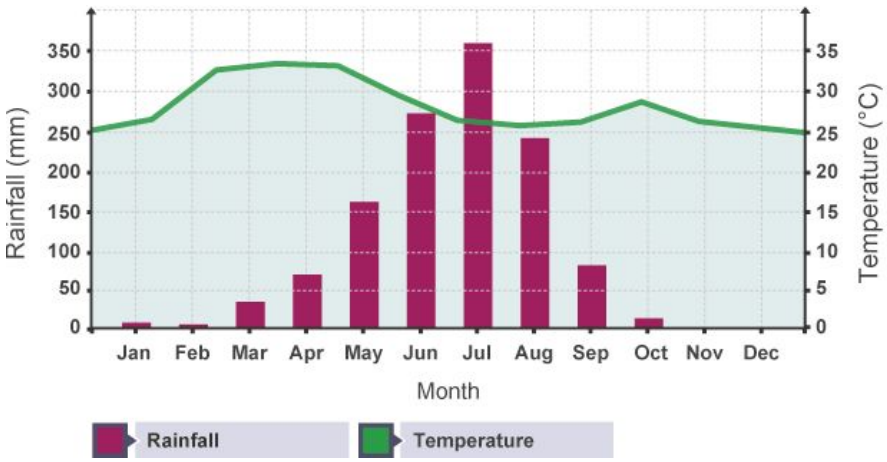
Task:
Research the four different layers. Make a note of what each layer is like and what plants and animals you would find there.
Challenge:
Create a fact file on the Amazon rainforest in Brazil. Include: location, climate, uses, threats.
Question:
Describe the climate of Manaus, Brazil using the graph above. **[2] (AO1)**

Search YouTube for: FMGL5.10

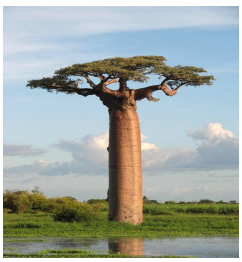
5.10 Savannah grassland

- A **savanna** is a rolling **grassland** scattered with shrubs and isolated trees, which can be found between a tropical rainforest and desert **biome**. Not enough rain falls on a **savanna** to support forests.
- Savanna regions have two distinct seasons - a wet season and a dry season.
- There is very little rain in the dry season. In the wet season vegetation grows, including lush green grasses and wooded areas.
- As you move further away from the equator and its heavy rainfall, the grassland becomes drier and drier - particularly in the dry season.

Disney's Lion King features the Savannah grassland, tropical rainforest and the desert. See if you can tell when they are travelling between the biomes.



The graph shows average monthly temperatures and rainfall levels in the savanna region of Mali. Notice how the temperature and rainfall patterns relate to each other - the hottest temperatures come just before heavy rainfall, and the coolest time of the year comes just after the rains. This pattern is typical of savanna climates.



<u>Adaptations of the Savannah grassland</u>

1. **Baobab Tree -** Grows over 30 metres in height and 7 metres in diameter, and can live for thousands of years.They have shallow roots which collect the water as soon as it rains.The thick bark is fire resistant.
2. **Acacia Tree -**Its broad, flat canopy reduces water loss, and also provides shade for a range of animals. Thorns on the branches deter animals from eating them.Long tap roots reach ground water deep underground.

NOW TRY IT...

Task:
Complete two flashcards one for tropical rainforest biome and one for the Savannah grassland biome.
Challenge:
Create a fact file on the Serengeti semi-arid grassland in Tanzania. Include: location, climate, human uses, threats.
Question:
Explain how changes in climate can lead to changes in vegetation, use examples. **[4] (AO2)**

Search YouTube for: FMGL5.11

5.11 Biodiversity

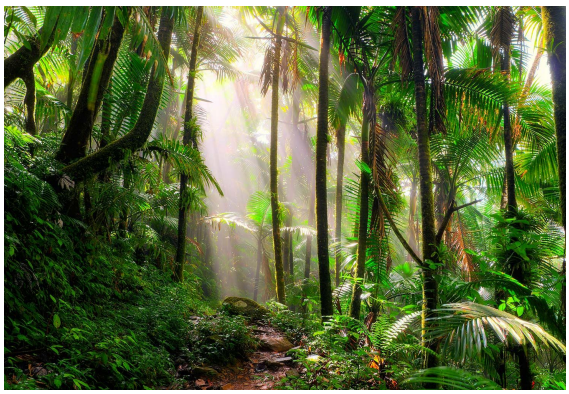
Biodiversity is the measure of how many different types of animals (fauna) and vegetation (flora) in an ecosystem. *i.e. rainforests have greater biodiversity compared to the savannah.*

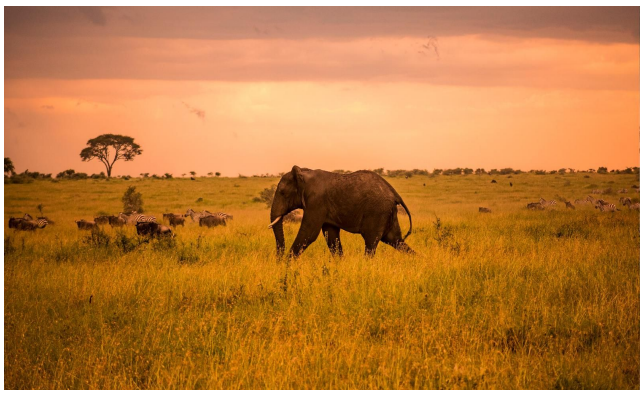
Endemic species are those which are unique and only found in one ecosystem/location. Many places like rainforests and savannah has endemic species and groups argue these locations should be protected to avoid exploitation.

Ecosystems provide **key services** this means an ecosystem produces resources which humans then use. For example; clean air, food and water.

Tropical Rainforest Key Services

1. Regulating air quality and climate - The rainforest recycles large quantities of water and also take in large quantities of CO_2 and produce large amounts of oxygen.
2. Provisions - provides wood, fuel, natural medicines, fresh water.
3. Rain making: The Amazon rainforest makes as much as 50 per cent of its own rainfall.
4. Nutrient cycling - nutrients are recycled within the rainforest because the trees provide shelter which stops the heavy rainfall from washing them away.





Savannah Key Services

1. Provides food
2. Provides building material for nomadic groups such as the Masaai Mara tribe in Kenya.
3. Wildlife attracts tourism this can provide jobs in tourism for local people, this often leads to better education in areas where a large number of tourists visit.

NOW TRY IT...

Task:
Make a mind map from memory of the key services rainforests and savannahs provide, then use the revision guide to add in any you forgot in a different coloured pen.

Challenge:
Research the key services a small scale ecosystem provides - sand dunes would be an example.

Question:
Explain how the rainforest provides services on a global scale **[2] (AO2)**

Search YouTube for: FMGL5.12

5.12 Impacts on ecosystems

Human activity has had an impact on all ecosystems around the world. For example in the UK large amounts of our temperate deciduous forests have been removed for farmland.

Human activity on the rainforest

Parts of the rainforest are often cleared. The reason for this can be to create space for agriculture, houses and roads or when wood minerals and other resources are sold.

Advantages:

- **Infrastructure**, hospitals and education can be improved.
- **Profits** from selling resources can be used to improve a country's infrastructure.
- **Raw materials**, eg tropical hardwoods such as ebony and mahogany, can be sold for a good price abroad.
- **Large-scale farming** brings money into the country and provides food and jobs.
- **Small-scale farming** provides food for rainforest communities.

Disadvantages:

- **Land clearance** for farming, transportation and mining can lead to **deforestation.**
- **Fertile soils** that make farming possible are quickly washed away when the forest is cleared.
- **Loss of animal habitat** occurs when trees are cut down. Hence, deforestation can result in endangering animals and plant life, or even causing them to become extinct.
- **Profits** from large-scale farming and selling resources often go back to large companies and don't benefit the rainforest communities

NOW TRY IT...

Task:
Create a poster on the impact of human use of the rainforests.
Challenge:
Research the impact of human activity in one of the UK's ecosystems.
Question:
Explain why overgrazing is leading to desertification in the Savannah grassland **[2] (AO2)**

Search YouTube for: FMGL5.13

5.13 Sustainable ecosystems use

We need to conserve our ecosystems because they provide valuable services and products, both locally and globally.

Sustainable use of the tropical rainforest

Selective logging – only cutting down older trees and not rare species. The International Forest Stewardship Council makes people aware of products made from sustainable timber.

Agro-forestry – growing new trees alongside crops

Wildlife corridors – connecting separated areas of forest with strips of vegetation so animals can move between areas

Eco-tourism – encouraging small groups of sustainable tourism. Money made is used to protect the ecosystem and uses local tour guides and companies.

Debt-swaps – HICs cancel debts which LICs have, if they protect their rainforests from over-exploitation

Sustainable use of the savannah

Crop rotation – growing different crops and giving the land time to rest between planting to allow soil to recover nutrients

Afforestation – planting more trees to protect the soil

Drought-resistant crops – Planting genetically modified crops which can withstand long periods of water shortage

Population control – Encouraging people to have fewer children so less crops and water are needed in the area

NOW TRY IT...

Task:
Create a revision card on sustainable use of ecosystems, including a definition of sustainable and 4 ways Tropical Rainforests and Savannahs are managed

Challenge:
Research 2 named case studies, 1 for sustainable use of a Tropical Rainforest and 1 a savannah.

Question:
Explain one way in which a named ecosystem can be managed sustainably **[3] (AO2)**

Search YouTube for: FMGL5.14

5.14 Small-scale ecosystem

An ecosystem is a living community of plant and animals sharing an environment with non-living elements such as climate and soil. Sand dunes are an example of a small-scale ecosystem.

Sand Dunes are a build up of sand around vegetation. This requires loose sand and prevailing winds which blow on-shore.

They are formed through a processes known as **succession.** As plants die and decompose it nourishes the soil making it better quality and now more fragile plants will start to grow.

Embryo Dunes
Small dunes have pioneer plants such as Sand Rocket which is hardy and can establish itself in sand with little nutrients.

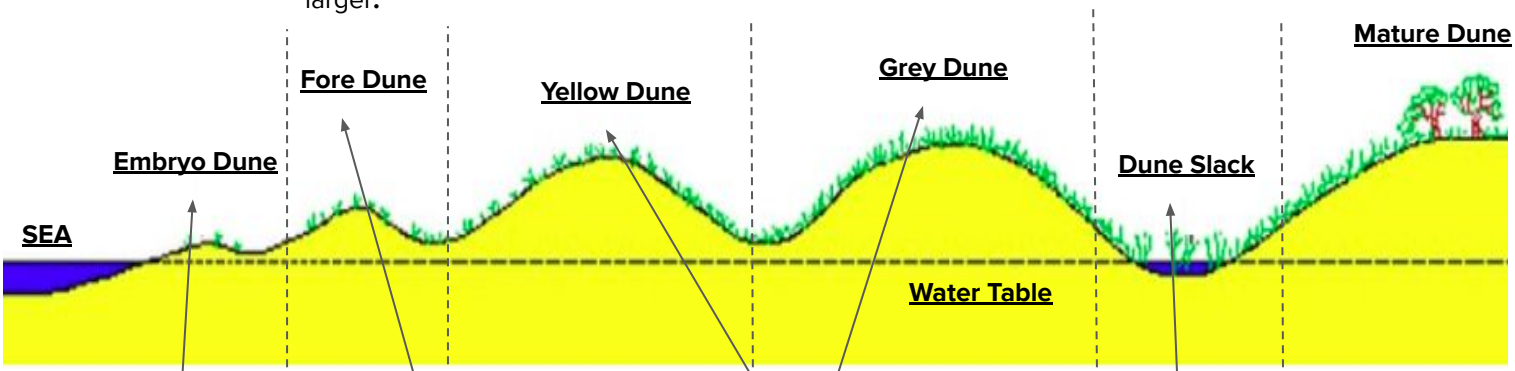
Fore Dunes
As more vegetation grows, more sand collects around it making the sand dunes grow larger.

Yellow Dunes
These are the sand dunes that develop after the first set of embryo dunes. Up to 80% of the sand surface will now be vegetated.

Grey Dunes
When dunes get too big they block the prevailing wind and this stops the dunes from growing.

Dune Slack
A wetland environment caused by the water table coming closer to the grounds surface as the dunes move further inland.

When vegetation and environment reach an equilibrium, this is called a **climax community.**



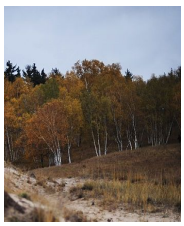
Possible Plants:


Sand Couch


Marram grass


Red fescue


Creeping Willow


Birch, Ash, or Oak

NOW TRY IT...

Task:
Draw your own sketch of a sand dune successions. Use the diagram to help and add more detail.

Challenge:
Research the impact that dune formation has on soil and add this to your diagram to show the change throughout succession.

Question:
Describe and explain how sand dune succession takes place. **[6] (AO2)**

Search YouTube for: FMGL5.15

5.15 Human uses of ecosystems

Humans have used a wide variety of ecosystems to their advantage, such as our Temperate deciduous woodlands which have been cut down for resources and land or the Savannah which has suffered from water abstraction creating desertification.

Gwynt y Môr offshore wind farm

Offshore wind farms are located in the sea close to the shoreline as winds are stronger, unobstructed and do not impose on cities/population as much. Gwynt y Môr is located 15km off the north coast of Wales

The demand for renewable energy is increasing as non-renewables such as coal and gas are depleting and of increasing concerns for pollution and climate change. The Gwynt y Môr is a response to this and is the 2nd largest offshore wind farm in the world, costing £2bn.

Advantages	Disadvantages
Produces power for 400,000 homes	RSPB says it affects bird migrations and their normal routines
Creates 100+ jobs	National Trust has concerns over affecting heritage and tourism
Helps with global climate change efforts	Locals are opposed as it spoils the natural beauty

NOW TRY IT...

Task:
Research 2 more advantages and disadvantages and create a spider diagram of the advantages and disadvantages of the wind farm.

Challenge:
Categorise the advantages and disadvantages into social, economic or environmental.

Question:
Using a named example, explain how ecosystems can be used by humans **[3] (AO2)**

THEME 6: Development & resource issues

Search YouTube for: FMGL6.1

Watch a 5 min explainer by searching for this code on YouTube

6.1 Patterns of development

Development is the process by which a country becomes wealthier and the quality of life of its citizens improves. Visible evidence of development includes a greater availability of jobs, access to education and healthcare, and a stable government. Countries across the globe are at different stages of development and Brandt suggested that there was an observable pattern.

Different types of development

Economic development: increased employment

Social development: improved education and healthcare

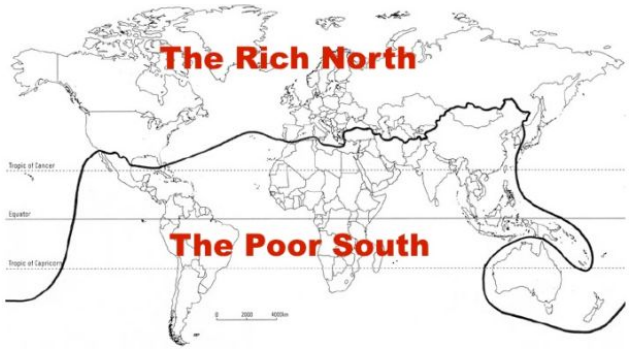
Political development: stable government and freedom for citizens

Poor country to rich country?

Not only does Brandt's Line fail to take into account recently developed countries, it is also too simplistic to think of there being only rich and poor countries. As well as High Income and Low Income countries, the World Bank also categorises upper-middle-income countries and lower-middle-income countries. Development is best seen as a continuum.

Inequality within countries

In Oxfam's 2016 annual report, they highlighted inequality within countries. There are poor people in rich countries and vice versa.



Patterns of development?

In 1980, German politician William Brandt suggested that there was an observable pattern to development. The world, he suggested, was split - with rich countries in the north and poor countries in the south. The line he drew to split the north and south is known as the Brandt line. The world has changed massively over the last 40 years. China and India are no longer considered poor countries. In addition, the OPEC countries of the Middle East are extremely wealthy.

Measuring Development

In order to categorise countries, economic indicators can be used. For example, Gross Domestic Product (the value of all goods made within a country) and Gross National Income (GNI) per capita (the average wage of a country's population). However, these measures tell us little about education and healthcare, and they don't tell us about inequality within a country.

NOW TRY IT...

Task:
Create a revision card for the Brandt Line. Explain what it represents and its limitations

Challenge:
Research the Human Development Index and explain why this is better than using economic indicators

Question:
Give two reasons why economic indicators alone are not reliable indicators of development **[2] (AO2)**

Search YouTube for: FMGL6.2

6.2 Uneven development

As was seen on the previous page, different countries are at different stages of the development continuum. There are a number of different reasons as to why this is the case. The primary reasons are related to trade. International trade is not a level playing field. As will be seen, rich countries profit from greater interdependence due to the products they export. Moreover, some countries have access to trade blocs which allow for them to trade freely.

Trade Blocs

Free trade blocs allow for countries to trade without barriers. For example, tariffs are not applied to the goods of other countries within the bloc. This creates a larger market for businesses to sell to. An example of a free trade bloc is the European Union. Companies of member states can sell their products freely in any other member state. The results are largely beneficial, with increased exports, greater job opportunities and cheaper products for consumers.

The EU is not the only organisation that promotes fair trade. The World Trade Organisation, the IMF and the World Bank are also proponents of tariff free trading.

Is international trade fair for all?

International trade is the exchange of goods and services between countries. HICs sell expensive, manufactures goods. In comparison, LICs sell cheap, primary products such as cocoa and coffee.

As a result, LICs earn little but have to import expensive products from HICs. This means they remain in poverty.

In addition, the price of raw goods fluctuates on the world market. Therefore, the money that a farmer may earn in an LIC can change throughout the year.

Finally, HICs may impose tariffs on goods from outside the country to protect their own businesses. This means that goods from other countries are more expensive for the consumer.

Benefiting from an interdependent world

As a result of improved technology, the world has become increasingly interconnected. From trade to tv shows, we are now connected to countries all over the world. This increased interconnection has the seen the emergence of Newly Industrialised Countries (NICs). By exporting goods across the globe, these countries have experienced rapid economic growth. In recent years, NICs have seen a growth in their domestic markets.

NOW TRY IT...

Task:
Create a mind map with international trade at the centre. Add strands which detail its characteristics

Challenge:
Research 'structural adjustment programs' and write a paragraph on what they are their criticisms

Question:
Explain why international trade has hindered the development of LICS **[4] (AO2)**

Search YouTube for: FMGL6.3

6.3 Tourism

Once an industry that benefited mainly wealthier countries, tourism has now become a huge sector both LICs and developing countries. For example, in 1995, Asia welcomed 80 million tourists. By 2014 the number of visitors leapt to over 260 million. There are a number of reasons for this growth, ranging from improvements in technology to increased life expectancy. Whilst tourism provides obvious benefits to the host country, there are a number of externalities.

What caused the growth in mass tourism?

Mass tourism is when lots of people visit the same place at the same time. The holidays associated with mass tourism are package holidays - flights, meals and hotel all included.

- Improvements in transport, specifically air travel, has made going on holiday cheaper and easier
- Holiday companies make the booking process easier
- Increased access to the internet allows people to book a holiday from their front room
- People are retiring earlier and living longer, allowing more time to travel in later years of life
- An increase in disposable income means that international travel has become more accessible

The problems caused by enclave tourism and cruise ships

Enclave tourism in when tourists remain in one small area when on holiday. For example, a hotel may provide them with food, drink and entertainment, leading to little reason to leave. The key problem is that less money goes into the local economy. Similarly, when on a cruise ship money is regularly spent on the cruise ship and workers are often from HICs. The result is that MNCs receive a large amount of the money that is spent.

The pro and cons of tourism

Pros: Creates jobs - this has a positive multiplier effect (workers have money to spend locally) / increased income tax allows for the local government to invest in education and healthcare / locals benefit from improved infrastructure

Cons: Jobs are often seasonal, meaning a lack of employment for several months / local culture and environment destroyed / increased pollution

NOW TRY IT...

Task:
Create a mind map on the reasons for tourism growth - create an image for each reason

Challenge:
Research 'positive multiplier effect' and write a paragraph on how increased tourism creates a PME

Question:
'Developing countries benefit from increased tourism' Discuss **[8] (AO3)**

Search YouTube for: FMGL6.4

6.4 International aid

Aid is money or resources transferred from a wealthier country to a poorer country. There are different types of aid, each with their own aim. For example, emergency aid aims to get a country back on its feet after a disaster and often involves sending food, water and medical equipment. Aid can be used in the longer-term to help a country develop. A 'top-down' or 'bottom-up' approach may be used, the former is when a project is orchestrated from above and the latter is when locals are involved.

What are the different types of aid?

- Short-term: this is often emergency aid that is given after a natural disaster
- Long-term: this is given over a longer period of time, with the aim of developing the country or region
- Bilateral aid: aid from one country to another
- Multilateral aid: aid from a number of countries, usually through an organisation such as the IMF, to a poorer country
- Charitable aid: money given by charities such as Oxfam

Drawbacks

- Short-term: does not go towards developing the country and may lead to reliance
- Long-term: if top-down, it may not go to those who need it most
- Charitable aid: relies on donors, so may lack find themselves lacking funds

Case Study - Malawi

The following case study is an example of bilateral, long-term aid. Japan has been supporting a region of Malawi called Middle Shire that had a soil erosion issue. If soil has been eroded, it is difficult to grow crops both to eat and sell.

An increase in population in the region had led to deforestation so farmers could grow food. With less trees able to intercept rainfall, in the monsoon season nutrients would be washed away.

The project aims to deal with soil erosion in the following ways:

- Using local materials to build barriers to slow the flow of water
- Supplying fast-growing trees to provide greater protection for the soil
- Educating locals on what causes soil erosion

The above is an example of a bottom-up project. It works with locals and uses appropriate technology

NOW TRY IT...

Task:
Create a revision card for each type of aid - include pros and cons

Challenge:
Research 'intermediate technology' and explain why this is appropriate for development projects

Question:
Explain why long-term aid may be considered better than short-term aid **[4] (AO2)**

Search YouTube for: FMGL6.5

6.5 Fair trade

Fair trade is a programme designed to ensure farmers/producers in LICs/NICs are given a guaranteed and fair income for their goods, as well as improved social and environmental standards.

Why is is needed?

LICs often has a lot of primary economic jobs like farming, fishing and mining. Farmers don't produce a product rather they sell the raw materials to others. These raw goods often do not sell for a high value and the prices fluctuate, so producers receive little for their efforts and it can change week-to-week. Farmers cannot guarantee how much money they will make each month and it encourages farmers to offer their good for less, so more companies buy their produce.

Benefits of fair trade

In the UK our fair trade organisation is call FairTrade, all fair trade organisation work to:

Guarantee a consistent wage of at least a minimum wage to farmers and producers

Prevent child labour and slave labour from the supply line - they only work with farmers who obey the UN requirements on labour

Provide money as grants to improve the local area such as schools and hospitals

Advantages of all aid

Provides immediate support for struggling areas

Supports developing of new jobs and improving the economy

Long-term improvements to quality of life and the environment

Helps LICs gain access to their natural resources to exploit them

Disadvantages of all aid

Creates dependency on HICs

Often focused on urban areas and rural area remain in poverty

Corruption means some aid doesn't reach those who need it

Any profits tend to go back to the MNCs HQ in HICs

NOW TRY IT...

Task:
Make a summary of what fair trade is, include pros and cons of all types of aid.

Challenge:
Search for 'Coop FairTrade' and add extra information to your summary on what the Coop are doing.

Question:
Describe the impact international aid can have on LICs **[4] (AO1)**

Search YouTube for: FMGL6.6

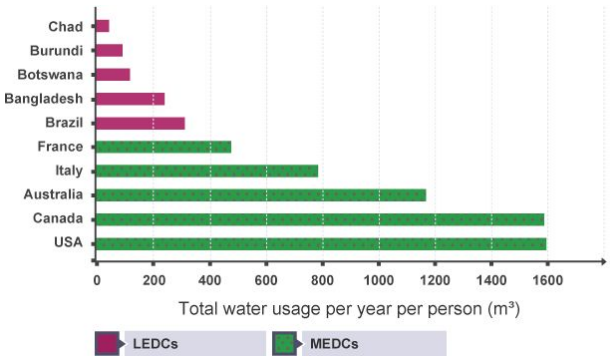
6.6 Water consumption

The demand for water across the globe is higher now than it has ever been before. With more people on the planet and an increase in the number of factories which require water for production, available water sources are under increased pressure. Despite this increased global demand, not everyone has sufficient access to a a clean water supply. In addition, we find that as a result of both factory demand and consumerism, HICs use more water than LICs.

Does everyone have equal access?

Whilst water consumption can vary from country to country, it can also vary within countries. Those living in informal settlements do not have a piped water supply. Instead, residents of such settlements have to purchase expensive bottled water.

Similarly, those living in rural locations in LICs will often not have the infrastructure in place to be able to access clean, piped water.



What is meant by water security?

Water security is when a country or region's population has access to clean and affordable water to allow people to live healthy lives, produce food and goods, and that the ecosystems supplying water are preserved. An area may experience economic water scarcity - when the water is too expensive to access. An area may experience physical water scarcity - when there is a lack of water

What is water used for and why does consumption vary?

The amount of water a person uses is known as their water footprint. Not only is this the amount of water used to shower, cook and clean, it is also the water that goes into producing your food and clothes. The water used to produce goods is known as embedded water.

As can be seen from the graph, the water footprint of those in HICs tends to be much higher. In terms of agriculture, sprinklers are often used in HICs, requiring vast amounts of water. Large factories in HICs require water for cooling machinery. Finally, households in HICs have appliances that require water, such as dishwashers and washing machines. As countries become wealthier, their demand for water increases. A greater proportion of the population will have access to goods that require water and their will be a larger number of industries requiring water.

NOW TRY IT...

Task:
Create a mind map with 'water consumption' at the centre - include what it is and why it varies

Challenge:
Research 'embedded water' and write a paragraph on why the amount used may increase as LICs develop

Question:
Explain two reasons why those in HICs have a larger water footprint than those in LICs **[4] (AO2)**

Search YouTube for: FMGL6.7

6.7 Managing water supplies

Given the ever increasing global population and the economic development of LICs, the demand for water continues to increase. As a result, a number of different methods may be deployed to increase a region's access to water. Bottom-up or top-down water management schemes may be introduced. However, a number of methods may lead to some drawbacks. For example, building a dam creates a larger reservoir but can flood local settlements and ecosystems.

Water management strategies

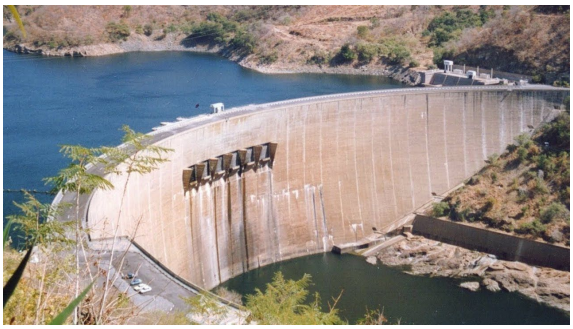
Dams: Dams block the flow of a river, creating a large reservoir to the rear which can be used all year round. Dams can be expensive to build, and the reservoir may flood local settlements and ecosystems.

Water transfers: When water is transferred to from an area that has a surplus of water to an area that is experiencing a shortage. This may be conducted within a country, but it can also be conducted from one country to another. For example, Lesotho transfers water to areas of South Africa experiencing physical water scarcity.

Desalination plants: Desalination is the process by which salt is extracted from water. At these plants, salt is removed from seawater to make it safe to drink. Such plants are extremely expensive to run.

Water conservation: This is when an attempt is made to actually use less water in the first instance. For example, many toilets have dual-flush systems to reduce the amount of water used. In addition, meters may be installed within households so residents can check their water usage

Using 'grey' water: This involves using untreated water when clean water is not required. Rainwater may be collected to water plants, rather than using a hosepipe.



Hydropolitics

This is politics associated with water availability. Rivers can flow over borders, meaning that the actions upriver in one country can affect the quality of water downriver in another country. Poor dialogue and collaboration between countries may see conflict arise.

The Mtumba Approach (bottom-up)

Named after the village in Tanzania, the approach was delivered by WaterAid in an attempt to improve water quality. WaterAid provided training to locals so they can build their own toilets. All materials used were affordable. The result is that faeces does not contaminate drinking water.

NOW TRY IT...

Task:
Create a poster on water management strategies = produce an image for each strategy
Challenge:
Research 'Las Vegas water transfer scheme' and create a case study fact file
Question:
Outline two ways water supply can be managed **[4] (AO1)**

Search YouTube for: FMGL6.8

6.8 Over-abstraction of water

Factors affecting water supply

Access to a freshwater supply is affected by the following factors:

1. Climate
2. Geology
3. Pollution
4. **Over abstraction**
5. Poverty

Over abstraction is when water is taken from aquifers, which means groundwater levels fall. If the amount of water taken is greater than the amount of water falling as rain, it is called over-abstraction.

Aquifers are huge cavern under the ground filled with water (like lakes). They fill as water slowly filters through the soil and rock - this is a slow process. When we **abstract** water, we pump the water out, if this happens faster than the aquifer **recharges** then this is called **over-abstraction.**

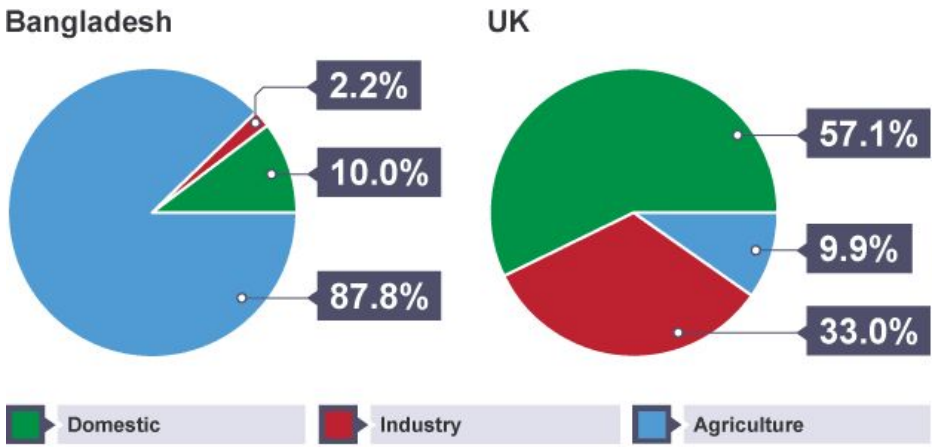
Example of over abstraction of groundwater in India

India is currently using groundwater faster than the water is being replaced in the aquifers. Reasons for this include:

- Long dry seasons of weather, river and lakes dry up so groundwater is the only source of water to use.
- Groundwater is considered cleaner because surface stores are often polluted.
- The Green Revolution means farmers in India grow crops which require more water to grow.

Solutions:

India already has 3200 major and medium sized dams, however a solution would be to build further dams, this may be unpopular with local people because more farmland would need to be flooded.
Farmers may be encouraged to adopt water conservation methods such as Rainwater Harvesting.



NOW TRY IT...

Task:
Research Water Aid in Malawi and compare it to over abstraction in India.
Challenge:
Research other water conservation methods which could be used by farmers in India. Create a poster.
Question:
Use the figure above to suggest why HICs may have a higher demand for water **[2] (AO2)**

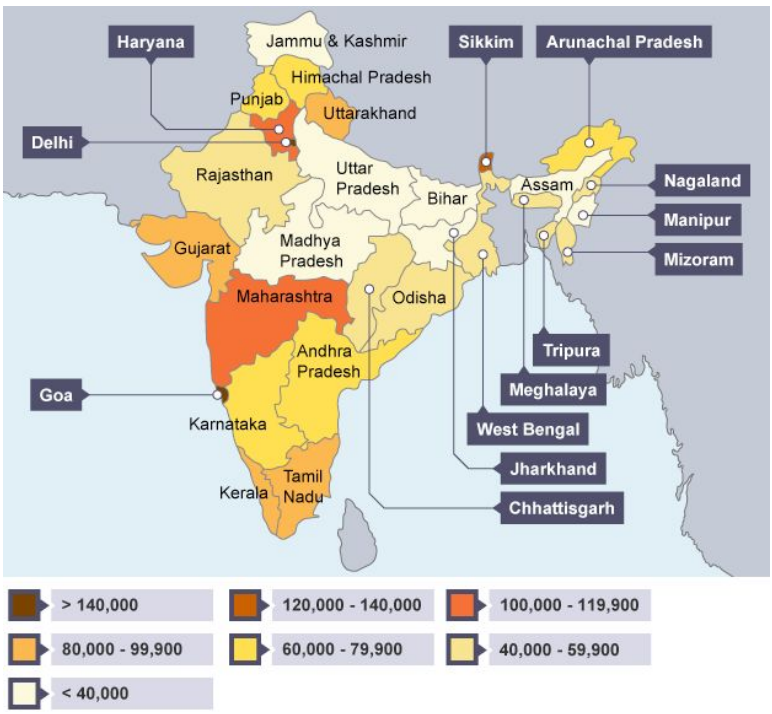
Search YouTube for: FMGL6.9

6.9 Regional inequality

India is a new emerging economy (NEE) that is experiencing rapid economic development. This is leading to social and cultural changes and regional inequality between Indian states. The map below shows GDP per capita in Indian Rupees.

Causes of Regional Inequality in India

- Coastal locations such as Mumbai (in Maharashtra) historically benefitted from being linked to trade routes with the rest of the world. This is in contrast to landlocked states such as Bihar.
- The south and the west also had the lowest rates of natural increase compared to the high rates of natural increase in the north and the east. In Kerala the state government funds public education and health therefore, fertility rates are now 1.7 - the same as in the UK.
- The increase in food exports was greatest in the south and the west compared to the north and the west. Rajasthan, which separates the rich states of Gujrat and Haryana, is often affected by drought and crop failure due to the failure of the monsoon.



These reasons led to the positive multiplier effect in the south and the west where a high level of development created a well-educated workforce. This then attracted foreign investment from transnational corporations, further increasing the wealth of the south and the west.

Consequences of Regional Inequality in India

- Protests
- Growth of Extremist movements
- Demands for regional independence
- Increase in crime
- Widespread public anger at political corruption

NOW TRY IT...

Task:
Create a table outlining the social and economic differences between Bihar and Maharashtra.

Challenge:
Create a poster combining regional inequalities in India and the UK to compare them both. Note any similarities and differences (use the next page in the revision guide to help you).

Question:
Outline one reason why there are regional inequalities in India **[2] (AO1)**

Search YouTube for: FMGL6.10

6.10 UK regional inequality

It has long been recognised there is a north-south divide in the UK.
The map shows a line which broadly represents the divide. The divide recognises the social and economic differences between Southern parts of the UK and the rest of the UK.

Causes of the North-South Divide

Political

Many large companies have headquarters (HQ) in the south-east, making it easier to make crucial decisions. Even though government policy has tried to encourage investment in other parts of the UK it is still more convenient for other smaller businesses to start up where there is already infrastructure to support.

Social

With over 20 million people of the UK's population living within a one hour commute of London, many businesses prefer to locate themselves close to their customers, and within commuting distance of their staff. Many universities are in the south of the UK, including Oxford and Cambridge, which provide many workers - who employers may perceive as being most skilled and desirable.

Economic

With the largest markets located in the south-east, which also includes good access to European markets, companies have greatest potential to maximise profits by locating in the south.

Consequences of the North-South Divide

- Health conditions tend to be poorer in the North
- Life expectancy is lower in the North
- House prices are higher in the South (particularly in and around London)
- Income tends to be lower in the North
- There is a migration of young professionals from the north to the south

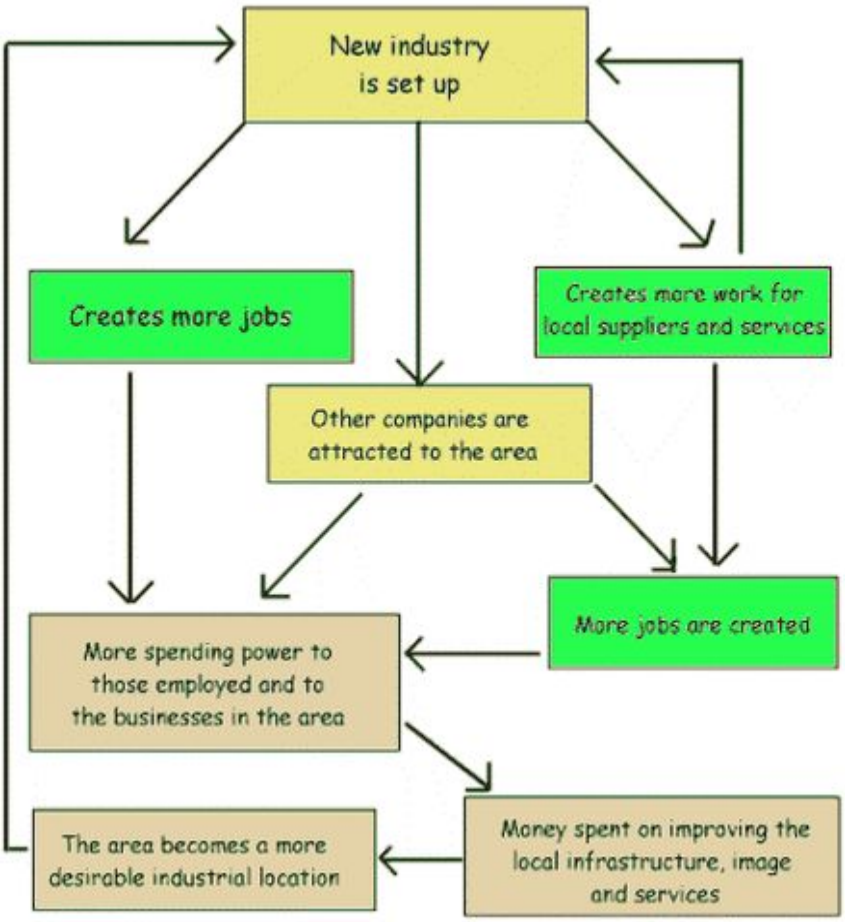
NOW TRY IT...

Task:
Create two flashcards, one flashcard must include all of the causes and one must include all of the consequences.
Challenge: Research the term 'Deindustrialisation' and then write down how this could of contributed to a north south divide in the UK.
Question:
Describe the consequences of UK regional inequality **[2] (AO1)**

Search YouTube for: FMGL6.11

6.11 Reducing regional inequality

Regional inequality can be reduced by investment in deprived areas of the UK. Various strategies have been used in the past which usually includes investing in infrastructure in an area which is deprived to try and promote a positive multiplier effect. However, when industries close there is also a negative multiplier effect.



How do national policies reduce regional inequalities:

1. Giving power to local authorities, for example the election for local mayor in 2017.
2. The creation of the "Northern Powerhouse" which is a proposal to boost economic growth in the North of UK, this would attract investment and create a significant number of skilled jobs in the area.
3. The improvement of transport links to the Northern places in the UK. This improves accessibility, attract new investment and therefore may create a positive multiplier effect.
4. Relocation of major business and offices, sometimes head offices in other parts of the UK, such as Manchester. This encourages other businesses to invest in the areas.

Local developments to reduce regional inequality - Newcastle:

- **Newcastle Enterprise Package** - supporting new business.
- **Newcastle Science City** - a partnership between Newcastle University, Newcastle City Council and the European Regional Development Fund supporting the innovation and technology sectors.
- **The Millennium Bridge** - crossing the river Tyne.

Enterprise Zones (EZ)

Specific area of a city in need of investment is identified as an EZ. Companies which move their business to the EZ pay less tax and get additional help from the government. It helps the local area because it provides jobs. Then people have money to spend in the economy.

NOW TRY IT...

Task:
Create two flashcards to describe the positive and negative multiplier effect.

Challenge:
Research other solutions to regional inequality which have been put in place in Newcastle / North East.

Question:
Describe the term deindustrialisation **[2] (AO1)**

THEME 7: Social development issues

Search YouTube for: FMGL7.1

Watch a 5 min explainer by searching for this code on YouTube

7.1 Social development

When we talk about development its often HICs and LICs, but that only considers a countries 'income'; the economy. Development can and should consider social elements too.

Measuring social development

Some of the factors which affect social development include:

Literacy rates (% of people who can read and write)

Limitation: It is difficult to carry out surveys in war zones or squatter settlements in LICs

Patients per doctor (number of people who rely on a single doctor to meet their needs)

Limitation: In rural areas in NICs people are using their mobile phones to get medical advice this is not recorded in data

Infant Mortality Rate (IMR) (number of babies that die within their first year, per 1000 live births)

Limitation: Not all births are recorded in poor countries. Also, deaths of children are not always recorded.

Access to safe water (% of people who have access to water that is safe to drink)

Limitation: Water quality can change rapidly as the result of flooding. As water becomes more expensive in cities less wealthy people may be forced to use unsafe water.

Life Expectancy (the average age people can expect to live to)

Limitation: Where infant mortality is high the life expectancy for those people who survive childhood is much higher than the average.

Gender

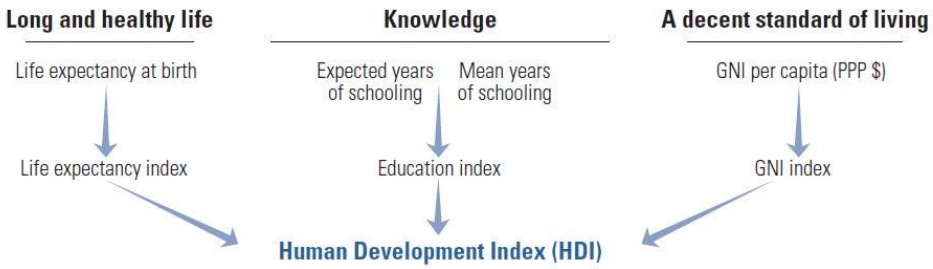
Equal rights are common in the UK (but even here gender imbalances still exist). In some countries girls have very few rights. So we also look at how how the factors like life expectancy and literacy rates differ between the male and female population. There are calculations like the **Gender Inequality Index (GII)** which measure these too.

Health

We can look at how much of a country's **Gross Domestic Product (GDP)** is spent on healthcare or how many people die from specific diseases like HIV or malaria. As well as the health factors mentioned above like doctor-patient ratios.

HDI

We've mentioned the **Human Development Index (HDI)** before. It considers social factors as well as economic when evaluating levels of development. Such as: literacy rates, life expectancy, average wage (GNI), average schooling years



NOW TRY IT...

Task:
Create flashcards for the different development indicators and revise the definitions and limitations

Challenge:
Find out examples of countries which spend a lot of their GDP on healthcare and some that don't

Question:
'HDI is the best method for evaluating the social development of countries' To what extent do you agree with this statement? **[8] (AO3)**

Search YouTube for: FMGL7.2

7.2 Uneven social development

Uneven social development is often due to a lack of resources. This can be due to having too many people (overusing resources) or not enough people (can't produce the necessary resources). These changes in the social development can have impacts on birth rate, death rate and life expectancy of an area/country.

Factors affecting Birth Rate (number of births per 1,000 people)

[S] Social **[E]** Economic **[P]** Political

Factors **increasing** the birth rate	Factors **decreasing** the birth rate
Need child labour for farming **[E]** Girls marry early and have more children **[S]** Girls stay at home, no education **[S]** High IMR so have more to make sure some children survive **[S]**	Marrying later so have fewer children **[S]** Cost of living higher = more expensive to have lots of children **[E]** Girls go to school and have careers **[S]** Birth control is available to all **[P]**

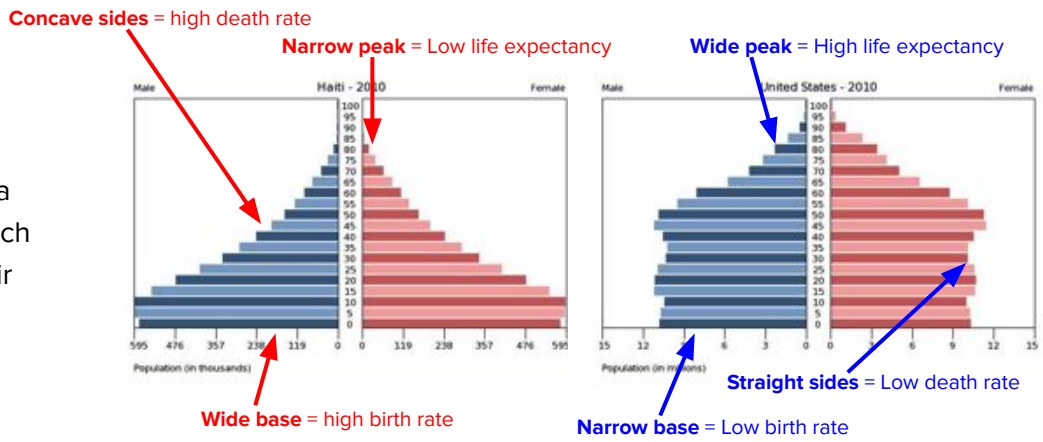
Factors affecting Death Rate (number of deaths per 1,000 people)

[S] Social **[E]** Economic **[P]** Political

Factors **increasing** the death rate	Factors **decreasing** the death rate
Diseases such as HIV, malaria and ebola **[S]** As more people live longer they develop a large ageing population which will eventually start to die **[S]**	Better healthcare and access to it **[P]** Education about hygiene and health **[S]** Reliable, clean water supplies **[P]** Effective sanitation systems **[P]**

Population pyramids

We can represent a country's population as a graph. The shape of which tells us a lot about a their stage of development...



NOW TRY IT...

Task:
Create a mind map to outline the birth and death influencing factors. Try to make links between them

Challenge:
Research the Demographic Transition Model & create annotated sketches of all 5 population pyramids

Question:
Outline 3 factors which influence life expectancy **[3] (AO1)**

Search YouTube for: FMGL7.3

7.3 Child labour

There are over 150 million child works around the world. Working in unsafe conditions and earning very little, often from the age of 6+

Reasons for child labour

Poverty - parents need money or their parents have died
No (free) education - have to pay or no formal education
No labour laws - some countries have limited laws preventing child labour
AIDS - Disease means a lot of middle-aged people are too ill or have died - so children are the only option for a family to make money

Responses to child labour

International Labour Organisation (ILO) - supports countries to improve labour laws (ban child labour), access to education & public awareness
United Nations (UN) - made laws to ban child labour, including minimum wage laws and definitions of child law
Charities like 'Child Hope' - raising awareness to stop public from buying products made from child labour (Sialkot footballs)

Education

The UN believes that increasing access to education for all children will also help reduce the chances of children ending up as underaged workers. They set a sustainability goal as: *halving the number of children not attending school globally*

Improving education

Education isn't just for children - some projects aim to educate adults and show them why educating girls is a good thing.
Some projects are also building new schools nearer to villages so children don't have so far to travel.
Compulsory Education Acts - laws which require all children to attend school until a specified age, meaning children have to be in a classroom, not the workplace.

NOW TRY IT...

Task:
Create a poster of causes and responses to child labour.
Challenge:
Search for '*Child labour Theirworld*' and add additional information to your poster in a different colour.
Question:
Suggest why child labour is a significant problem for LICs **[4] (AO2)**

Search YouTube for: FMGL7.4

7.4 Forced migration

Forced migrants are those we call refugees and asylum seekers. They have been pushed out of their homes but there are no pull factors attracting them to somewhere else.

Refugee or asylum seeker?

Refugee - Someone who has fled their home due to serious risk to life or liberty

Asylum seeker - Someone who has applied to another country for protection/support as a refugee

Causes of forced migration

Lack of food/water - often causes by droughts or blights (plant diseases)

Natural disasters -flooding, earthquakes, tsunamis etc.

War & conflict - either between countries or civil war (inside one country)

Persecution - risk to life or liberty due to politics, sexual orientation, religion, ethnicity etc,

Patterns of forced migration

Forced migration is not new, there was mass forced migration during WW2, as people fled Nazi occupation. Today Europe has a lot of people entering from the Middle Eastern and and African countries. However places like Lebanon see many more refugees than a EU country - ¼ of it's population are refugees from the war in Syria.

Impacts of forced migration

Lebanon's population has grown by 25%

Squatter settlements had developed to accommodate refugees

Poor living conditions - poor access to clean water & healthcare

Increased pressure on infrastructure - hospitals, schools, transport

EU responses to forced migration

Increased border controls in EU countries where no passport control is used between countries

Naval patrols in the Mediterranean Sea to prevent people trafficking and deter crossing attempts

International funding & support for countries with high amounts of refugees, such as Greece, Italy and Turkey

NOW TRY IT...

Task:
Categorise the causes of forced migration by social, economic, environmental and political

Challenge:
Research some case study facts about the refugee crisis in Lebanon.

Question:
Evaluate how successful the responses are to prevent forced migration into the EU **[8] (AO3)**

Search YouTube for: FMGL7.5

7.5 Health issues in LICs

Health issues are arguably one of the best indicators of social development but also a real struggle to achieve in LICs for a range of reasons.

HIV

HIV is disease which attacks the body's immune system.

Over 70% of people who have HIV live in Africa. Infection rates are higher in urban areas, it leads to poverty as families can't work, children often have to drop out of school to work. Retroviral drugs and slow and stop progress of the disease however it is expensive. If it is left untreated it leads to AIDS which has a very high death rate in middle aged people.

Malaria

Malaria is a disease passed on by parasites in mosquitoes.

Infection rates are higher nearer water sources like lakes & rural areas. Children and pregnant women are most at risk. Rural areas don't have easy access to healthcare providers like doctors. Malaria is fatal if it is not treated or prevented. This leads to a significant increase in the death rate in the young and pregnant women.

Infant Mortality Rate

HIV and Malaria can contribute to a higher IMR:

- Catching an infection during pregnancy is possible
- Leads to poor health and more likely to die from minor ailments
- Less funded and educated medical staff can contribute to this too

International responses

Investment in medical care and treatment in hospitals **(HIV/Mal)**
Health campaigns (adverts) about risks and prevention **(HIV/Mal)**
Free condoms **(HIV)** and mosquito nets for beds **(Mal)**
UN's AIDS Fast Track programme - leading education & funding **(HIV)**
UN's 'roll-back malaria' programme which leads a worldwide government response **(Mal)**

NOW TRY IT...

Task:
Create a table with 2 columns, and create a comparison between HIV and malaria
Challenge:
Pick one disease and research the international responses in more detail
Question:
Outline how one disease can have a significant impact on a country's economy [**4**] **(AO2)**

TRY IT NOW...
mark schemes

THEME 1 mark scheme

Q1.1
- ❑ **1 Mark** – Uplands found in the North / North and west
- ❑ **1 Mark –** Lowland mainly in south / southeast
- ❑ **1 Mark** – Named place or pattern eg. Pennines run down central England

Q1.2
- ❑ **2 Marks** – Often people will come in cars increasing pollution or parking on grass verges damaging vegetation
- ❑ **2 Marks** – Countryside locations often attract walkers/hikers. Lots of people walking areas creates footpath erosion, ruining vegetation and habitats

>> other correct answers possible

Q1.3
- ❑ **1 Mark** – Steep sided valley
- ❑ **1 Mark** – Narrow valley floor

Q1.4
- ❑ **1 Mark** – All 4 occur in upper course (name them)
- ❑ **1 Mark** – Traction stops before middle course
- ❑ **1 Mark** – Saltation stopes before lower course
- ❑ **1 Mark** – Only solution continues at the mouth of river

Q1.5
- ❑ **1 Mark** – Hard rock on top erodes slower than soft rock
- ❑ **1 Mark** – Hydraulic action and abrasion erode soft rock creating undercut/overhang
- ❑ **1 Mark** – Unsupported hard rock collapses making waterfall retreat
- ❑ **1 Mark** – This cycle continues over time and the retreat creates a gorge

Q1.6
- ❑ **1 Mark** – Slowest flow of water
- ❑ **1 Mark** – Lowest depth / has slip-off slope

Q1.7
- ❑ **2 Marks** – During a flood, water breaks the river banks and deposits sediment on sides of the river
- ❑ **2 Marks** – Repeated floods build up layers of sediments to form tall banks called levees

Q1.8
- ❑ **1 Mark** – Water freezes in cracks in the rock and expands the cracks
- ❑ **1 Mark** – The cracks widen and weaken rock until parts split and fall down the cliff

Q1.9
- ❑ **1 Mark** – Sediment is washed up the beach with the swash
- ❑ **1 Mark** – Sediment is pulled off the beach again in the backwash
- ❑ **1 Mark** – This cycle continues in the direction of the prevailing wind

Q1.10
- ❑ **1 Mark** – Discordant coastlines would erode faster
- ❑ **1 Mark** – More soft rock is exposed to the sea to be eroded, concordant coasts are protected by harder rock

Q1.11
- ❑ **2 Marks** – Hydraulic action and abrasion erode the base of the cliff it creates an undercut called a wave-cut notch
- ❑ **2 Marks** – The cliff becomes unstable as the notch weakens the base and the cliff above collapses.
- ❑ **2 Marks** – As the cliff retreats it leaves a flat surface of rock called a wave-cut platform

Q1.12
- ❑ **1 Mark** – An opening in the cliff/headland
- ❑ **1 Mark** – Formed when 2 caves meet

Q1.13
- ❑ **1 Mark** – Diagram(s) showing spit coming from the coast
- ❑ **1 Mark** – Annotation which explains longshore drift
- ❑ **1 Mark** – Annotation explaining build up of sand

Q1.14
- ❑ **4 Marks** – Mentioned 2 different points to support your argument and explained both of them in detail
- ❑ **2 Marks** – Mentioned 1 point considering the opposite point of view and explained it in detail
- ❑ **2 Marks** – Given a conclusion which says whether you agree or disagree with the statement and why

Q1.15
- ❑ **1 Mark** – An area of land
- ❑ **1 Mark** – Drained by a river and its tributaries

Q1.16
- ❑ **1 Mark** – Mentioned 1 reason why rivers flood
- ❑ **1 Mark** – Explained why this causes a river to flood
- ❑ **1 Mark** – Mentioned a second reason why rivers flood
- ❑ **1 Mark** – Explained why this causes a river to flood

Q1.17
- ❑ **4 Marks** – Mentioned 2 different points to support your argument and explained both of them in detail
- ❑ **2 Marks** – Mentioned 1 point considering the opposite point of view and explained it in detail
- ❑ **2 Marks** – Given a conclusion which says whether you agree or disagree with the statement and why

Q1.18
- ❑ **1 Mark** – Hard engineering is expensive
- ❑ **1 Mark** – Money could be spent on other things
- ❑ **1 Mark** – Hard engineering involves building artificial structures
- ❑ **1 Mark** – Residents may suggest that this affects the natural look of the river

THEME 2 mark scheme

Q2.1

- **1 Mark** – How close other settlements are to the city
- **1 Mark** – How good the transport links are
- **1 Mark** – How large the city is (or how many shops and services the city provides)

Q2.2

- **1 Mark** – Mentioned 1 negative of counterurbanisation
- **1 Mark** – Explained why this is an issue
- **1 Mark** – Mentioned a second negative of counterurbanisation
- **1 Mark** – Explained why this is an issue

Q2.3

- **1 Mark** – A lack of jobs forces people to leave rural settlements
- **1 Mark** – There are less people using local shops and services
- **1 Mark** – Shops and services are forced to close
- **1 Mark** – Lack of services for residents produces rural deprivation

Q2.4

- **1 Mark** – Mentioned 1 strategy that aims to make rural settlements sustainable
- **1 Mark** – Explained how the strategy makes the settlement sustainable
- **1 Mark** – Mentioned a second strategy that aims to make rural settlements sustainable
- **1 Mark** – Explained how the strategy makes the settlement sustainable

Q2.5

- **1 Mark** – The NHS has allowed people to live longer
- **1 Mark** – This reduces the death rate and goes towards increasing the population
- **1 Mark** – Contraceptives are readily available and education is provided
- **1 Mark** – Unwanted pregnancies are reduced, decreasing the birth rate

Q2.6

- **1 Mark** – Mentioned 1 positive of migration for the UK
- **1 Mark** – Explained why this means migration is beneficial
- **1 Mark** – Mentioned a second positive of migration for the UK
- **1 Mark** – Explained why this means migration is beneficial

Q2.7

- **2 Marks** – Stating an advantage of an ageing population: People are living longer and enjoying healthier lives., an older population have solid and traditional views, grandparents play a crucial role in child care, older people choose to work longer, retired people have a disposable income, Retired people sometimes volunteer.
- **2 Marks** - Stating a disadvantage of an ageing population: Older people put a strain on healthcare, pensioners do not work, older people are more likely to get ill/injured costing healthcare services, pensions have to be paid for longer, maintaining a good quality of life for the elderly is also a moral issue.

Q2.8

- **1 Mark** – Define a sustainable urban area: This is a built up area in which there is minimal damage to the environment, the economic base is sound, resources and jobs are equally shared, there is a strong sense of community and local people are involved in making decisions.
- **2 Marks** - identifying ways in which an urban area can be sustainable: a strong sense of local culture, have a thriving economy, provide green spaces for people to enjoy, conserve energy and water, have good transport and communication links, local people participate in decision making.

Q2.9

- **1 Mark** - Only have big chain stores and department stores there are no local businesses.
- **1 Mark** - they attract shoppers from city centre shops which increases traffic and impacts the high street.
- **1 Mark** - the development of out of town shopping centres encourages urban sprawl in rural areas which negatively impacts the environment.

Q2.10

- **1 Mark** – Trend: the majority of global cities are located in northern hemisphere in HICs.
- **1 Mark** - Example: there are a lot of global cities within central Europe, examples include London and Paris.
- **1 Mark -** Anomaly: there are a few global cities in the Southern hemisphere, including 2 in Africa which does not fit the trend of global city world distribution.

THEME 3 mark scheme

Q3.1

- **1 Mark** - identifying the characteristics of oceanic plates: Young, Denser, Less than 200 million years old, Will subduct, Can be melted
- **1 Mark -** Old, Less dense, Over 1500 million years old, Will not subduct, Can't be melted

Q3.2

- **1 Mark** – An oceanic and continental plate move towards each other.
- **1 Mark -** The heavier, more dense oceanic plate is forced under the continental plate. As it sinks below the continental plate the oceanic plate melts due to friction in the subduction zone.
- **1 Mark -** The crust becomes molten called magma and can cause earthquakes and volcanic eruptions.

Q3.3

- **1 Mark** – Made up of layers of lava and ash
- **1 Mark -** They are usually found at destructive boundaries.
- **1 Mark -** The eruptions infrequent and strong/powerful

Q3.4

- **1 Mark** –Identify the physical volcanic risks: lahras, ash clouds, lava flows, pyroclastic flows.
- **1 Mark** - Explain the damage it can cause to farmland, agriculture and trees.

Q3.5

- **4 Marks** – Mentioned 2 different points to support your argument and explained both of them in detail
- **2 Marks** – Mentioned 1 point considering the opposite point of view and explained it in detail
- **2 Marks** – Given a conclusion which says whether you agree or disagree with the statement and why

Q3.6

- **1 Mark** – Intense shaking of the ground causes rocks to fall. Death of people and livestock
- **1 Mark -** This can kill both people and livestock, severely damage buildings and block roads.

Q3.7

- **1 Mark** – Give a primary impact
- **1 Mark -** Explain how this impacted your case study (include numerical facts)
- **1 Mark -** Give a secondary impact
- **1 Mark -** Explain how this impacted your case study (include numerical facts)

Q3.8

- **1 Mark** – Hazard risk is likely to increase if population increases because there is increased human vulnerability and increased deaths,
- **1 Mark -** An increase in population means more housing and therefore potential for damage and destruction to buildings.

Q3.9

- **1 Mark** – Hazard mapping restricts building so there would be fewer buildings to collapse and cause damage / death
- **1 Mark** - Hazard mapping identifies which areas to evacuate first so people could re relocated before a hazard occurs thus reducing the death toll.

THEME 5 mark scheme

Q5.1
- ❑ **1 Mark** – CO_2 has fluctuated over time
- ❑ **1 Mark** – Mentioned data or years from the graph
- ❑ **1 Mark** – Mentioned an anomaly (like in 2018)

Q5.2
- ❑ **4 Marks** – Mentioned 2 different points to support your argument and explained both of them in detail
- ❑ **2 Marks** – Mentioned 1 point considering the opposite point of view and explained it in detail
- ❑ **2 Marks** – Given a conclusion which says whether you agree or disagree with the statement and why

Q5.3
- ❑ **1 Mark** – Equator gets most insolation (sunlight) which warms the ground and air
- ❑ **1 Mark** – warm air rises because it is less dense

Q5.4
- ❑ **1 Mark** – Crops were destroyed which means farmers won't get paid
- ❑ **1 Mark** – Need to import food which would cost more
- ❑ **1 Mark** – Buildings like hospitals, schools and homes destroyed which will cost to rebuild

>> other correct answers possible

Q5.5
- ❑ **1 Mark** – Isobars are far apart
- ❑ **1 Mark** – Meaning there is a gradual change in pressure
- ❑ **1 Mark** – Air moves from areas of high pressure to areas of low pressure
- ❑ **1 Mark** – Meaning wind is light at the centre of an anticyclone

Q5.6
- ❑ **1 Mark** – The north is colder than the south
- ❑ **1 Mark** – This is because warm air masses come from the south and cold air masses come from the north
- ❑ **1 Mark** – Areas at higher altitudes are colder
- ❑ **1 Mark** – This is because low pressure air at higher altitudes is cooler
- ❑ **1 Mark** – Urban areas are warmer than rural areas
- ❑ **1 Mark** – This is because buildings release internal heat, tall buildings block the wind and tarmac absorbs heat due to its colour

>> other correct answers possible

Q5.7
- ❑ **1 Mark** – The average temperature
- ❑ **1 Mark** – The tropical rainforest is found in the tropics due to a high average temperature
- ❑ **1 Mark** – The amount of rainfall
- ❑ **1 Mark** – Deserts are found in locations which receive less than 250 mm of rainfall per year

Q5.8
- ❑ **1 Mark** – Less leaf litter
- ❑ **1 Mark** – Fewer leaves decomposed, meaning less available nutrients for plants and in turn less leaf litter

Q5.9
- ❑ **1 Mark** – Observation of graph e.g. Rainy season Dec-May
- ❑ **1 Mark** – Mentions specific point e.g. highest amount of rainfall is in March 300mm

Q5.10
- ❑ **2 Marks** – Baobab tree has adapted to climate because it has shallow roots, therefore soaks up water as soon as the water reaches the soil, this is because the Savannah tends to have a low amount of rainfall.
- ❑ **2 Marks** – Another factor which explains how the Acacia tree or Baobab have adapted to the hot / dry climate.

Q5.11
- ❑ **1 Mark** - Soil is losing its fertility
- ❑ **1 Mark** - Soil is washed away in the rainy season / blown away in the dry season.

Q5.12
- ❑ **1 Mark** - regulating air quality and climate
- ❑ **1 Mark** - explaining how the above has a benefit to the whole world e.g. Rainforests holding CO2 which otherwise could contribute to climate change

Q5.13
- ❑ **1 Mark** – Named ecosystem (Tropical Rainforest / Savannah)
- ❑ **1 Mark** – Example of a sustainable use: (Eco-tourism, Afforestation, Selective Logging, Wildlife Corridors, Crop Rotation)
- ❑ **1 Mark** – Give further explanation on how the ecosystem is used and how it is sustainable (long-term impacts, social, economic and environmental)

Q5.14
- ❑ **1 Mark** – Overtime, sand builds up through the prevailing wind blowing loose sand, which are colonised by plants
- ❑ **1 Mark** – Embryo dunes have pioneer plants (such as sand couch) that don't require a lot of nutrients
- ❑ **1 Mark** – The roots of the pioneer plants secure the sand and it becomes more stable
- ❑ **1 Mark** – Overtime, more vegetation can grow, which traps more sand. This makes the sand dunes grow larger (Fore dunes)
- ❑ **1 Mark** – The larger they get the more they block the prevailing wind stopping dunes from growing (Yellow and Grey dunes)
- ❑ **1 Mark** – When vegetation and environment reach an equilibrium, this is called a climax community.

Q5.15
- ❑ **1 Mark** – Named ecosystem (Tropical Rainforest, Savannah, Temperate Woodland, Arid, Polar) and an named example (e.g. Gwynt y Môr offshore wind farm
- ❑ **1 Mark** – An advantage for the case study (e.g. creation of job)
- ❑ **1 Mark** – A disadvantage for the case study (e.g spoiling the natural beauty)

THEME 6 mark scheme

Q6.1

- ❑ **1 Mark** – They do not tell us how much money is being invested into education and healthcare
- ❑ **1 Mark** – It does not reveal how the money is spread within the country - there may be a large disparity between rich and poor

Q6.2

- ❑ **1 Mark** – HICs export expensive, manufactured goods and LICs export chep, raw goods
- ❑ **1 Mark** – Therefore, LICs import expensive goods from abroad, preventing them from getting out of poverty
- ❑ **1 Mark** – The price of raw goods fluctuates on the world market
- ❑ **1 Mark** – Farmers in LICs may go long periods of time earning very little money for their produce

>> other correct answers possible

Q6.3

- ❑ **4 Marks** – Mentioned 2 different points to support your argument and explained both of them in detail
- ❑ **2 Marks** – Mentioned 1 point considering the opposite point of view and explained it in detail
- ❑ **2 Marks** – Given a conclusion which says whether you agree or disagree with the statement and why

Q6.4

- ❑ **1 Mark** – Long-term aid is given over a longer period of time
- ❑ **1 Mark** – This is allows the country to develop and become self-sufficient
- ❑ **1 Mark** – Short-term aid is given as a one-off payment
- ❑ **1 Mark** – The receiving country may become reliant on payouts

Q6.5

- ❑ **1 Mark** – 1 positive impact eg. develops of new jobs by providing work in construction projects
- ❑ **1 Mark** – 1 positive impact eg. it can help improve the quality of life and the environment after a natural disaster
- ❑ **1 Mark** – 1 negative impact eg. creates dependency on HICs so LICs are less likely to be able to support themselves in the future
- ❑ **1 Mark** – 1 negative impact eg. most of it goes to urban areas where most people live and it means the rural area remain in poverty and might get worse

Q6.6

- ❑ **1 Mark** – Citizens in HICs can afford appliances that require water
- ❑ **1 Mark** – meaning more water is used in their daily lives
- ❑ **1 Mark** – High quality infrastructure in HICs means that many homes have a piped, clean water supply
- ❑ **1 Mark** – Meanwhile, many in LICs rely on expensive, bottled water
- ❑ **1 Mark** – HICs are more industrially developed
- ❑ **1 Mark** – Factories require water for cooling machinery

Q6.7

- ❑ **1 Mark** – A dam could be built to stop the flow of a river
- ❑ **1 Mark** – This creates a reservoir which can provide water all year round
- ❑ **1 Mark** – The use of 'grey water' could be encouraged
- ❑ **1 Mark** – This means clean water supplies are only drawn upon when it is entirely necessary

Q6.8

- ❑ **1 Mark** – Higher domestic use for water.
- ❑ **1 Mark** - People have access to clean running water, therefore may be more wasted / different lifestyles.

>> other correct answers possible

Q6.9

- ❑ **1 Mark** – Coastal locations better trade routes.
- ❑ **1 Mark** - Political differences between states.

>> other correct answers possible

Q6.10

- ❑ **1 Mark** – Health conditions may be poorer
- ❑ **1 Mark** - This may lead to lower life expectancy

>> other correct answers possible

Q6.11

- ❑ **2 Marks** – the reduction of industrial activity or capacity in a region or economy.

THEME 7 mark scheme

Q7.1

- ❏ **4 Marks** – Mentioned 2 different points to support your argument and explained both of them in detail
- ❏ **2 Marks** – Mentioned 1 point considering the opposite point of view and explained it in detail
- ❏ **2 Marks** – Given a conclusion which says whether you agree or disagree with the statement and why

Q7.2

- ❏ **1 Mark** – Mention one factor linked to birth rate
- ❏ **1 Mark** – Mention one factor linked to death rate
- ❏ **1 Mark** – Mention additional one factor linked to birth rate or death rate

Q7.3

- ❏ **1 Mark** – LICs are poorer countries and many people live in poverty. Child help families earn more money
- ❏ **1 Mark** – LICs often have poorer laws for labour to encourage more MNCs to create jobs in the country
- ❏ **1 Mark** – LICs are less likely to have universal healthcare and education, so adults suffer more from health issues like HIV/AIDs. Children need to work where adults can't.
- ❏ **1 Mark** – LICs are less likely to have free schooling, so if children can't go to school, they'll have to work.

Q7.4

- ❏ **4 Marks** – Mentioned 2 different points to support your argument and explained both of them in detail
- ❏ **2 Marks** – Mentioned 1 point considering the opposite point of view and explained it in detail
- ❏ **2 Marks** – Given a conclusion which says whether you agree or disagree with the statement and why

Q7.5

- ❏ **2 Marks** – Less healthy workers so less products/services being made **[1]**, which means less taxes and exports **[1]**
- ❏ **2 Mark** – Government needs to spend more on healthcare and social support **[1]** which needs to be paid for by government or taxpayers **[1]**.

>> other correct answers possible

NOTES

NOTES