Montgomery Academy Geography Dept.

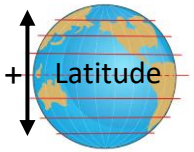
KS3 Knowledge Organiser - Weather

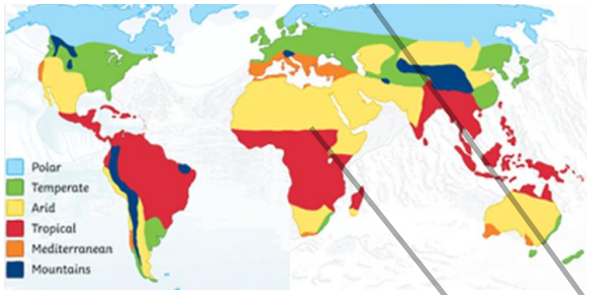
Knowledge Check 1
Content

Albedo	Proportion of reflected radiation
Altitude	A vertical measure of height from sea level.
Arid	Little to no rainfall
Atmosphere	Gases that surround the Earth.
Condensation	Cooling of water vapour (gas) into liquid water.
Climate	The average weather conditions over a prolonged period (30Y)
Equator	An invisible line that splits the Earth into a northern and southern hemisphere.
Hemisphere	One half of a sphere i.e. the Earth.
Latitude	Invisible lines around the Earth to assist locating.
Polar	Relating to regions of the extreme north and south.
Pressure	The weight of the air.
Relief	The physical shape of the land.
Temperate	Seasonal zones. Areas that experience warm summers and cold winters.
Tropical	Areas between the tropics that receive high year-round rainfall and temperature.
Vapour	Water in gas form.
Weather	The day-to-day changes in the atmosphere.

What is latitude?

- Invisible lines that go around the Earth, dividing horizontally into a N/S hemisphere.
- The equator is a line of latitude that goes around the centre of the planet.
- Latitude increases from 0 away from the equator in either direction.

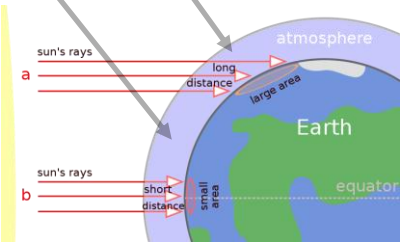




How does latitude impact the climate?

Climate zones are influenced by latitude. Latitude determines how much sunlight and rainfall a place gets! This therefore effects what can grow.

- The suns heat is concentrated over a smaller surface area at the equator, producing warmer climates.
- The suns heat is spread over a larger area at the poles, producing colder climates.

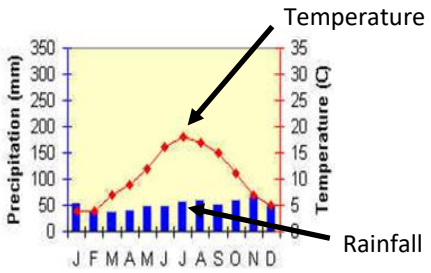


How do climate zones differ?

- Temperate zones have warm summers and cold winters.
- Tropical zones on the other hand are warm and wet all year round.
- Polar zones are very cold and dry. So dry they are classed as deserts!

What are climate graphs?

- Climate graphs show temperature and rainfall.
- Here, the highest temperature is 19
- The highest rain was in November, at 70 mm.

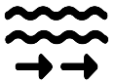


What other factors influence global climate zones?

- Light surfaces like snow reflect radiation causing cooling. Darker surfaces absorb radiation causing warming.

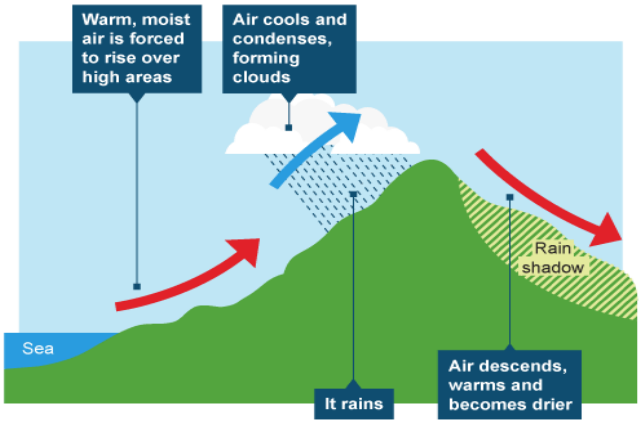
- Temperature decreases as height (altitude) increases. This is because air pressure falls with height providing less insulation.

- Ocean currents like the North Atlantic drift keep western areas of the UK much warmer in the winter. Ocean currents move warm water from the equator to the poles where it sinks and returns.



- Air circulation influences how wet or dry an area is. Where air rises, clouds form through condensation brining rain. Where air sinks clouds cannot form producing deserts.

What is relief rainfall?



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KS3 Knowledge Organiser - Weather

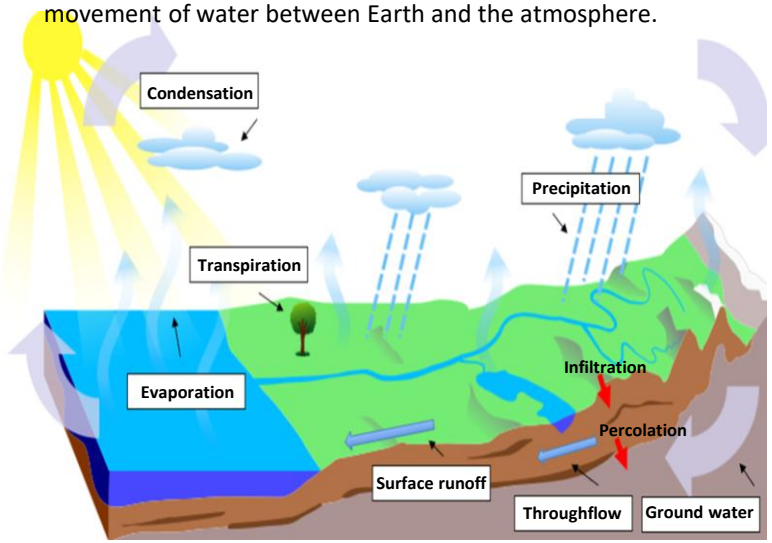
Knowledge Check 3 Content

Knowledge Check 4 Content

Condensation	Water vapour cooling and turning back into a liquid.
Economic	Factors wealth, trade, jobs.
Environmental	Factors impacting the natural surroundings and wildlife.
Evaporation	Liquid to gas due to heating.
Extreme weather	Is severe, against the norm and unexpected. This weather is and infrequent and often breaks records!
Ground water	Movement of water slowly through the rocks
Impermeable	Surfaces that do not allow water to pass through.
Infiltration	The movement of water into the soil.
Permeable	Surfaces that allow water to pass through.
Precipitation	Rain, hail, sleet and snow.
Saturated	When the soil surface is full and cannot absorb any more water.
Social	Factors impacting people.
Surface runoff	Movement of water over the surface of the soil.
Throughflow	Water flows downhill within the soil
Transpiration	The movement of water from plants into the air.

How does water move around our planet?

- The water cycle is a system that shows the continuous movement of water between Earth and the atmosphere.



What affects how much water there is in the air?

- Warmers temperatures can often cause more evaporation and therefore condensation.
- More trees can result in a wetter climates as they add water to the atmosphere! The opposite is also true.

What affects how water returns to oceans and rivers?

- Steep slopes means water travels as surface runoff, as there is less chance for it to infiltrate the soil under gravity!

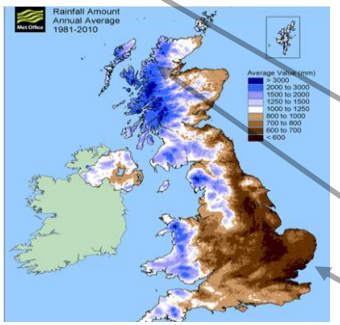
- Some rocks or surfaces like concrete do not let water in, meaning surface runoff is common. Other rocks allow water to pass through (percolate). This creates ground water.

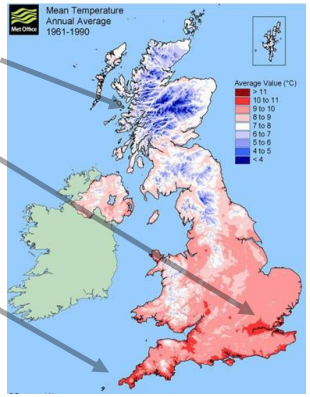
- After a storm, the soil is often full of water (saturate) – like a full sponge. This means it cannot hold any more meaning water can only move over the surface.

- If the soil is drier, it can allow water to enter (infiltrate) therefore water can move as throughflow.

Does the UK's climate vary?

- Areas to the north of the UK are generally colder than the south.
- Areas to the southeast & southwest are the hottest.



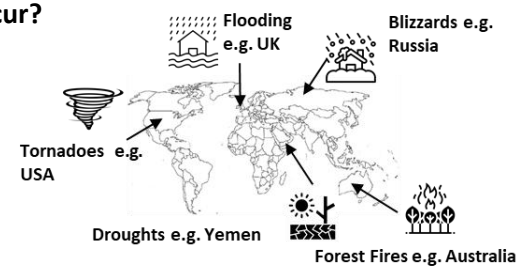


- Northwest Scotland is the wettest area (Over 3000mm)
- Eastern areas of the UK are drier than western areas.

What is extreme weather?

- Extreme weather is **severe**, **unexpected** & **unusual**.
- It often is **breaks records** and causes widespread **disruption**.
- Extreme weather is **hard to predict**.

What types of extreme weather are there and where do they occur?



What are the impacts of extreme weather?

	Impacts
Social	Injuries, death, destroyed houses, displacement
Economic	Cost of businesses / trade disruption & repairs
Environmental	Habitat loss, reduced soil & water quality.

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KS3 Knowledge Organiser - Energy

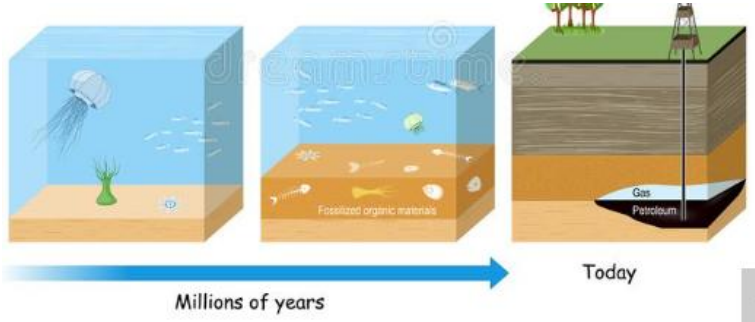
Knowledge Check 1 Content

Knowledge Check 2 Content

Key Vocabulary	
Atmosphere	A layer of gases around the Earth.
Carbon dioxide	Released from burning fossil fuels. It traps heat in the atmosphere.
Correlation	A relationship between data
Drought	Prolonged limited rainfall.
Famine	Limited food production.
Fossil fuel	Fuels formed from ancient plants and animals remains
Fluctuate	A irregular rising and falling on a graph
Geothermal energy	Energy generated using heat from within the Earth.
Glacier	A large river of ice between two mountains
Greenhouse gas	Gases that trap heat within the earths atmosphere.
Hydro electric power	Power created using the movement of water under the force of gravity.
Industry	The processing of raw materials & manufacturing.
Methane	A greenhouse gas released from cattle (cows) and rice fields.
Radiation	Energy from the sun

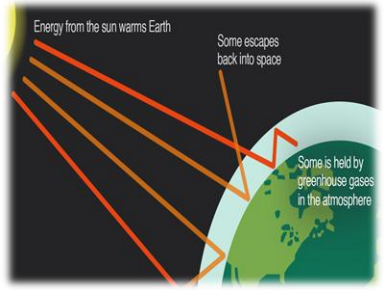
What are fossil fuels and how do they form?

- Form from the remains of dead organisms that died long ago.
- Their remains are buried under layers of sediment.
- This exerts intense extreme pressure and heat on the remains.
- The remains slowly turn into coal, oil or gas over millions of years.



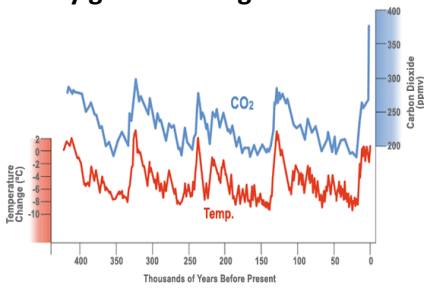
What is the greenhouse effect?

- Burning fossil fuels creates emissions.
- Some of these emissions can cause our planet to heat up.
- Gases that heat the Earth are called greenhouse gases.
- Carbon dioxide and methane are examples of greenhouse gases as they trap heat within the atmosphere.



Why do humans produce so many greenhouse gases?

- Fossil fuels are used in transportation, industry and energy production.
- The relationship between CO_2 and temperature can be seen in the graph.
- A relationship between data is called a correlation.

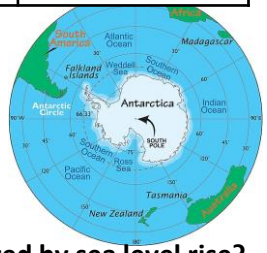


What are the likely impacts of global warming?

Social	Economic	Environmental
Mosquitos that live in warm humid conditions carry diseases such a malaria.	Warmer weather would mean northern parts od the UK can grow new crops like grapes	Weather patterns will become more extreme and less predictable.
Droughts and famines become more frequent across Africa due to less predicable rains.	Ski seasons may become much shorter meaning less tourism employment.	Polar bears are under threat as hunting ice thins, and coral reefs shrink as sea levels rise limiting sunlight.

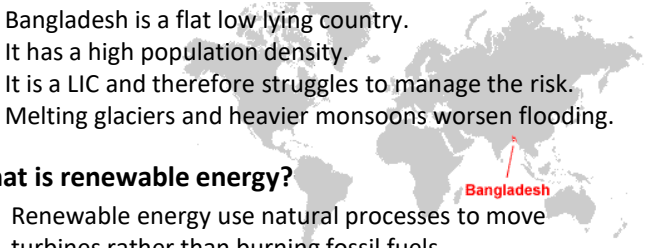
Why is sea level rising?

- As global warming occurs ice melts.
- Fresh water is added to our oceans making them rise.
- Warmer water also takes up more volume than cold.



Which countries will be worse affected by sea level rise?

- Bangladesh is a flat low lying country.
- It has a high population density.
- It is a LIC and therefore struggles to manage the risk.
- Melting glaciers and heavier monsoons worsen flooding.



What is renewable energy?

- Renewable energy use natural processes to move turbines rather than burning fossil fuels.
- Renewable energy will not run out and is sustainable.
- Examples include solar, geothermal, wind and hydro.

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KS3 Knowledge Organiser - Energy

Knowledge Check 3 Content

Key Vocabulary	
Economic	Relating to wealth
Energy security	Ability of a county to meet energy demand
Environmental	Relating to surroundings
Fracking	Extracting shale fuels from inside rocks using high pressure chemicals
Global warming	Increase in worldwide average temperature
Habitat	The natural home of an animal or plant.
Politically	Relating to the government and public affairs of a country.
Renewable energy	A energy source that will never run out. Usually created using natural processes. Examples include solar, wind and wave.
None-renewable energy	Energy sources that will run out. These include fossil fuels like coal, oil and gas.
Social	Relating to people and society
Sustainability	Meeting the needs of today without compromising the needs of future generations.

Should we still be using fossil fuels (non-renewable energy)?

Arguments for renewable	Arguments against renewable
Renewable energies last forever.	Still decades of fossil fuel supplies left.
Oil will only last about 40 years and gas- about 60 years.	Renewable energy can be difficult and expensive to source
Coal mines cause noise and air pollution.	Wind turbines are ugly and noisy
Non- renewable sources of energy produce a lot of environmental issues.	Most types of renewable energy are not as reliable as coal, oil and gas.
When coal is burnt it produces greenhouse gases that contribute to global warming.	Fossil fuels are reliable and produce energy all day and night
Many oil reserves are in countries that are politically unstable.	Fossil fuels allow cheap running costs.

Why do we need to be more sustainable?

We need to create a balance between economic growth, environmental care and social well being to ensure long term survival…

How can we be more sustainable?

- Wall Insulation
- Efficient appliances
- Double glazing

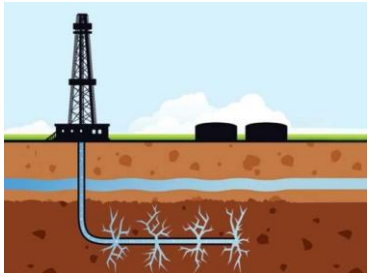
- Use public transport
- Walk short distances
- Bike when possible

- Eat less meat
- Buy local food
- Waste less

- Use renewables.
- Invest in solar power
- Conserve energy

What is fracking?

- Fracking is when gas and oil is extracted from within the rock itself.
- A high pressure chemical mix is used to fracture the rock allowing gas to escape.

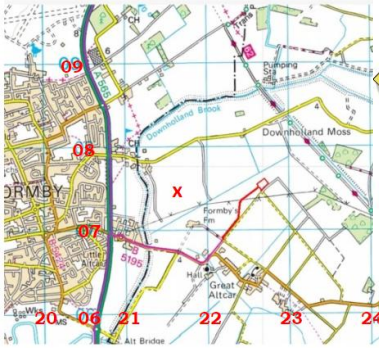


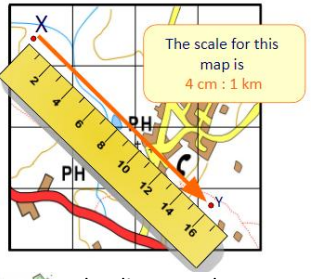
Is fracking beneficial?

for fracking	against fracking
Improves energy security	Can cause earthquakes
Provides local employment	Can contaminate drinking water
	Causes loss of farmland
	Creates traffic on country roads
	Uses large amounts of water
	Reduces property value

How can OS maps help us?

- OS maps can show us features of the land.
- We can use grid references to locate things on the map itself. X below is at 217,075
- We can also measure distance using the scale bar.





The distance above would therefore be 4km

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KS3 Knowledge Organiser – Development

Knowledge Check 1 Content

Knowledge Check 2 Content

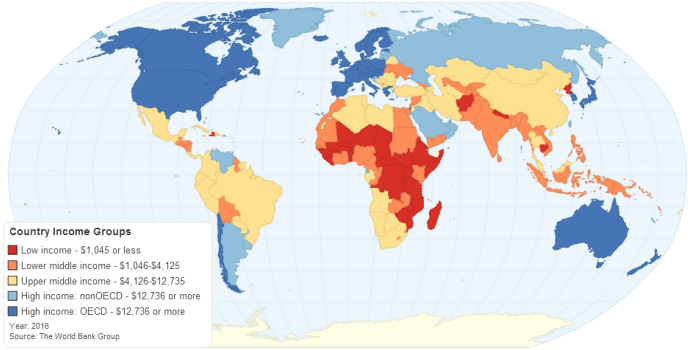
Key Vocabulary	
Arid	A dry region.
Adult literacy	Number of people that can read/write over 15.
Afforestation	Planting of trees.
Birth rate	Number of babies born per 1000 people.
Biome	A large area with similar plant and animal life.
Cultural	Ideas, customs and social behaviours.
Death rate	Number of deaths per 1000 people.
Desertification	The expansion of deserts
Development	A state of improvement.
Development gap	Gap in wealth between worlds richest and poorest nations.
Economic	Money, jobs and trade.
Environmental	Natural surroundings.
Equator	An invisible line dividing earth into north & south.
Export	Goods sold in trade.
Fair trade	Products of which the producer is paid a reasonable living wage.
HDI	Human development index.

What is development?

- Development refers to advances in a country's economy and the quality of live of its citizens.
- Quality of life can be impacted by 5 factors outlined below.

Is economic development equal?

- Countries can be classified based on their level of economic development into LIC's NEE's and HIC's.
- Countries closer to the equator are generally poorer than those at higher latitudes.
- Africa is the least developed region whereas western Europe and North America are the most developed.



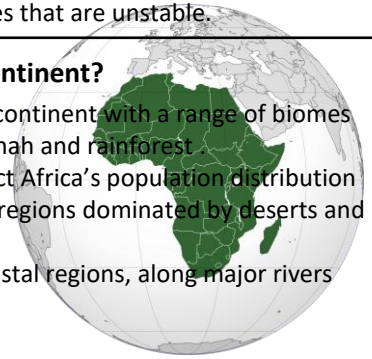
How can we measure development?

- Statistics known as development indicators allow us to evaluate how developed a nation is.
- Some statistics such as life expectancy are social indicators and reflect the standard of a country's health care.
- Other statistics such as GNI are economic and show how much money is created or available within a county.
- Some indicators are misleading. HDI combines both social and economic indicators to highlight the quality of life of the people.

Why are some countries rich and others poor?

Economic	Poor nations sell low value goods and struggle to add value to products.
Social	A lack of clean water hinders education and employment due to disease.
Political	Corrupt governments prevent money from being directed to the people.
Environmental	Some countries are extremely hot and dry making farming problematic.
Historical	Historical conflict means money has to be spent rebuilding. Investors are put of by countries that are unstable.

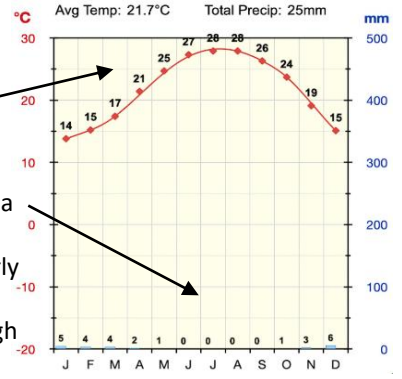
What is Africa like as a continent?



- Africa is a very diverse continent with a range of biomes including desert, savannah and rainforest .
- These landscapes impact Africa's population distribution as few people living in regions dominated by deserts and dense jungles.
- Many people live in coastal regions, along major rivers

What is a climate graph?

- Climate graphs show both temperature and rainfall.
- The temperature is shown as a line graph (red).
- The rainfall is shown as a bar chart (blue)
- This climate graph clearly shows a desert biome with low rainfall and high temperatures.



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KS3 Knowledge Organiser - Development

Knowledge Check 3 Content

Key Vocabulary	
HIC	High income country.
Hostile	A harsh environment.
Inequality	Large differences in wealth or standard of living.
Infant mortality	Number of babies that dies before 1.
Import	Goods bought through trade.
LIC	Low income country.
Life expectancy	Number of years one is expected to live.
NEE	Newly emerging economy.
Political	Relating to governments.
Poverty	A lack of the basic necessities of life.
Primary industry	Extraction of raw materials.
Sanitation	Water treatment and sewage systems.
Secondary sector	Manufacturing.
Social	Relating to people.
Trade	Exchange of good between countries.

What is desertification?

- Desertification is the spreading of desert regions and occurs at the edge of hot deserts.
- Desertification is mainly being cause by human activity.
- The Sahel is a region at risk from desertification.

What are the causes of desertification?

Cause	Explanation
Deforestation	Tree roots hold the soil together and shade the soil. Loss of trees means soil is easily blown away.
Over farming	This means soil is exhausted of nutrients, so plants struggle to regrow, meaning soil is easily lost.
Over grazing	Too many animals on the land stops plants from growing which removes the protective cover for the soil.
Climate change	As droughts become more common, soil is more easily blown away.

How can desertification be managed?

- Simple cost-effective strategies can stop desert environments from spreading.
- These methods usually act to protect the soil from erosion.

- **Magic stones** prevent soil from being washed and blown away.
- Soil can then be raked back across fields!
- They also control surface run off and keep the soil moist
- This method is easy to teach and very cost effective,

- The **Great Green Wall** spans Africa from west to east.
- The roots act to hold the soil together in wind and rain.
- The leaves provide shade and stop the soil drying out.
- Leaves that drop to the floor add nutrients to the soil.

How can fair trade help development?

- Fair trade products ensures farmers are paid a reasonable living wage.
- It enables them to thrive rather than simply survive.
- Earnings are spend on education and health care provision or improving farms
- It requires consumers to pay slightly more for their items.