

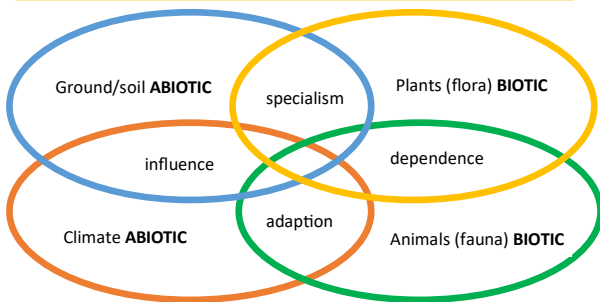
GEOGRAPHY 7.1. ECOSYSTEMS

1. and 2. Ecosystems and Biomes

An ecosystem is an environment in which living (biotic) communities of **plants** (flora) and **animals** (fauna) exist suited to the conditions of the non-living (abiotic) **ground** and **climate** in that area.

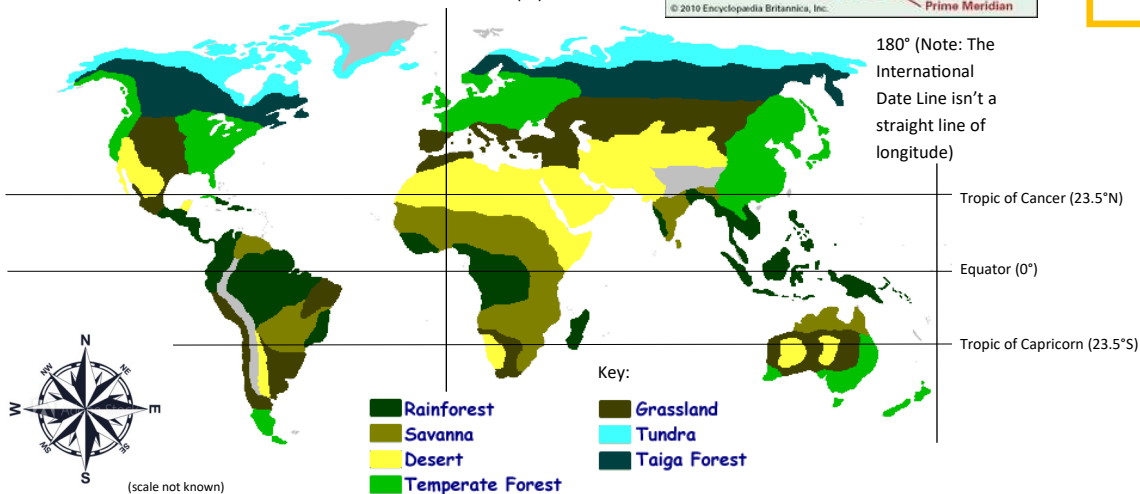
These four components (biotic and abiotic) all influence each other; this is called **interdependence**. See the Venn diagram set out below.

Ecosystems can be as small as a garden pond, or as massive as a desert. Large scale ecosystems are called **biomes**. Examples are rainforests, coniferous forest or coral reefs.



3. Global Biomes and key latitudes

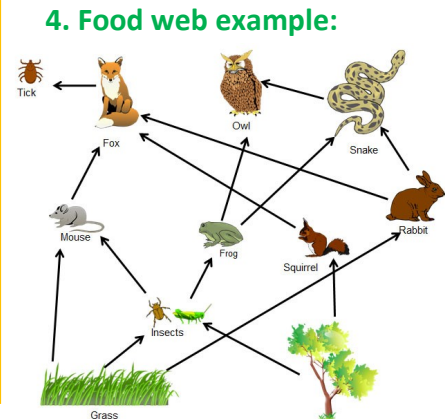
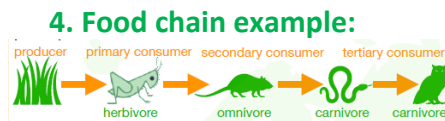
Greenwich Prime Meridian Line (0°)



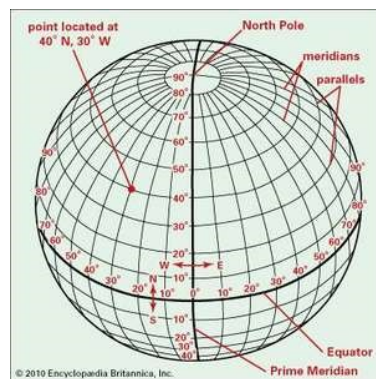
4. Food Chains and Webs

A **food chain** follows a path of energy flow in an ecosystem as animals consume food. **Producers** create food and **consumers** eat them. Some consumers are eaten by **secondary consumers (predators)**.

A **food web** consists of many food chains as many animals eat a variety of different things—so the food chains become connected at different points. Nutrients are recycled by **decomposers** when a biotic component dies. See examples of chain and web to the right...



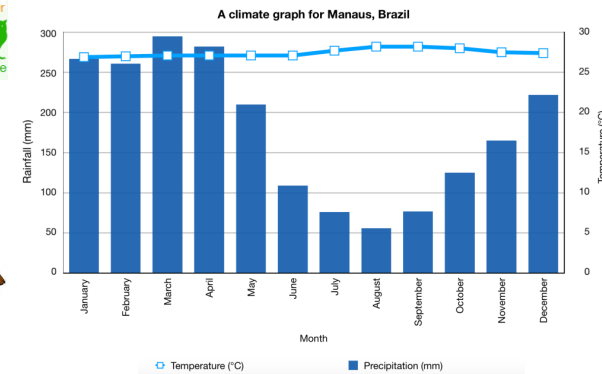
A04 - Longitude and Latitude



Ecosystem Key terms

Ecosystem	biome	biotic	abiotic
interdependence		food web	food chain
nutrient cycle	habitat	producers	consumers
biomass	carnivore	omnivore	herbivore
predator	decomposers	longitude	latitude
Tropics	poles	Equator	continents
Africa	Europe	North America	South America
Asia	Oceania	Antarctica	

A04 Climate Graphs and Analysis



A04—Statistical Analysis Core skills

Mode	The number which appears the most often in a set of numbers (data)
Bi-modal	If there are two modes
No mode	If one number does not appear more than any other in the set of numbers
Median	The number in the middle of the set when the numbers are put in ascending order
Range	Find the largest and smallest numbers in the set and subtract them
Mean	Add up the numbers and divide by how many there are in the set
Continuous data	Can be measured and take any value. Temperature is continuous over the year on climate graphs and therefore shown as a line.
Discrete data	Data that can only take particular values. Rainfall is discrete on climate graphs (by month) and therefore shown as non-touching bars.

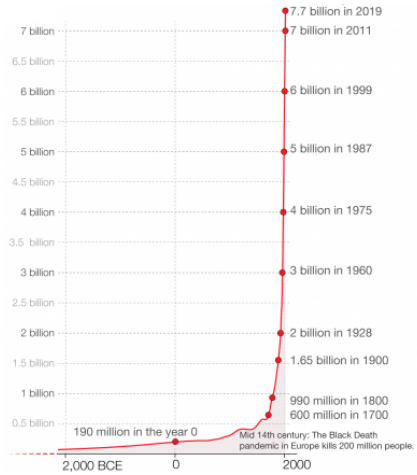
3. 5. 6. 7. Major global biomes overview:

Biome	Locations:	Climate:	Characteristics
Temperate Deciduous Forest	Between 40-60° N or S of the Equator	Mild all year - Cool winters and warm summers. Wet all year	Deciduous trees that lose leaves in winter time. Found in western Europe, eastern USA, eastern Asia and southern Oceania.
Tropical Desert	Generally between 20-35° N or S—along the tropics	Very hot summer and cool winters. Very dry all year.	Cacti and xerophytes survive here. Extreme climate. Found in North and South America and Africa, western Asia and Oceania.
Tropical Rainforest	Along the equator—between the tropics	Always hot, humid and wet with rain all year	Dense multi-layered forest with a permanent growing season. Found in Central and South America, central western Africa, South-east Asia and northern Oceania.

GEOGRAPHY 7.2. POPULATION

Population key terms

1. World Population Growth



2. Natural Change

$$B.R - D.R = N.C.$$

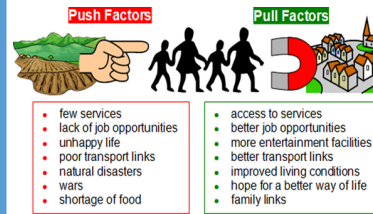
If you take the birth rate (B.R.) of a country and subtract the death rate (D.R.), you will have a number representing natural change; an increase or decrease in population.

Most countries in the world have naturally rising populations, although a small minority are seeing decreasing population size. The most developed countries tend to have very slow growth or slow decline, whilst the least developed countries tend to have rapidly rising populations.

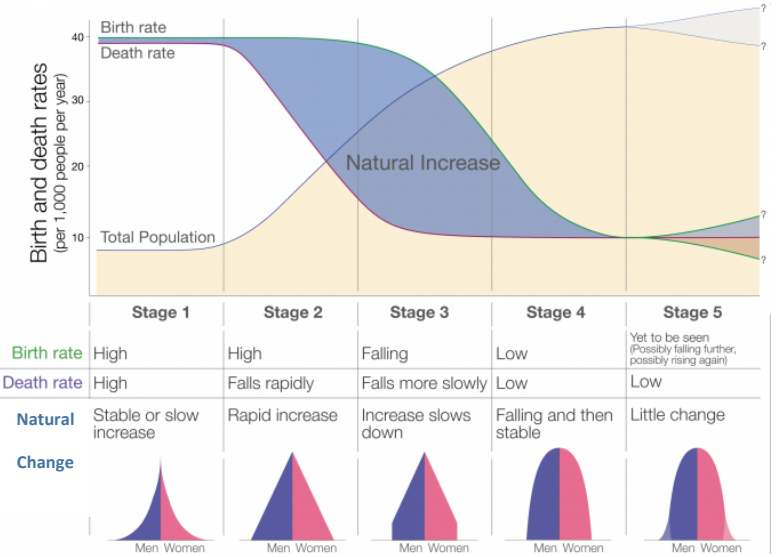
- Population distribution
- density
- natural increase
- natural decrease
- birth rate
- death rate
- infant mortality
- population pyramid
- demographic transition model
- dense
- sparse
- push factor
- pull factor
- migration
- migrant
- immigrant
- refugee
- asylum seeker
- displacement

7. Migration

Many people across the world move to live in other places; sometimes it's within a country, sometimes to a different country all together. Some people migrate by choice, others by force or fear for example. Motivation to leave a place is called a 'push factor', the attraction of an alternate place is called a 'pull factor'.



3. The demographic transition model



4. and 5. Population Pyramids

Key terms definitions

Birth rate	The number of live births per 1000 of population per year.
Death rate	The number of deaths per 1000 of population per year.
Natural Change	The outcome of difference between annual birth and death rate
Natural Increase	A growing population due to more births than deaths per year
Natural Decrease	A shrinking population due to more deaths than births per year
Ageing Population	A population structure within a country with a large proportion of senior and elderly citizens—typical in more developed countries
Youthful Population	A population structure within a country with a large amount of children and youths relative to the amount of adults and seniors—typical of less developed countries.
Overpopulation	A situation whereby there are simply too many people; this will stress natural resources, economic and social systems within countries and globally.
Dependency Ratio	The number of economically active citizens (tax payers) compared to the economically dependents (young and elderly)
Optimum Population	A stable population with an even distribution of age groups; this is the position all countries would like to achieve.

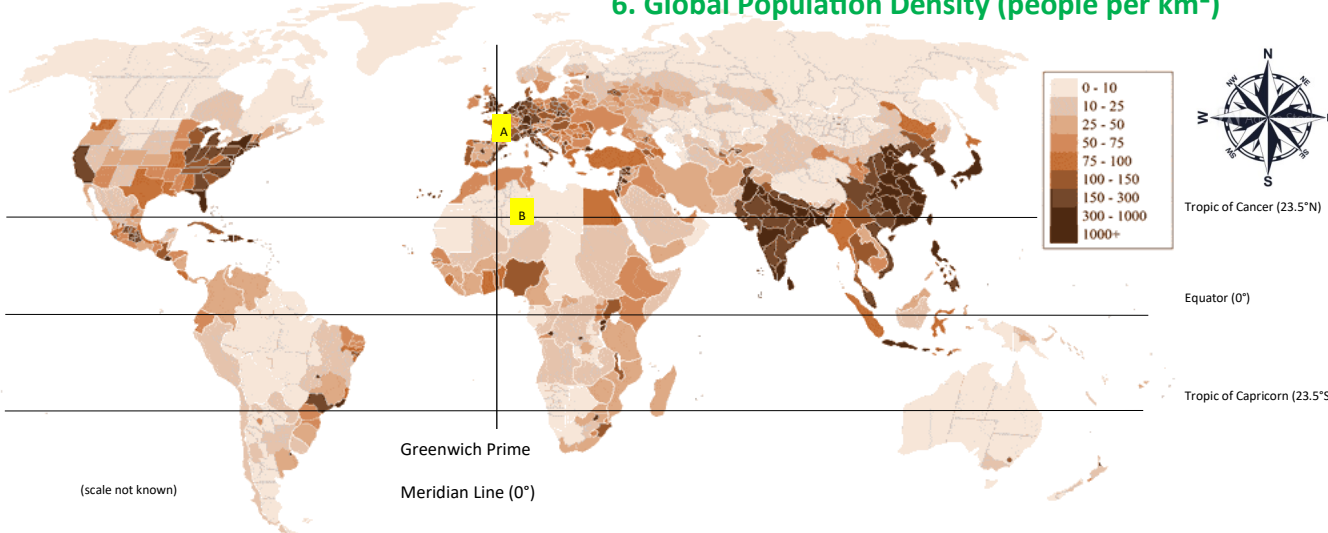
Densely populated area: Southern France



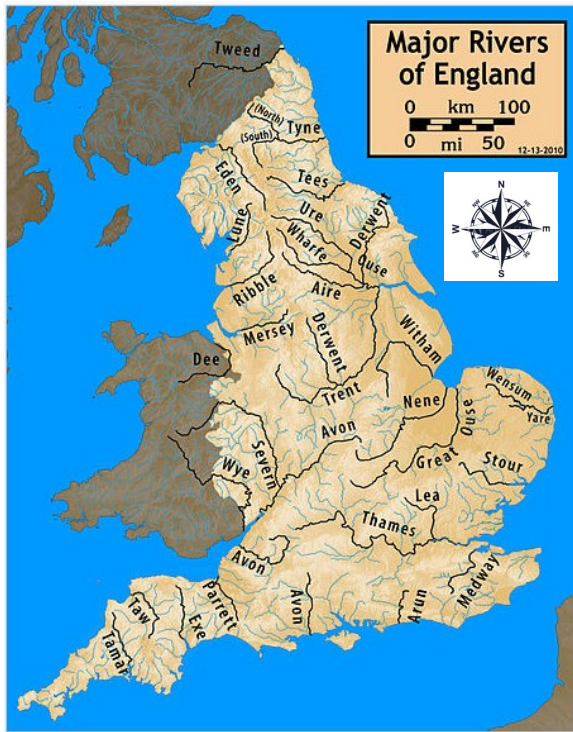
Sparsely populated area: Sahara Desert



6. Global Population Density (people per km²)



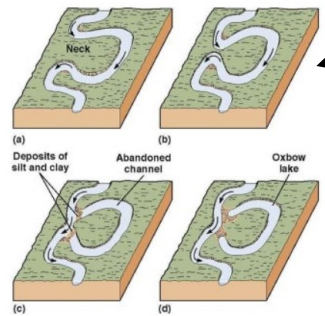
GEOGRAPHY 7.3. RIVERS



3. Erosion processes

The break down and transport of rocks – smooth, round and sorted.

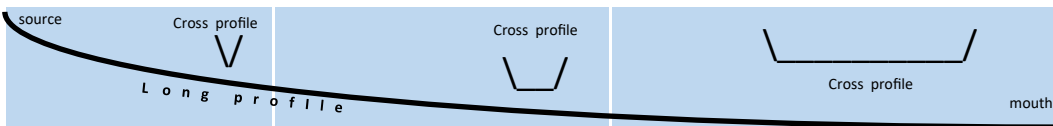
Attrition	Rocks that bash together to become smooth/smaller.
Solution	A chemical reaction that dissolves rocks.
Abrasion	Rocks scrapped along the banks and bed by the flowing water.
Hydraulic Action	Powerful flow of water blasts off loose rocks, stones and fine silt from the river banks and bed.



Rivers key terms

- Drainage basin watershed long profile cross profile erosion hydraulic action abrasion attrition
 solution deposition Valley source confluence tributary waterfall rapids V-shape valley interlocking spurs
 gorge meander river cliff river beach oxbow lake mouth channel flood plain levee
 gradient banks flood discharge Carrying capacity load Hard engineering dam bunds
 reservoir channelization soft engineering afforestation land-use zoning flood alerts

1. and 2. The Long and Cross Profiles and summary of features of the river



UPPER COURSE

Steep gradient leads to a fast flowing rivers that cuts into the land—eroding it. Here, you find V-shape valleys, waterfalls and gorges.

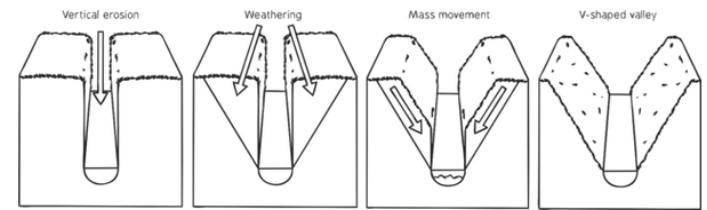
MIDDLE COURSE

The gradient decreases so erosion power decreases and the rivers begins to deposit material carried down from upstream. Here, you find narrow flood plains and meanders.

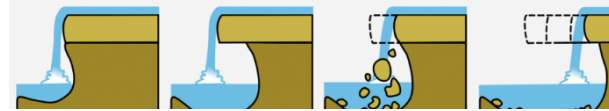
LOWER COURSE

The gradient is very shallow now, so although the river is larger as more tributaries have joined it, it no longer erodes, and instead creates huge flood plains and levees. When the river is affected by the tide near the mouth, estuaries form.

3. Upper Course River Features — V-shape valleys and waterfalls



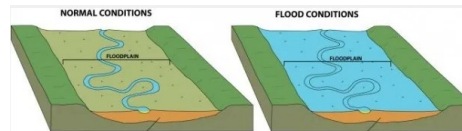
Key learning: river water cuts vertically into the land in the upper course. Waterfalls occur where the river bed changes from a more resistant rock to a softer rock, so the river can continue cutting vertically into the land—forming a drop-off.



4, 5 and 6. Middle to Lower Course River Features — Meanders and Oxbow lakes

Key learning: In the mid-course, erosion continues but now does so horizontally (laterally) across the flat ground of the flood plains. This is where water moves quickly around the outside of bends forming meanders in the river. However, the river transports eroded material downstream and begins to deposit material along the inside of bends further adding to meander formation. Floodplains are effectively created from repeated flood events—adding a layer of sediment across the flat valley floor. middle course when moving slowly—this builds floodplains.

Source	The beginning of a river	Long profile	The shape of the river's journey from source to mouth
Mouth	Where a river flows into the sea or lake	Cross profile	The shape of land across the river valley
Tributary	Another river that joins the main river	Gradient	The angle of the ground the river flows over
Watershed	The edge of the drainage basin	Erosion	The breakdown and removal of material
Drainage Basin	The area of land a river system drains	Deposition	Material put down by the river when it loses energy
Confluence	Where a tributary joins the main river	channel	The riverbed and banks that the water flows on/in.



6. Flooding

Key learning: The lower course is all about deposition of the material - all of which has accumulated by repeat flood events. Tides can affect the lower course creating estuaries.



7. Ordnance Survey Map (OS) Skills



Spot Heights (one in the top left corner of the map—122m) show the height above sea level in metres at a given spot.

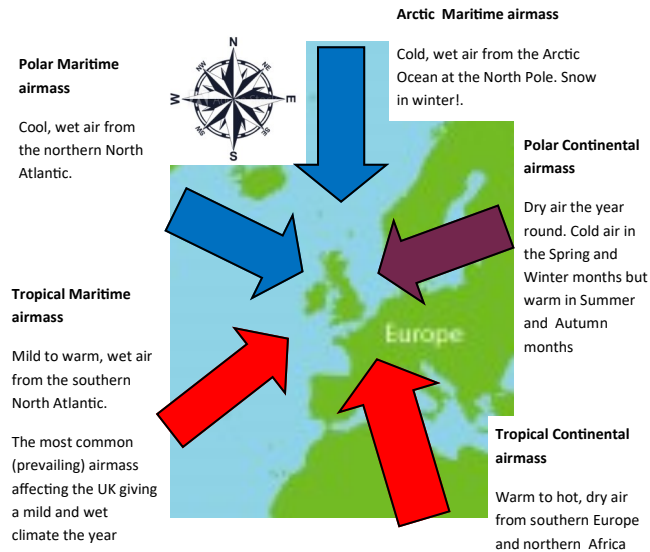
Contour lines (pale orange/brown lines) show areas of equal height along their length. This helps show the shape of the land on OS Maps.

A **V-shape valley** can be seen on the map extract at in the western end of Doctor's Wood. The contour lines 'point' up the valley, this means the river is cutting down into the ground.

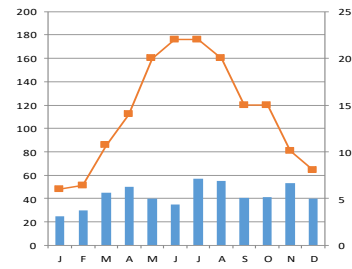
A **flood plain** can be seen on either side of the River Avon in the map extract. The absence of contour lines tells us the land is flat. The river meanders across the floodplain and becomes sandier as it nears the sea—so the colour changes.

GEOGRAPHY 7.4. Weather & Climate

3. Air masses affecting UK weather



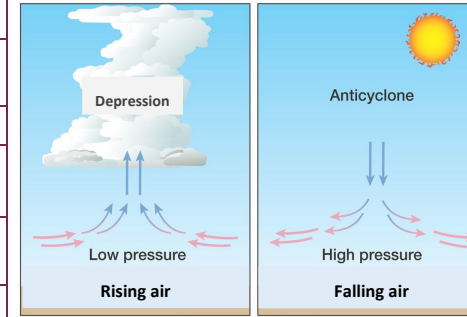
UK Climate for the North-west



UK Climate for the South-east

5. Depressions—low pressure vs 4. Anticyclones—high pressure

Wind	Windy weather
Sunshine	Very little until after the fronts pass
Cloud cover	Heavy cloud
Precipitation	Rain—often drizzle before getting briefly heavy
Humidity	High humidity as the air is full of moisture
Seasonal difference	Mild days in winter, mild days in summer



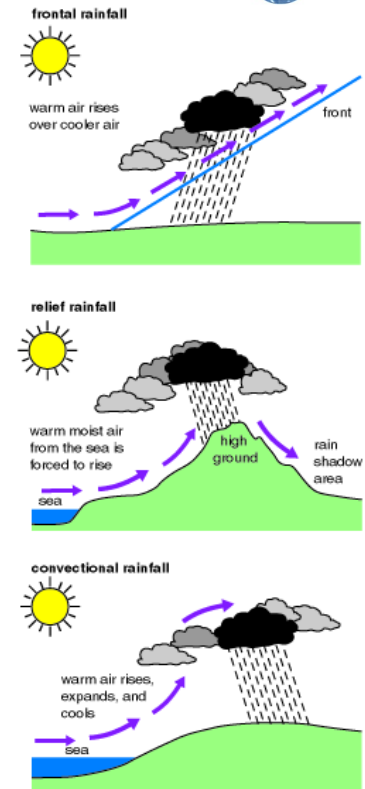
Light wind or calm wind conditions	Wind
Lots of sunshine	Sunshine
Low cloud cover—sometimes hazy skies	Cloud cover
Very little—but can produce foggy days	Precipitation
Low humidity—dry air	Humidity
Cold and frosty in winter, very warm in summer	Seasonal difference

1. and 2. Weather and Climate key terms

Weather is the short-term change to conditions in the atmosphere. This includes changes in cloud cover, rainfall, precipitation, temperature, humidity, wind direction and wind speed.

Climate is the long-term average typical weather in a given location. This accounts for changes of season as the averages are gathered over 30 years of typical annual weather

6. Types of Rainfall



Factors influencing climate zones

7. Latitude

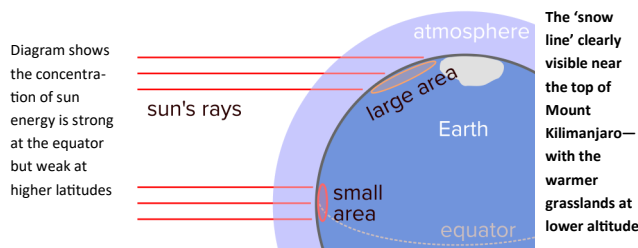
Locations at the equator receive a concentration of energy from the sun on a small surface area all year, so they are permanently hot climate zones.

Locations at higher **latitudes** have the same amount of energy spread out over a **larger surface area**, so the climate is colder.

At the North and South Pole, the sun's energy goes straight past and barely warms the surface—even in the brief summer time, so they are permanently cold all year.

8. Altitude

Locations on Earth that are at high **altitudes**—high above sea level—have cold climates; even if they are on the Equator. Air becomes **less dense** the further it is from the surface. As a consequence, the heat cannot be held as the air is 'too thin' to pass the warmth around.



Airmass	A body of air that takes the characteristics of the surface below it: warm or cold, wet or dry.
Depressions	An area of low air pressure at the surface
Anticyclones	An area of high air pressure at the surface
Weather fronts	The border between two air masses in the atmosphere—characterised by cloud and often rain when the warmer air is forced to rise (see frontal rainfall—right).
Synoptic Chart	A weather chart showing air pressure and weather fronts.
evaporation	The process of water turning into vapour (gas) when warmed.
condensation	The process of water vapour sticking to dust particles in the air and turning back into water (forming clouds)
precipitation	All forms of water that fall from clouds dependent on the air temperature the water falls through : rain, sleet, snow or hail

GEOGRAPHY 7.5. TOURISM

1. & 2. Global Growth of Tourism



Since the 1950s, tourism has grown *exponentially (continuously increasing)*. There is combination of reasons why so many more people are taking holidays abroad such as: improved **wealth** (affordability), more **paid-holiday** for employees (having the time and money), better **transport** links, **package deals**, more **options**, **budget airlines**, the **internet** (for information, booking and planning), bigger **variety** of options, **long-haul flights**, and for many people, an **aspiration** to go and experience something different—somewhere else—away from the norm!

3. The '6 Ss' of Tourism

People are drawn to destinations that might be nearby to where they live, or on the far side of the world. Every destination has at least one the '6 Ss' that attract tourists. The '6 Ss' are: **sun, sea, sand, snow, scenery** or **social**.



Bora Bora—French Polynesia, South Pacific
Zermatt Ski Resort—Alps Mountains, Switzerland

4. UK National Parks



The UK has 15 National Parks. The Peak District, in central England, was the first one established in 1951. *There are two core aims of NPs: to preserve natural and cultural landscapes, and provide access for public enjoyment.*

NPs cover about 7% of England and Wales, and 20% of Scotland.

81% of the land within the NPs is privately owned, and the remainder is owned by the Ministry of Defense (MOD), water companies (reservoirs) and the Forestry Commission.

It was estimated in 2016, that there are 90 million visitors a year to UK NPs!

1. Tourists and Tourism: *Tourism is defined as the activities of persons identified as visitors. A tourist is a visitor—someone who is making a visit to a destination outside their usual environment for less than a year for any main purpose [including] holidays, leisure and recreation, business, health, education or other purposes. Tourism is a huge global employer in the service industry (tertiary job sector).*

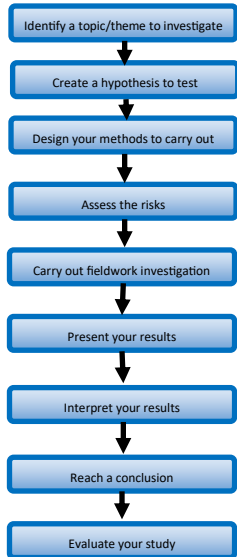
5. Impact of tourism on National Parks

✔ Positives	✘ Negatives
Protects the beautiful natural environments of the UK from development	Some areas within some NPs are under huge pressure from being too popular with tourists.
Cultural heritage sites within National Parks are protected	Major traffic issues in 'honeypot' locations. Huge queues build up, and verges often damaged by poor parking.
No entrance fees — as they are there for everyone to enjoy (some car parks charge in the busiest spots).	Some irresponsible tourists leave litter or create fires when BBQs get out of control.
Protects a large area of Great Britain	Wealthy people often buy second homes in NPs which pushes up house prices for locals—who then can't afford to stay, and often means properties are unoccupied impacting the community.
People are encouraged to visit these beautiful areas—which is great for physical and mental health	Footpath erosion from over-use means some areas must be developed to cope with the numbers of people.
International tourists are drawn to the UK's National Parks which creates a booming tourism industry	Seasonal employment is an issue in some NPs—so jobs are insecure.
Locations available for MOD training and reservoirs for water storage and supply.	The MOD and some private land owners close-off access at times.
Huge economic benefits (through tourism) for local people from visitors who stay, eat and buy local produce.	

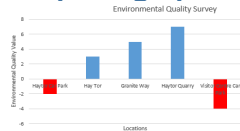
Fieldwork, Data Presentation and Interpretation skills

From environmental issues to medical drug research, in the world of work, the enquiry process is the fundamental structure followed to investigate an issue or the impact of something. The enquiry process steps are:

The Enquiry Process

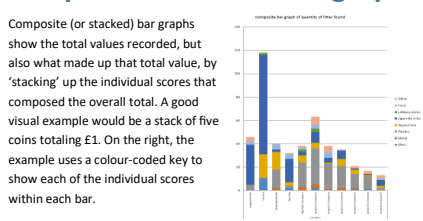


Bi-polar graphs



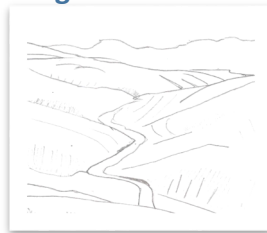
Bi-polar bar graphs are suitable for showing data that contains both positive and negative values. The bars do not touch as the data is discrete not continuous.

Composite 'stacked' Bar graphs



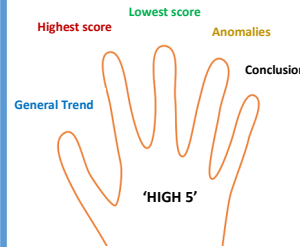
Composite (or stacked) bar graphs show the total values recorded, but also what made up that total value, by 'stacking' up the individual scores that composed the overall total. A good visual example would be a stack of five coins totaling £1. On the right, the example uses a colour-coded key to show each of the individual scores within each bar.

Field sketching



A field sketch is a simplified, diagrammatic representation of a view or landscape. You can add labels or annotations afterwards. Start with the horizon (or **background** lines), then do the **foreground** (immediately in front of you) before filling in the **mid-ground**—prioritising the main feature(s); in the example above, that is the river.

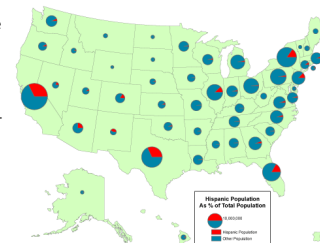
'High 5' Interpretation



To fully interpret the results of the data you collect on a survey, a technique to use to increase your *writing stamina* is called the '**High 5**'. For each of the 5 themes on the hand (shown to the left), write a paragraph following the PEE (point—evidence (data) and explanation) structure. The last paragraph is a conclusion whereby you refer back to your enquiry question.

Proportional symbols

Proportional symbols apply the data to a location of a base map. In this example of population in the USA, the larger the circle, the greater the population size. However, rather cleverly, each circle is also a pie chart showing what proportion of each what proportion of each circle (representing the different States) is Hispanic (Spanish speaking). So, you've got two ways of showing 'proportional' data in one!



Geographical enquiry terms and skills

Method	A technique for collecting data (results). A simple example is a 'hands up if...' survey question.
Continuous data	Data that can be measured, for example, temperature—which changes over time. When presented, a line is used.
Discrete data	Data that can be counted, for example, litter. When presented in bars, there are gaps between them.
Range	Subtracting the smallest value from your set of numbers from the largest will give you the range
Mean	Add up the numbers and divide by how many there are in the set will give you the 'mean'
General trend	When examining a set of data, identify if the results are following an overall pattern of increase or decrease, improving or worsening.
Anomaly	A piece of data that doesn't fit with the pattern shown by the rest of the data. Plural is 'anomalies'
Qualitative	Data that is non-numerical—such as opinion of people
Quantitative	Data that is measures of values or counts.
Hypothesis	A statement (rather than a question) which can be proven to be true or false, or even partially true—whereby the hypothesis is only partially proven