



**World Geography**

**European Geography**

**UK Geography**

**Deserts / Middle East**

**Rainforests**

**Volcanoes**

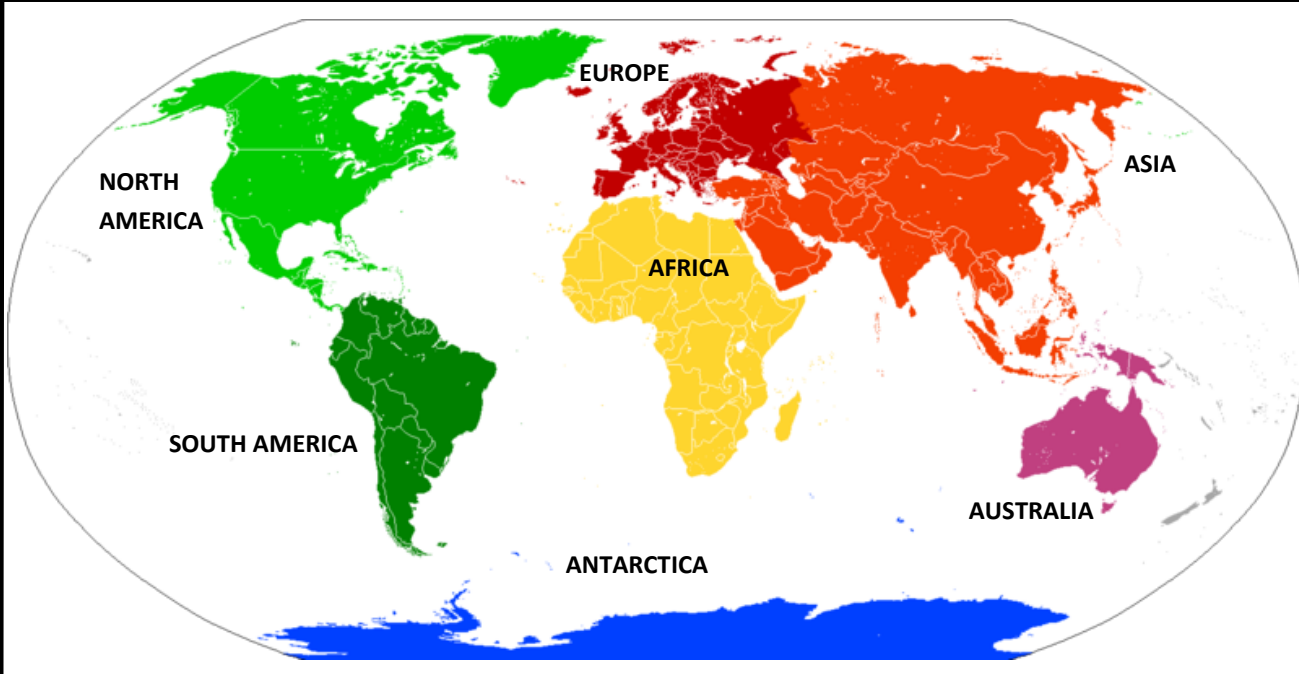
**Coasts**

# 9

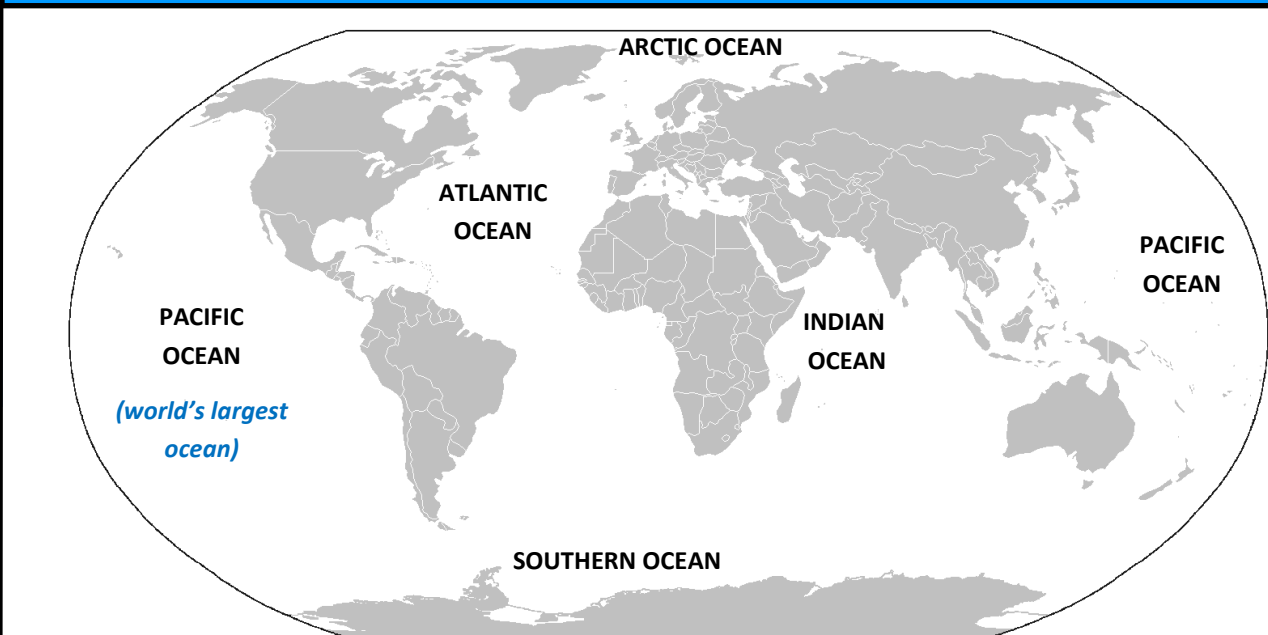
# World Geography

## 1. CONTINENTS

There are SEVEN continents



## 2. OCEANS



## 3. MAJOR MOUNTAIN RANGES

MOUNTAIN RANGE	WHERE IN THE WORLD
Alps	EUROPE
Andes	SOUTH AMERICA
Atlas	AFRICA
Himalayas	ASIA
Rocky Mountains	NORTH AMERICA
Ural Mountains	ASIA

**Mount Everest** is the tallest mountain in the world (8,848metres) and **K2** is the second tallest (8,611m) both in the **Himalaya range**.

## 4. MAJOR RIVERS RANGES

MOUNTAINS	WHERE IN THE WORLD
Amazon	<b>SOUTH AMERICA</b> (second longest river in the world)
Danube	<b>EUROPE</b> (source in Germany)
Ganges	<b>ASIA</b> (India / Bangladesh)
Mississippi	<b>NORTH AMERICA</b> (USA)
Mekong	<b>ASIA</b> (starts in Tibet)
Nile	<b>AFRICA</b> (Longest river in the world—starts in Tanzania (White Nile) and Ethiopia (Blue Nile) and ends in Egypt)
Volga	<b>EUROPE</b> (longest river in Europe) - Russia
Yangtze	<b>ASIA</b> (China) - third longest river in the world
Zambezi	<b>AFRICA</b> (starts in Zambia)

## 5. MAJOR DESERTS AND RAINFORESTS

Sahara Desert—**AFRICA**  
Thar Desert—**ASIA (India)**  
Kalahari Desert—**AFRICA**  
Gobi Desert—**ASIA**  
Arabian Desert— **ASIA**



The Amazon Rainforest  
**SOUTH AMERICA**  
The Congo  
**AFRICA**



# World Geography

## 6. COUNTRIES (to explore all the countries of the world see Google Earth <https://earth.google.com/web/> )



## 7. CAPITALS (major capitals to learn) - to practice these use this quizlet <https://tinyurl.com/KS3WorldCapitals>

ARGENTINA	Buenos Aires	CHILE	Santiago	IRAN	Tehran	NEW ZEALAND	Wellington	SPAIN	Madrid
AUSTRALIA	Canberra	CHINA	Beijing	ITALY	Rome	PERU	Lima	UK	London
BANGLADESH	Dhaka	FRANCE	Paris	JAPAN	Tokyo	PHILIPPINES	Manila	USA	Washington D.C.
BOLIVIA	Sucre	ICELAND	Reykjavik	KENYA	Nairobi	PORTUGAL	Lisbon	VENEZUELA	Caracas
BRAZIL	Brasilia	INDIA	New Delhi	MALAYSIA	Kuala Lumpur	RUSSIA	Moscow		
CANADA	Ottawa	INDONESIA	Jakarta	MEXICO	Mexico City	SOUTH AFRICA	Cape Town / Pretoria / Bloemfontein		

Schoology



SCAN ME



# EUROPEAN GEOGRAPHY

## 1. EUROPEAN COUNTRIES (for ALL European countries see <https://earth.google.com/web>)



## 2. EUROPEAN CAPITALS

A full list of ALL European capitals can be found here  
<https://www.countries-ofthe-world.com/capitals-of->

Austria	Vienna	Lithuania	Vilnius
Belgium	Brussels	Netherlands	Amsterdam
Bulgaria	Sofia	Norway	Oslo
Czechia	Prague	Poland	Warsaw
Denmark	Copenhagen	Portugal	Lisbon
Estonia	Tallinn	Romania	Bucharest
Finland	Helsinki	Russia	Moscow
France	Paris	Serbia	Belgrade
Germany	Berlin	Spain	Madrid
Greece	Athens	Sweden	Stockholm
Hungary	Budapest	Switzerland	Bern
Iceland	Reykjavik	Turkey	Ankara
Ireland	Dublin	Ukraine	Kiev
Italy	Rome	United Kingdom	London
Latvia	Riga		

To test yourself Read, Cover, Write, Check OR try this quizlet  
<https://tinyurl.com/KS3Europeancapitals>

### Some major Mountain Ranges in Europe

**The Alps** (go through 8 countries including France / Switzerland)

**The Dolomites** (Italy)

**The Apennines** (Italy)



### Some major Rivers in Europe

**The Rhine** (runs through Koblenz)

**The Thames** (runs through London)

**The Danube** (runs through Hungary)

**The Seine** (runs through Paris)

**The Volga** (Russia)

**What is the European Union?** A political and economic union of 27 member states that are located primarily in Europe. Aim is to promote peace, follow EU values and improve the well being of member nations.

### EUROPE FACTS:

Longest River in Europe— **Volga** (second longest—Danube)

Highest Mountain in Europe— **Mt Elbrus** (Russia)

Largest city in Europe: **Istanbul**  
(over 11 million)

### SCHOOLGY



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# UK GEOGRAPHY

## 1. COUNTRIES & CAPITALS OF THE UNITED KINGDOM



**United Kingdom**—this is the political union between England, Wales, Scotland Northern Ireland. The UK is a sovereign state but each of the nations is a country in its own right.

**Great Britain**—collective name of England, Scotland and Wales—it does not include Northern Ireland

**British Isles**— refers to the islands of Great Britain and Ireland—including the Re-public of Ireland.

## 2. MAJOR CITIES IN THE UNITED KINGDOM

Think you know them? Test yourself here...

<https://lizardpoint.com/geography/uk-cities-quiz.php>



London is the UK's biggest city with a population of 9,750,500 million. Birmingham is the second biggest (2,453,700)

# UK GEOGRAPHY

## 3. UPLANDS OF THE UK

### The highest mountains:

The UK— Ben Nevis (1,345m)  
Wales— Mt Snowdon (1,085m)  
England— Scafell Pike (978m)

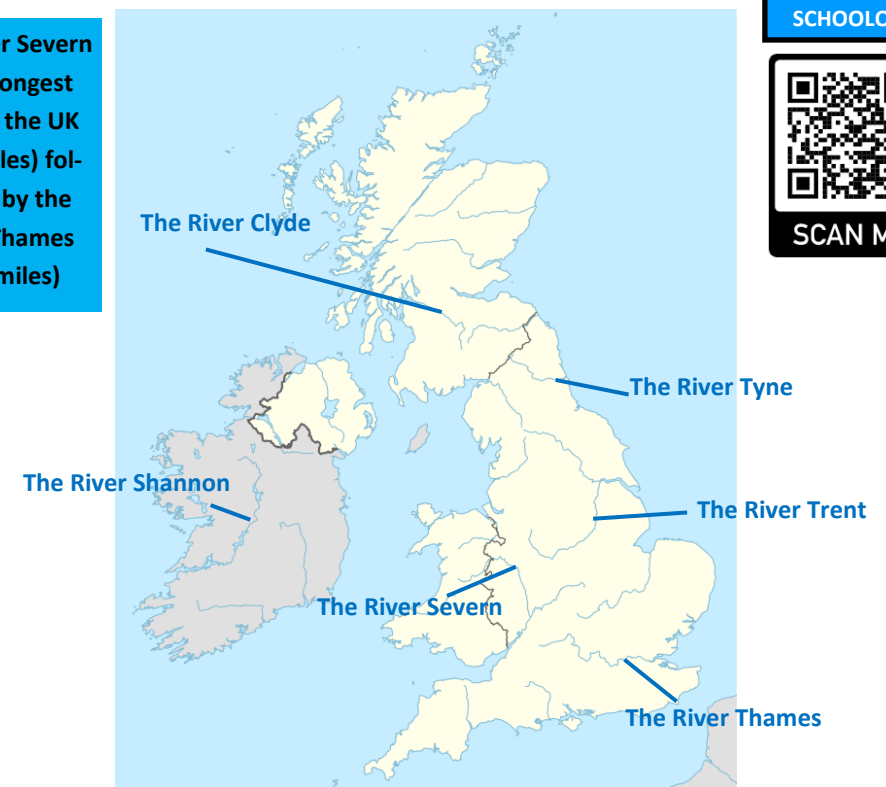


© www.freeworldmaps.net

Source: <http://www.freeworldmaps.net/>

## 4. MAJOR RIVERS OF THE UK

The River Severn is the longest river in the UK (220 miles) followed by the River Thames (215 miles)



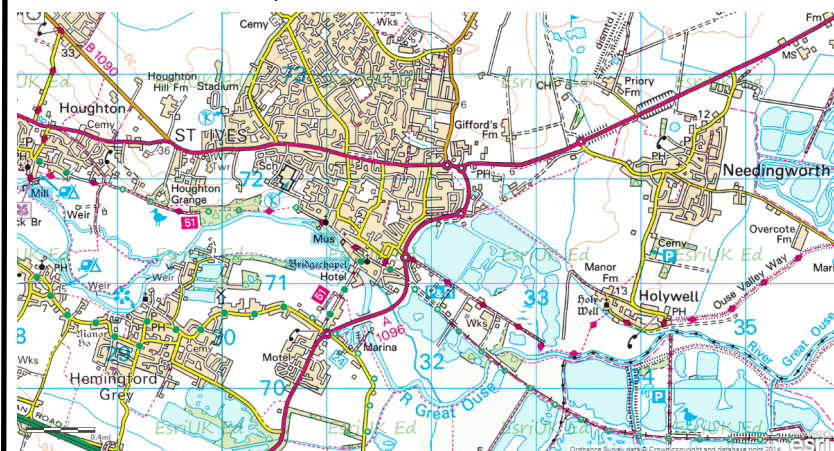
SCHOOLGY



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## 5. LOCAL AREA—St Ives, Cambridgeshire

St Ives is about 12 miles North West of Cambridge, with excellent road links including the A1 / A14 and M11 in close proximity as well as major rail links with a mainline into London from Huntingdon and only 42 miles from Stansted Airport.



St Ives—grew up on north bank of River Ouse where higher up and away from flood risk.

The area around St Ives is fertile agricultural land and there is a lot of market gardening.

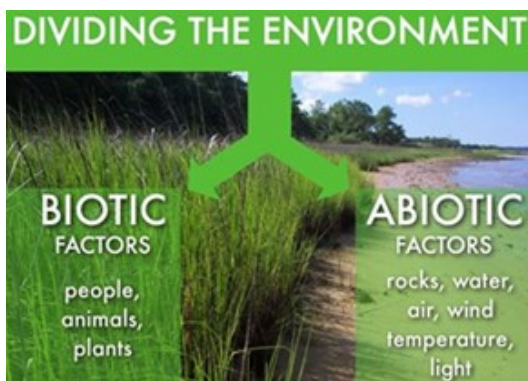
There has been a market in St Ives since 1100



# ECOSYSTEMS & DESERTS (Middle East)

**KEY IDEA—Earth's Major Ecosystems are determined by a range of factors.**

An **ecosystem** is a natural system in which the life cycles of living things, plants (flora) and animals (fauna) are closely linked to each other and the non-living environment



Plants trap the sun's energy through the process of photosynthesis taking in carbon dioxide and water and converting these into glucose and oxygen.

Ecosystems involve **interrelationships** between the four spheres.

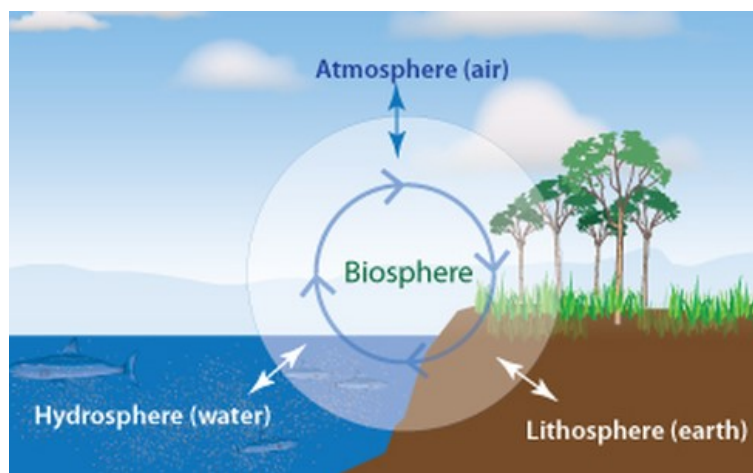
The **biosphere** consists of all living things.

The **hydrosphere** relates to all the water (fresh and salt), ice and vapour

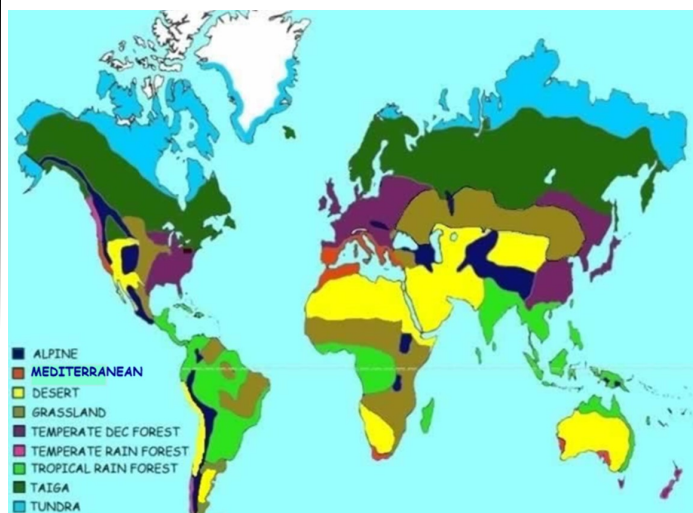
The **lithosphere**, is the earth's surface (land and ocean floor)

The **atmosphere** is the air that surrounds the planet.

See class notes to remind yourself of the interrelationships (e.g. photosynthesis / producers / consumers etc.)



A **biome** is a land-based **community** that covers a large area and is characterised by certain **climate** conditions and particular **groups of plants and animals**



The largest determinant of the major location of largescale ecosystems (**biomes**) is '**latitude**' due to two key elements.

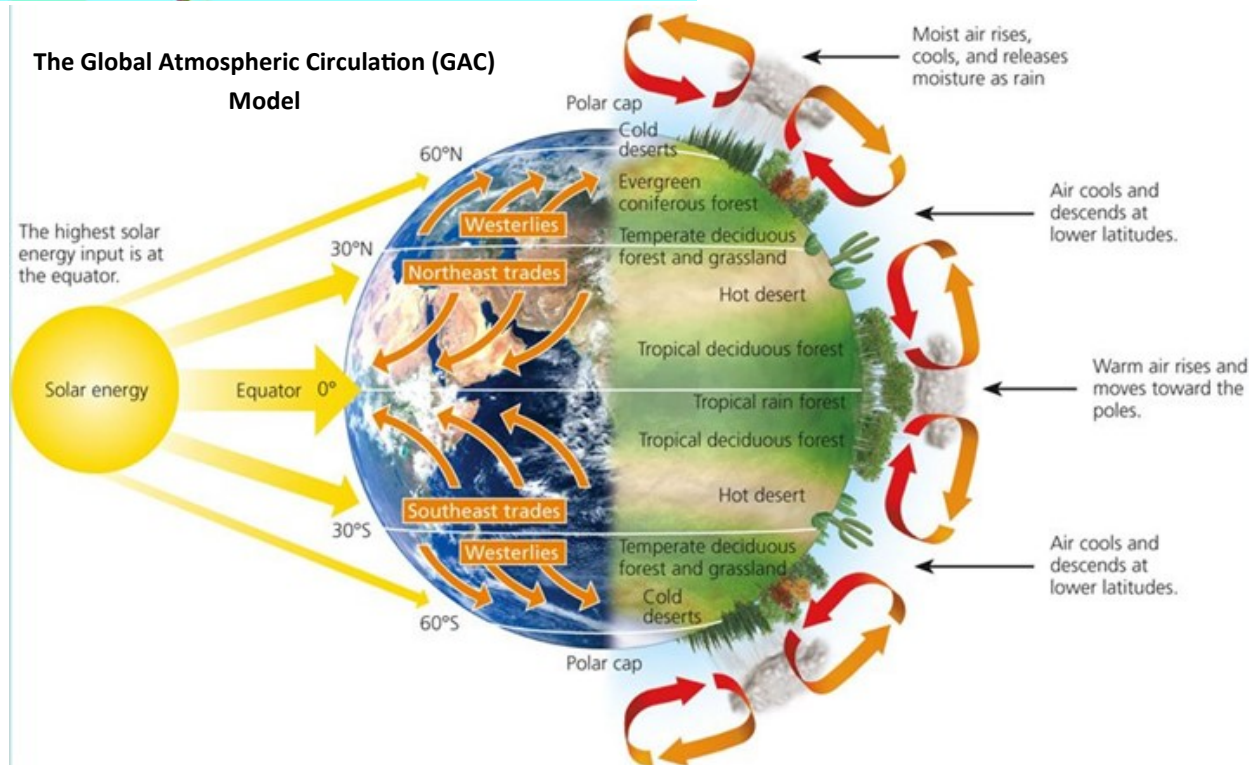
The amount of **solar energy** received determines the temperature, and the **Global Atmospheric Circulation** determines the precipitation.

There are four main climate zones:

1. ARCTIC
2. TEMPERATE
3. SUB-TROPICAL
4. TROPICAL

The location of these is determined by the amount of sunlight and precipitation (see diagram below)

## The Global Atmospheric Circulation (GAC) Model





## ECOSYSTEMS & DESERTS (Middle East) Continued..

### KEY IDEA: HOT DESERTS AND AN IMPORTANT ECOYSTEM WITH DISTINCT CHARACTERISTICS AND ADPATIONS

The hot desert biome, like that found in The Middle East, is characterised by extreme climate, thin poor soils, and a lack of **biodiversity**.

- The climate is very hot. Summer day-time temperatures can exceed 40°C. However, at night the temperature can drop below 0°C.
- The climate is very dry with less than 250 mm of rainfall a year.
- Hot deserts have two distinct seasons: summer, when the temperature ranges between 35-40°C, and winter, when the temperature ranges between 20-30°C.

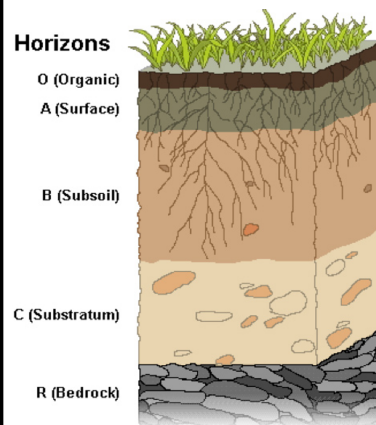


Soil is a mixture of clay, silt, sand and rotting vegetation. The clay, silt and sand are a result of the **parent rock** being broken down by chemical **weathering**.

- CLAY—very fine particles and hold water
- SILT—medium-sized particles
- SAND—coarse grained and let water through.

In somewhere like the UK soil can take **200-400 years** for **ONE cm** of soil to form!

Soil layers, known as **soil horizons**, develop over time and have characteristics according to the parent rock type, climate, and vegetation of the region.

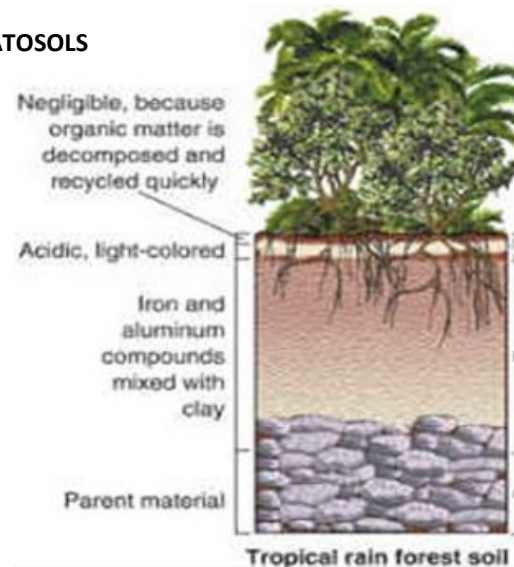


The main  
soil layers  
or horizons

<b>O Horizon</b> - made up mostly <b>humus</b> (decomposed leaf litter).
<b>A Horizon</b> - called <b>Topsoil</b> . Seeds germinate and plant roots grow in this dark-coloured layer.
<b>B Horizon</b> - Called the <b>subsoil</b> - contains clay and mineral deposits (like calcium carbonate) that it receives from layers above it as water transfers them downwards.
<b>C Horizon</b> - Called <b>regolith</b> : this consists of slightly broken-up bedrock.
<b>R Horizon</b> - The un-weathered bedrock right at the bottom.

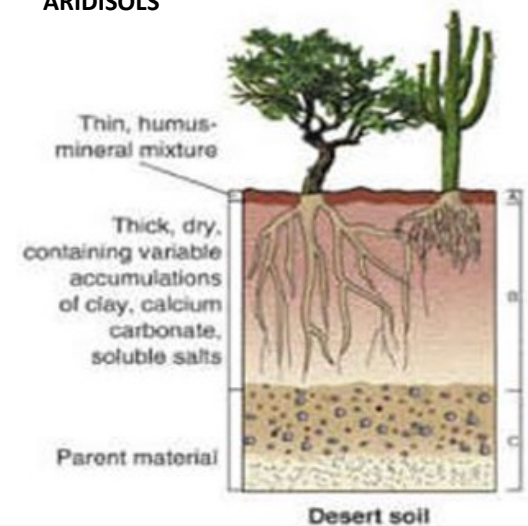
Desert soils (**Aridisols**) are very different to Rainforest soils (**Latosols**).

#### LATOSOLS



Tropical rain forest soil

#### ARIDISOLS



Desert soil

- Desert soils are thin, sandy, rocky and generally grey in colour.
- Desert soils are very dry. When it does rain they soak up the water very quickly.
- The surface of the soil may appear crusty. This is due to the lack of rainfall.
- As it is so hot water is drawn up to the surface of the soil by evaporation. As the water evaporates, salts are

# ECOSYSTEMS & DESERTS (Middle East) Continued..

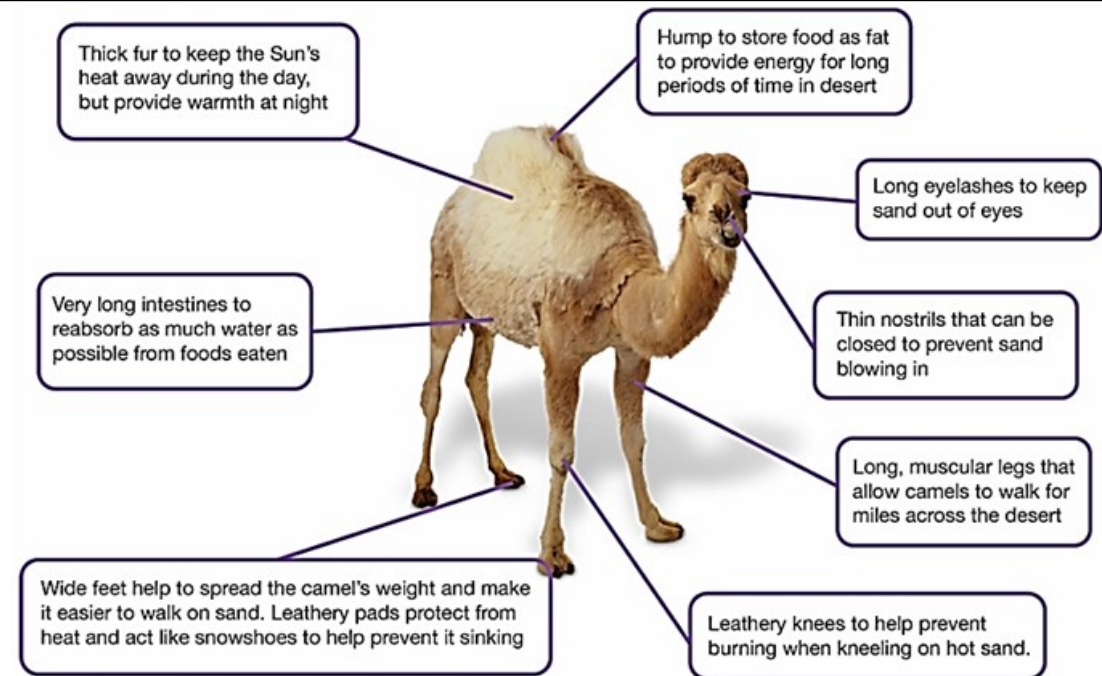
## KEY IDEA: ANIMALS AND PLANTS HAVE ADAPTED TO THE EXTREME CONDITIONS OF THE ARABIAN DESERT

### Animals: Example—THE CAMEL

**Behaviourally** – some burrow or are nocturnal to avoid heat in the day. Some move quickly across the sand.

**Physically** - storing water in their fatty tissues, long ears to dissipate heat and thick outer covering to reduce the loss of moisture and keep warm at night. Sandy coloured.

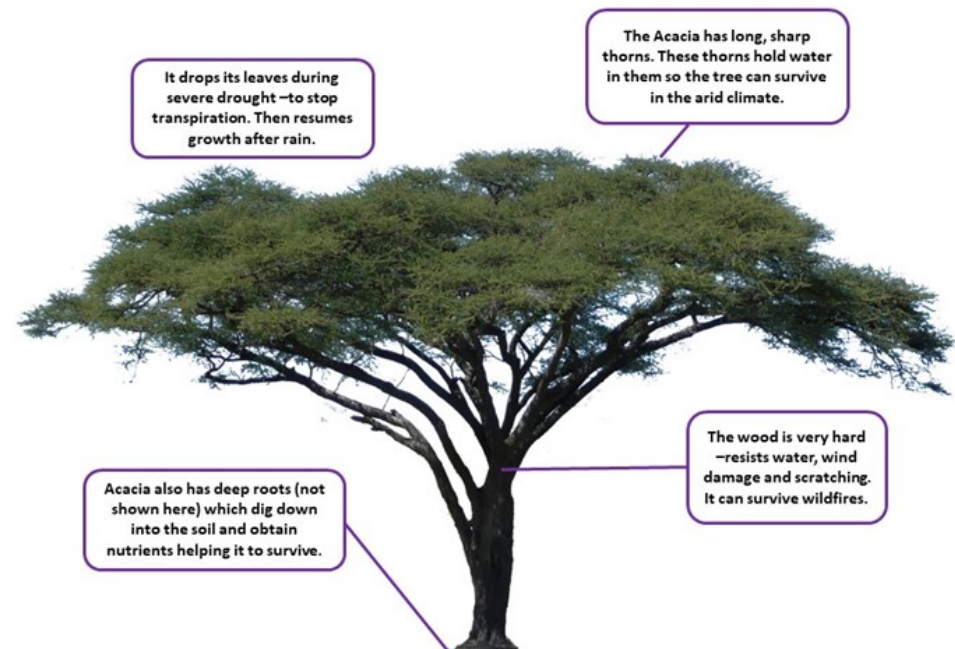
The camel has very specific adaptations.



### Plants: Example—THE ACACIA TREE

Plants living in the Arabian desert are **Xerophytic**. This means that the plants living in this location have adapted to not need large amounts of water. Some plants are also **halophytic** or 'salt-tolerant'.

There are no cactus species native to the desert here. Most plant species here are characterised by long roots, short spiny shoots, and fleshy, (succulent) or needle-like leaves; all of which help them adapt to the harsh conditions of the Arabian Desert. The Acacia tree is found in the Arabian desert and has specific importance and adaptations.





## ECOSYSTEMS & DESERTS (Middle East) Continued..

Key idea: The Middle East is a diverse region



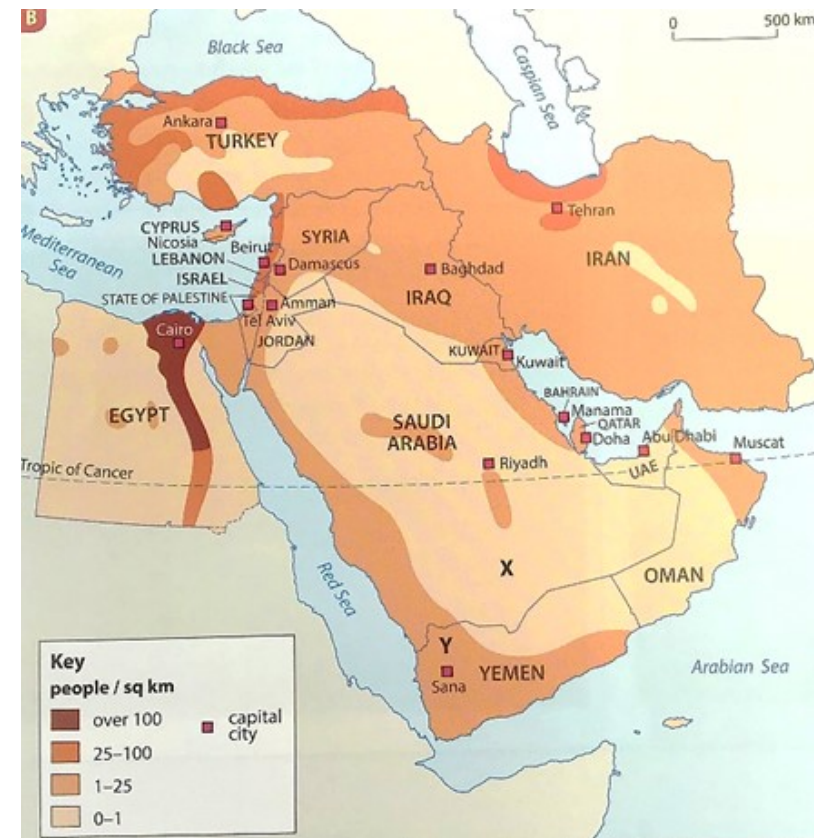
The Middle East is a geographical and culturally similar region made up of 17 countries (although this varies) located mostly in south-western Asia on the Arabian Peninsula, but also in parts of northern Africa and south-eastern Europe.

Most of the Middle East region is characterized by a hot, **arid** and **semi-arid** desert climate. The Arabian Desert is the largest sand-only desert on the planet and receives as little as 30 millimetres of rainfall per year). The coastal regions of the North have Mediterranean climate, much like Greece and Italy, and the higher altitude regions are more like the cooler grasslands of the Russian Steppe.

Key physical geographical features:

Deserts	Mountain Ranges	Rivers	Seas/Gulfs	Tectonic Profile
Arabian An Nafud Syrian Dash e-lut Eastern Sahara	Taurus Zagros Caucasus Azir and Hejas Hadramawt	Euphrates Shatt Al Arab Tigris Amu Darya Suez Canal*	Red Sea Mediterranean Sea Persian Gulf Gulf of Oman Arabian Sea	Earthquakes Volcanoes Fold Mountains Arabian Plate Eurasian plate

Key human geographical information:



The Middle East has a population of about 246 million; nearly as many people as the United States.

The **population distribution** varies widely. The fertile regions, such as the Nile Delta, are very densely settled; many others are only lightly populated; while others, particularly in the deserts, are completely empty of human life.

The most populous Middle Eastern countries are Turkey, Egypt, and Iran, each with more than 50 million people. Bahrain and Qatar have the smallest populations, about 400,000 each.

Saudi Arabia, although greatest in area, has a relatively small population for its size, a little more than 10 million, because much of its land is de-



There are many very important & famous cities in the region:

RANK	CITY	COUNTRY	METROPOLITAN POPULATION
1	Cairo	Egypt	20,439,541
2	Tehran	Iran	16,672,000
3	Istanbul	Turkey	15,519,267
4	Baghdad	Iraq	8,500,000



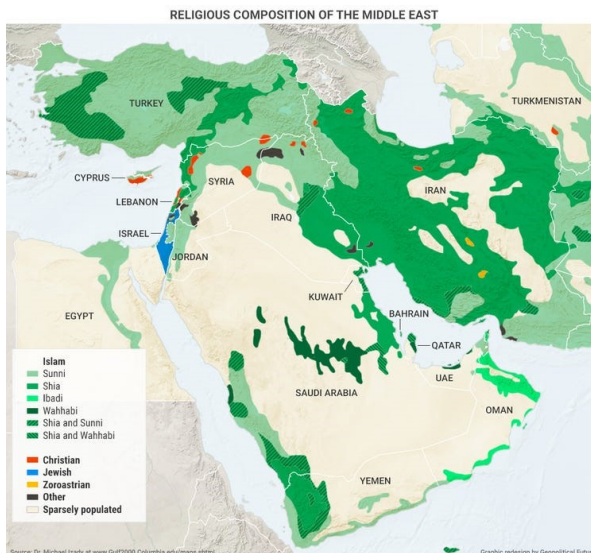
## ECOSYSTEMS & DESERTS (Middle East) Continued..

### Key idea: The Middle East is a diverse region

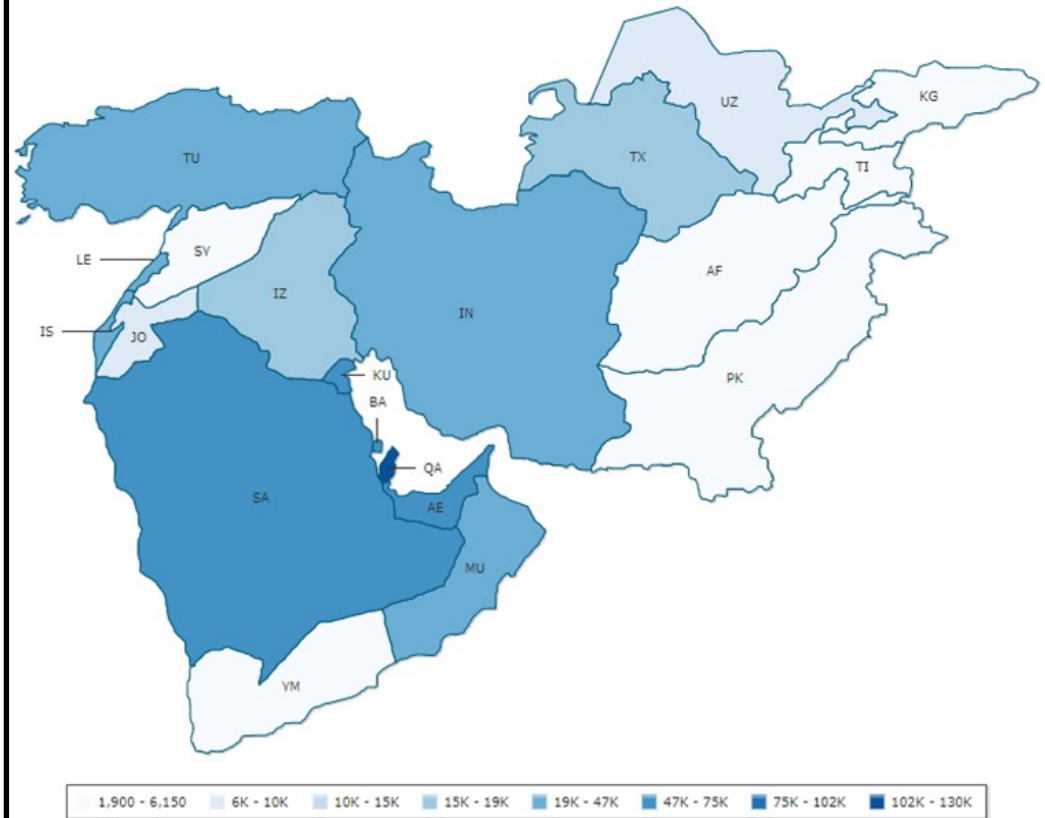
Since ancient times, the Middle East has attracted migrating peoples. Mixing with the earlier inhabitants of the region, they produced the diverse ethnicities we see today. Most countries are multi-ethnic. Even though ethnic diversity leads to the cultural richness of a society, it unfortunately may lead to political conflict. The Kurds, for example, do not have their own nation-state, but are instead spread across Turkey, Iraq, Iran, and Syria. Their political and military attempts to create an **autonomous Kurdistan** have been strongly resisted by those states.

The region is the birthplace of three main religions of Judaism, Christianity, and Islam. About 20% of the world's Muslims live in the Middle East. A major source of conflict in the Muslim Middle East is between the two main sects of Islam: Sunni and Shi'a. Although these two sects agree on the fundamentals of Islam and the teachings of the Quran, they are in conflict about who would lead the Muslim community after Muhammad's death.

There are also military conflicts in the Middle East. It has been an historically unstable political region. The British and French Empires divided the lands of the Ottoman Empire between themselves, creating artificial borders and political conflicts in the region. With such vast **oil deposits**, many countries had an interest in how the region operated.



### Key Idea—There are significant variations in wealth & poverty across the region



More than half of the world's known oil reserves are found in the region, although they are not equally distributed. This has created a disparity of wealth and power in the Middle East. Gulf countries with relatively small populations have the most oil and are increasingly **West-ernised**.

Qatar is the wealthiest nation and has **GDP per capita of 124,000 USD** whereas Yemen is the poorest nation with a GDP of 2,500 USD per capita.

### Key Idea—Desertification is becoming a problem in the Middle East

**Desertification** is the term use to describe when an area of fertile land becomes degraded so much that nothing will grow there. 85% or the Middle eastern land has been degraded. Desertification has several causes, mainly related to human actions.



## Human Actions causing Desertification

### Tree and plant clearance:

the plant roots that bind and dead leaves that enrich the soil is cleared for fuel-wood and timber, or to clear land for cultivation



**Overgrazing** herds of cattle and goats eat the binding grasses and compress/erode topsoil with their hooves.



### Intensive arable farming

depletes the nutrients in the soil – the soil is unable to rest and recover. Continued watering, also damages soil by making it saline.



**Wind and water erode** and carry away topsoil and leaving behind an infertile dust and sand



It is the combination of these factors that transforms degraded land into desert.

Desertification has significant impacts on the people of these places. Infertile soil means crops cannot grow. Food shortages will increase prices and may lead to hunger, poverty, and migration. Soil erosion and lack of plant cover leads to flash floods and mudslides when there is rain. The nature of the area may disappear because of a lack of habitat. Those living in cities, already rely on imported food, but those living in rural areas, will now have to pay higher prices for imported food.

## APPLYING YOUR KNOWLEDGE...

- What does the abbreviation GAC refer to?
- Describe the global distribution of desert biomes.
- How much rainfall does an arid region receive each year?
- Name a country of the Middle East with a Mediterranean climate.
- Identify at least 10 countries of the middle east.
- Name a river, mountain range, desert and Gulf found in the Middle East.
- List the countries in order of wealth from most to least GDP
- What 4 things lead to desertification?
- Give 2 ways animals/plants adapt to the climate of the desert.

### Now Challenge yourself even further!

- Explain why Alpine climates do not follow a latitudinal pattern.
- Create a country profile and comparison for Yemen and Qatar to find out the main differences between the two places and their wealth.

## OTHER RESOURCES

Interactive climate regions  
<https://www.climateypesforkids.com/semi-arid-climate>

Soil classification information  
<https://www.britannica.com/science/soil>

Countries of the Middle East quiz <https://online.seterra.com/en/vgp/3049>

Interactive map of GDP <https://www.indexmundi.com/map/?t=0&v=67&r=me&l=en>

## KS3 Schoology



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Key Term	Definition
<b>Adaptation</b>	How something changes its behaviour or characteristics to fit surroundings
<b>Arid / Semi-arid</b>	Arid means 'dry'. Less than 250mm of rain per year. Semi-arid climate is found on the outer edge of Arid climate areas. Can be hot or cold dry areas.
<b>Aridisols</b>	Soils found in very dry areas that have very low organic content
<b>Atmosphere</b>	The protective layer of gases surrounding the earth
<b>Autonomous</b>	(of a country or region) having the freedom to govern itself or control its own affairs.
<b>Biodiversity</b>	The total 'variety' of living things in an area
<b>Biome</b>	A large naturally occurring community characterised by certain climate conditions and associated flora (plants) and fauna (animals).
<b>Biosphere</b>	All the living things on the planet (plants, animals, microbes)
<b>Consumer</b>	Living things that either eat green plants or animals that have eaten plants
<b>Decomposers</b>	Bacteria that breakdown living matter.
<b>Desertification</b>	The process of fertile land becoming infertile and degraded so it is unable to support growth of vegetation.
<b>Ecosystem</b>	A community of living things and the interactions between them and the non-living
<b>Ethnic Groups</b>	People of the same race or nationality that share a distinctive culture
<b>GDP / USD per capita</b>	(Gross Domestic Product) a measure of the income of a country. This is usually given in American (US) Dollars and given as a figure divided by the population.
<b>Global Atmospheric Circulation</b>	The world-wide system of air movement and winds that distribute heat
<b>Gulf</b>	A type of bay, a body of water mostly enclosed by land with a strait connecting it to a larger body of water such as a sea or ocean.
<b>Hydrosphere</b>	All the water on the planet, ice, water vapor or liquid salt and fresh water)
<b>Interrelationships</b>	The way in which two or more things are connected or linked
<b>Latosols</b>	Deeply weathered, infertile soils found under the tropical rainforests
<b>Lithosphere</b>	The rocks, soil and mineral component of the Earth's land and ocean floor
<b>Middle East</b>	A geographical region comprising much of southwest Asia and north Africa
<b>Parent Rock</b>	The original rock type in the area influence how and what soil forms
<b>Peninsula</b>	An area of land that juts out into the sea.
<b>Producer</b>	Green plants which can photosynthesise and produce their own food
<b>Soil Horizons</b>	The different horizontal layers in a soil profile
<b>Solar Energy</b>	The sunlight (short and longwave radiation) that heats the Earth
<b>Weathering</b>	The breaking down of rock by wind, rain, sun, and chemical actions

Key Terms—To test yourself Read, Cover, Write, Check OR try this quizlet

<https://tinyurl.com/Ecosystems-Deserts>



# RAINFORESTS

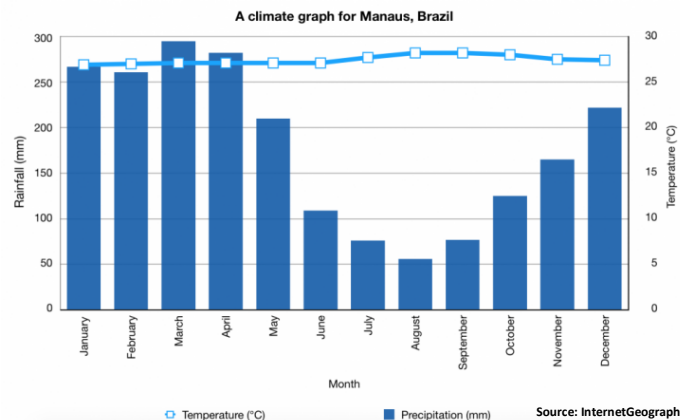
## 1. The location of Rainforest

Rainforests are located around the equator and in between the Tropic of Cancer and Tropic of Capricorn. Examples include, the Amazon (Brazil), The Congo (Africa) and large areas in Indonesia.



## 2. Rainforest Climate

Rainforests are located around the equator and in between the Tropic of Cancer and Tropic of Capricorn. Examples include, the Amazon (Brazil), The Congo (Africa) and large areas in Indonesia. They have what is called an **equatorial climate**.



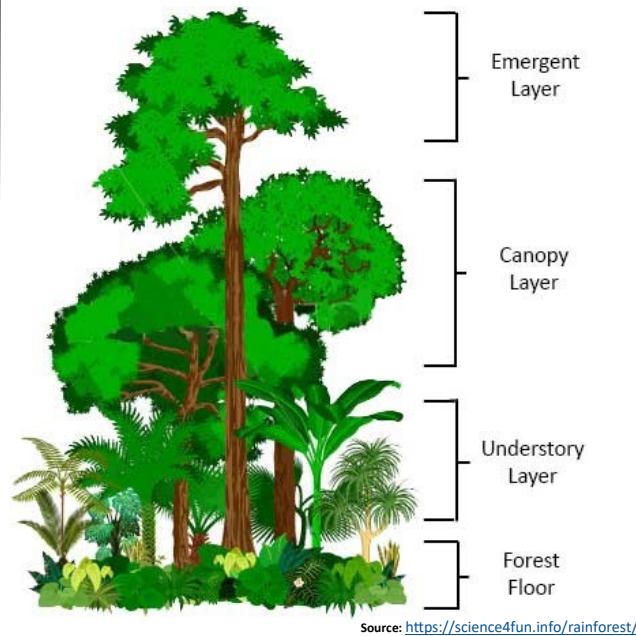
Rainforests lack seasons with year-round high temperatures which may reach 30°C+. Rainfall totals are high all year (often over 2500mm / yr.)

Rainforests lack seasons with year-round high temperatures which may reach 30°C+. Rainfall totals are high all year (often over 2500mm / yr.)

Rainforests have high levels of **convictional rainfall**—this is explained by the intense heating and high temperatures caused by the sun being overhead at the equator. The intense heating leads to low pressure as the heated air rises giving rise to high levels of rainfall.

## 3. Structure of a Rainforest

Rainforests have four main layers.

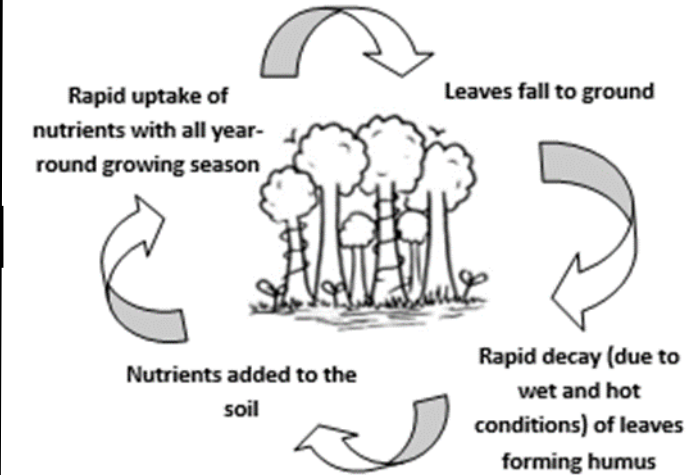


The tallest trees may be up to 50m in height. The most photosynthesis takes place in the canopy. In the lower layers of the rainforest there is less light due to the dense canopy above.

Rainforest soils have a thin humus layer, with few nutrients and they are iron rich, known as LATOSOLS. The nutrients are mainly found in the litter layer on the surface but the rapid decomposition in the warm and wet conditions mean this layer is thin.

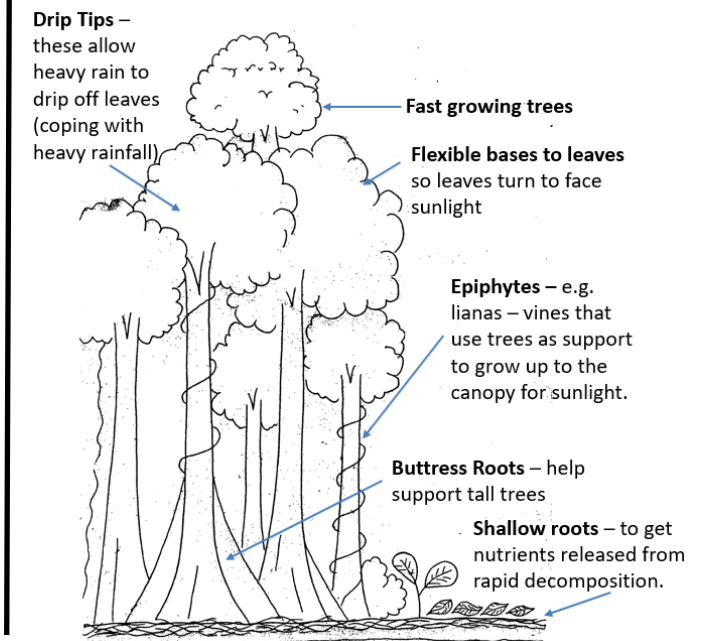
The rapid decomposition and take up of nutrients in a tight nutrient cycle helps to explain the dense vegetation and high levels of growth.

## The Tropical Rainforest Nutrient Cycle



## 4. Plant Adaptations

The rainforests have a very high **biodiversity** with approximately 50% of the world's plant and animal species. Plants and animals are highly adapted to compete and survive in different areas of the forest. *Examples of adaptations are shown below*





## Rainforests continued..

### 5. Animal Adaptations

Animals are also highly adapted to the rainforest with adaptations including camouflage, warning off predators, movement etc.

**Examples include:**

Flying Squirrels	Have evolved flaps of skin under their arms which enable them to glide from tree to tree in the canopy.
Poison Dart Frogs	Have bright colours to warn predators away
Toucan	These have an incredibly strong beak enabling it to crack open hard nuts that many other species can't.
Howler monkeys	These have developed prehensile tails (their tails act like another limb) which enables them to grip onto and swing from branch to branch in the canopy.
Sloths	Algae grows on fur to help them camouflage and they move very slowly blending in and avoiding being noticed.

### 6. The importance of the Rainforests

Rainforests are very important for many reasons:

- 1. High Biodiversity**
- 2. Water Provision** — regulate the water cycle
- 3. Home to indigenous tribes**
- 4. Climate Change** - rainforests are important carbon sinks taking in carbon dioxide and regulating oxygen levels.
- 5. Medicines**—many of our medicines are derived from rainforest plants—e.g. quinine used in the treatment of Malaria and Rosy Periwinkle used in the treatment of childhood leukaemia
- 6. Provide many valuable resources**—e.g. rubber, fruits, fibres etc.

### 5. The Causes of Deforestation

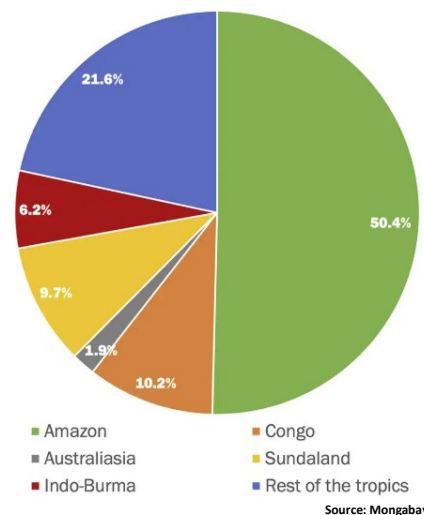
**Deforestation** is the large scale cutting down of trees, often for profit making activities.

Estimations such that as much as an area of rainforest about the size of a football pitch is destroyed each second.

50.4% of forest loss is from the Amazon.

Whilst rates of deforestation in the Amazon had begun to decrease, recently by 2000, rates are increasing significantly again with 2019 levels being 30% higher than 2018!

Share of primary forest loss, 2002-2019



#### REASONS FOR DEFORSTATION

- 1. LOGGING**—rainforests contain valuable timber for furniture, construction etc. including hardwoods such as mahogany.
- 2. MINERALS**— pressures minerals such as iron ore and gold are mined by cutting forests down and removing soil with high pressure hoses and chemicals.
- 3. COMMERCIAL FARMING—CROPS** — large areas of rainforest are cut down for agricultural land for growing cash crops such as soy bean and palm oil
- 4. COMMERCIAL FARMING—CATTLE**—with increasing demands for meat, large areas of rainforest are cut down to create cattle ranches.

### 5. The consequences of Deforestation

The consequences of deforestation can be divided into local and global scale.

#### GLOBAL SCALE IMPACTS OF DEFORESTATION



**CLIMATE CHANGE**—removal of trees by deforestation removes the valuable carbon sink meaning there is more carbon dioxide in the air contributing to global warming.



**REDUCED BIODIVERSITY** — many species are being lost forever with the loss of many potentially valuable medicinal cures.

#### LOCAL SCALE IMPACTS OF DEFORESTATION



**SOIL EROSION** — with the loss of trees there is little interception, heavy rain strips topsoil and washes it into nearby rivers, removing nutrients. Soil may build up on the river bed, resulting in flooding.



**WATER POLLUTION** — during mining, soil and chemicals are washed into rivers causing water pollution which can kill fish and damage the health of native people who use the river water.



**CONFLICT** — there is conflict between loggers, miners etc. and the indigenous people. Many have been forced from their land and some have been killed.

Icons by Nithinan Tatah and Yu Luck, Jim Holt and Adrien Coquet from the Noun Project



## Rainforests continued..

### 6. How can we manage rainforests sustainably

Many of the countries in which rainforests are located are countries which have a lower level of economic development and rely on resources from the rainforest to help earn money and pay off debts.

It is difficult to stop deforestation—much illegal deforestation takes place.

We therefore need to **sustainably manage** our rainforests. This means using the resources that are available whilst ensuring that the area remains protected so that there are also resources that can be used for the benefit of future generations.

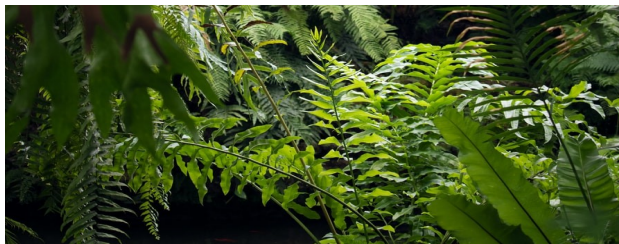
#### SUSTAINABLE MANAGEMENT STRATEGIES

**1. SELECTIVE LOGGING**—only cutting down fully grown trees, letter young trees remain to protect ground and nutrient cycle with new trees being planted to replace those taken.

**2. ECOTOURISM**—providing small scale tourism in the rainforest, using locals as guide and constructing sustainable accommodation which fits within the forest landscape and is constructed using old wood. Generates money and supports local communities.

**3. TACKLE ILLEGAL LOGGING**—governments to look at use of technologies like drones etc. to help monitor and tackle the problem.

**4. CONSERVATION AND EDUCATION**—setting up nature reserves and protected areas which can only be used for education / scientific research.



### APPLYING YOUR KNOWLEDGE...

- Describe and explain the rainforest climate
- Explain how plants and animals have adapted to the rainforest environment.
- Explain the causes of deforestation
- Why is it difficult to tackle the problem of deforestation in rainforests?

#### Now Challenge yourself even further!

Explain how tackling the problem of deforestation will help tackle the issue of global warming.

Suggest what the difficulties are in trying to tackle deforestation.

Is it more valuable to use the resources in the rainforest or keep them intact? Explain your reasons.

#### Some ideas for finding out more...

- research the idea of “Debt for nature” swaps and see how these can be used to help protect rainforests.
- carry out some research on Ecotourism in Costa Rica and evaluate how successful it has been.
- watch this Sky New Special Report—The Amazon in Crisis <https://www.youtube.com/watch?v=rWqgrFDIX6c>

### OTHER RESOURCES

KS3 Bitesize Rainforests <https://www.bbc.co.uk/bitesize/guides/zpmnb9q/revision/1>

Tropical Rainforest Quiz <https://www.bbc.co.uk/bitesize/guides/zpmnb9q/test>

Mongabay—Rainforest information <https://rainforests.mongabay.com/>

KS3 Schoology



SCAN ME

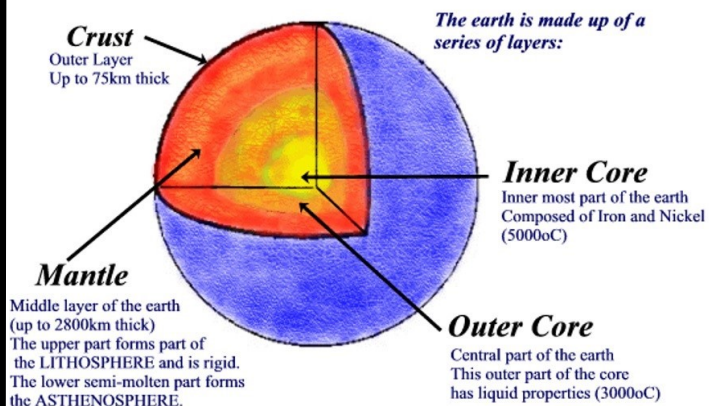
Key Term	Definition
<b>Biodiversity</b>	The variety of life in a place i.e. the number of species found in an area
<b>Biome</b>	A large scale community of organisms with a distinctive climate
<b>Biosphere</b>	The living part of the earth - plants and animals
<b>Buttress Roots</b>	Large roots above the surface supporting tall trees
<b>Canopy</b>	The main layer of fully grown trees in the rainforest where the most photosynthesis takes place
<b>Commercial Farming</b>	This may either be in the form of cattle or crops - where large areas of the rainforest are cleared for ranch lands or plantations
<b>Deforestation</b>	The cutting down of trees in the rainforest
<b>Drip Tips</b>	Funnel shaped tips on leaves to shed excess water
<b>Ecotourism</b>	Introduces people to the natural world, with the proceeds benefiting local communities and protecting the environment for the future
<b>Emergent Layer</b>	The tallest trees in the rainforest
<b>Epiphytes</b>	A plant that grows on another plant but doesn't damage or affect it
<b>Indigenous Tribes</b>	The people who are native to the rainforest (e.g. Tikuna Tribe)
<b>Latosol</b>	Type of soil found in tropical rainforests with a thin humus layer, a lack of nutrients and a high iron content
<b>Lianas</b>	Vines that grow up trees to get towards the sunlight
<b>Parasites</b>	An organism that lives in or on another organism and gets its nutrients at the expense of its host (e.g. a strangler fig)
<b>Plantation</b>	A large scale estate for farming growing cash crops such as palm oil, sugar cane, soy
<b>Prehensile Tail</b>	Capable of grasping / holding on to things
<b>Selective Logging</b>	Where only fully trees are cut down and those with an important ecological value are left unharmed
<b>Soil Erosion</b>	The wearing away of topsoil by wind and water
<b>Sustainable Management</b>	A way of using the resources in the rainforest whilst ensuring that they are still available for the benefit of future generations.

To test yourself Read, Cover, Write, Check OR try this quizlet <https://tinyurl.com/KS3Rainforests>



# VOLCANOES

## 1. STRUCTURE OF THE EARTH



## 2. PLATES AND PLATE MOVEMENTS

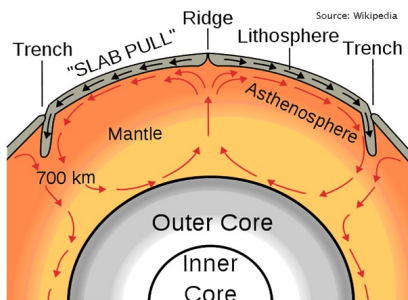
The earth's crust is divided into a series of **plates** – these **move on top of the mantle below**.



The earth's plates move partly due to **convection currents** in the mantle. Molten rock is heated and becomes less dense rising towards the surface and spreading out underneath the plates moving them.

As the molten rock cools it becomes dense and sinks back down.

As the plate descends into the mantle below (**subducts**), it 'pulls' the rest of the plate behind it, further explaining the movement – this is known as **slab pull**.



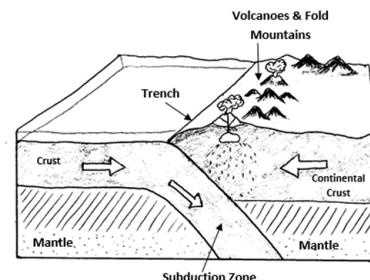
The movement of plates, carries continents on top and over time continents move position—known as **continental drift**

## 3. PLATE BOUNDARIES

There are four different types of Plate Boundary:

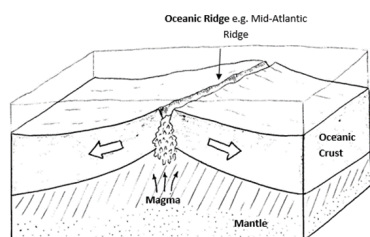
### Destructive

Here **two plate move towards each other** – one is oceanic and one is continental – e.g. Nazca Plate and South American plate – form the Andes



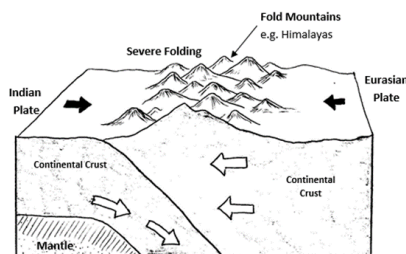
### Constructive

Here **two plates move away from each other** due to convection currents – e.g. at the Mid-Atlantic ridge



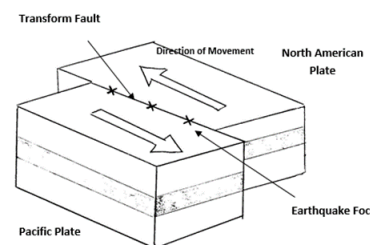
### Collision

Here **two plates both consisting of continental crust collide** forming mountain ranges (no volcanoes occur here only earthquakes) – e.g. the Himalayas



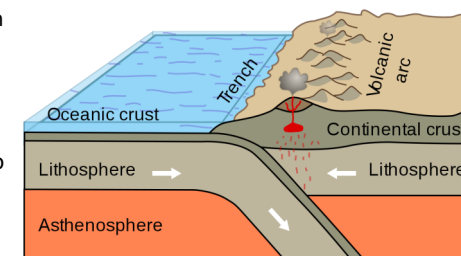
### Conservative

Here **two plates move side by side** – they form earthquakes – e.g. San Andreas



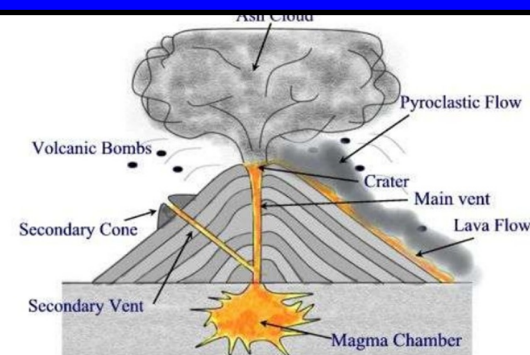
## 4. VOLCANO FORMATION AT DESTRUCTIVE BOUNDARIES

- **Two plates move together** (one oceanic and one continental)
- The **oceanic plate is denser** so it goes down (**subducted**) under the continental plate
- As it is subducted the **oceanic plate melts due to heat from inside the earth** forming molten rock
- This molten rock (**magma**) is lighter than that around it so it **rises and erupts** at the surface



## 5. FEATURES OF A VOLCANO

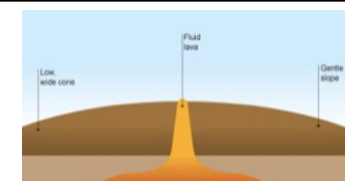
See glossary for definitions of these key terms



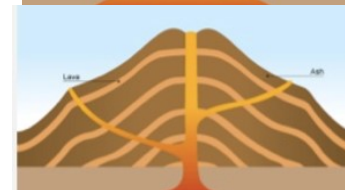
Main Features of a Volcano

## 6. TYPES OF VOLCANO

**SHIELD VOLCANOES** – these are wide based and gentle sided volcanoes formed due to faster flowing lava



**COMPOSITE VOLCANOES** – these are formed of layers of ash and lava they have a much steeper slope and narrower base and are due to lava which is slow flowing and explosive.



**VOLCANOES MAY BE IN ONE OF THREE STATES:**

- **Active** – this is one that has had at least one eruption in the past 10,000 years
- **Dormant** – a volcano that is not erupting at the moment but is expected to erupt again.
- **Extinct** – a volcano no longer with a magma source which will not erupt again



To test yourself Read, cover ,write, check OR try this quizlet. [tiny.cc/KS3volc](https://www.tiny.cc/KS3volc)

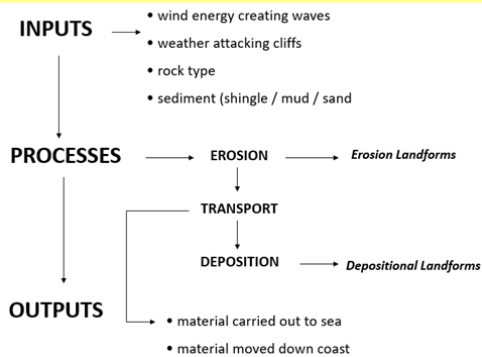
# COASTS

## 1. THE COASTAL SYSTEM

The coast is the **meeting point between the land and sea.**

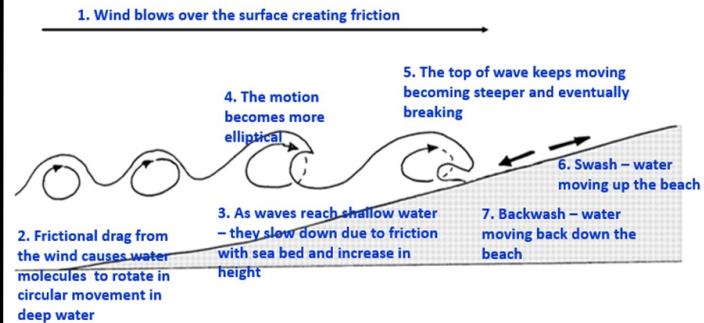
These areas are **dynamic** — constantly changing due to **erosion, transport and deposition.**

### THE COASTAL SYSTEM



## 2. WAVES AND WAVE TYPES

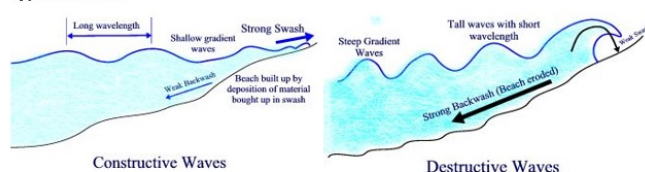
Energy driving change at the coast is from the wind which transfers energy to the sea creating waves.



The strength of wave is affected by (i) wind speed (ii) duration and (iii) the fetch

**There are TWO types of waves..**

### Types of waves:



### Constructive Waves

- Low energy
- Low frequency (8-10 per minute)
- Gently sloping wave front
- Long wavelength
- Stronger swash than backwash

Tend to deposit / build up a beach

### Destructive Waves

- High Energy
- High frequency (10-14 per minute)
- Steep wave front
- Short wavelength
- Stronger backwash than swash

Tend to destroy / erode a beach.

## 3. WEATHERING AT THE COAST

Weathering is the **breakdown of rocks in situ** (i.e. where they are).

There are **2 main types of weathering at the coast:**

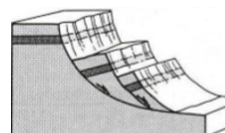
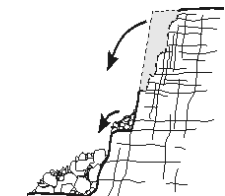
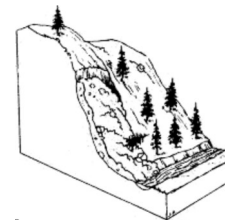
- **Chemical Weathering** — caused by chemical changes breaking up rocks or causing rocks and minerals to dissolve. Examples include:  
**Carbonation**  
**Oxidation**
- **Physical Weathering** — they physical disintegration of rocks into rock fragments. One example is **Freeze Thaw**—where water gets into cracks in the rock—when night temperatures fall below freezing, the water freezes, expands and puts pressure on the rock. The repeated freezing-thawing gradually breaks rock apart.

## 4. MASS MOVEMENT AT THE COAST

Mass Movement is when material moves downslope due to gravity.

Three main types at the coast:

1. **SLIDING** - occurs on pre-weakened cliffs. Often where heavy rain saturates the cliff and adds weight which results in material sliding downwards.
2. **ROCKFALLS** - cliff faces affected by freeze-thaw will have loose rocks falling and gathering at the base of the slope.
3. **SLUMPING** - material is rotated backwards into the cliff as it gives way.



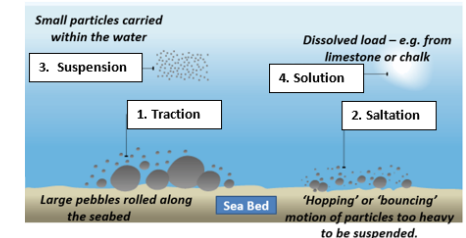
## 5. COASTAL EROSION

Erosion is the **breakdown and removal of rocks**

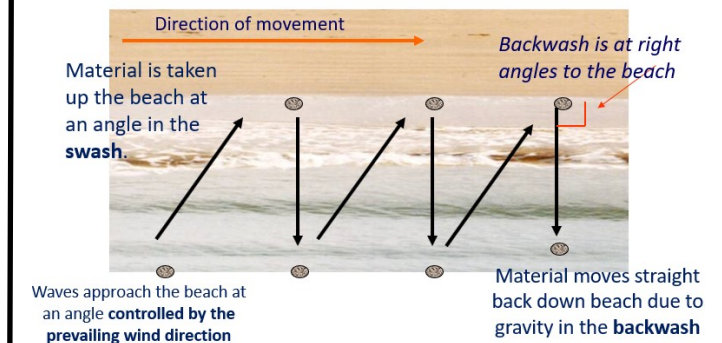
- **ABRASION** — rocks etc. are flung against the cliff by waves etc. gradually scraping the cliff face away.
- **ATTRITION** — rock fragments carried by waves get smaller and more rounded as they knock again each other.
- **HYDRAULIC POWER** — relentless battering of base of cliffs by waves can force water into joints and faults compressing air in them and causing mini-explosions breaking rock apart.
- **CORROSION (solution)** - the dissolving of soluble chemicals in rock by sea water

## 6. COASTAL TRANSPORT

Material held within the water will be moved in one of four ways (see diagram opposite).



Material moves along the coastline by **Longshore Drift** (see below)



## 7. COASTAL DEPOSITION

When water loses energy, material carried by the sea is deposited. These is common in a number of areas:

- Constructive waves (with a larger swash than backwash)
- Where wide beaches break the waves
- In sheltered bays
- Where coastal management e.g. groynes breaks the wave

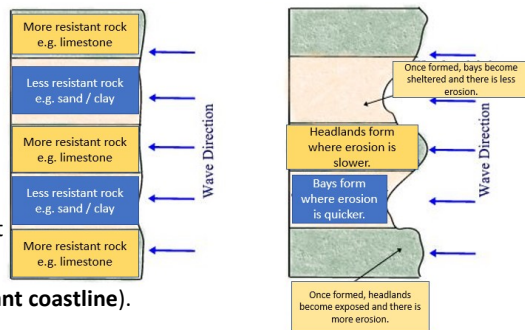


## COASTS continued..

### 8. EROSION FEATURES (i) BAYS AND HEADLANDS

#### Headlands and bays

form where there is hard and soft rock at



a (discordant coastline).

The hard rock erodes slower than the soft rock, sticking out as a headland. The softer rock erodes in to form a bay.

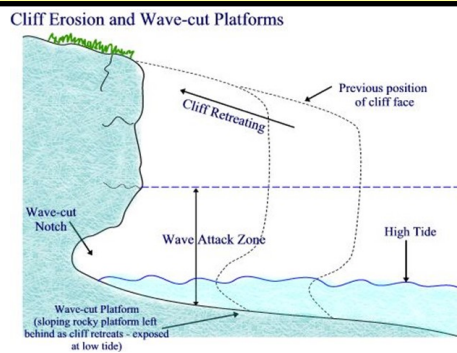
### 9. EROSION FEATURES (ii) CLIFFS & WAVE-CUT PLATFORMS

- Maximum erosion is at the base of the cliff—creating a **wave-cut notch**

- The cliff is undercut and eventually will collapse

- The process is repeated & the cliff retreats

- Leaves behind a gentle-sloping area known as a **wave-cut**

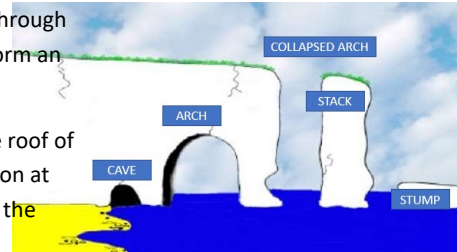


### 10. EROSION FEATURES (iii) Erosion of a Headland

When a headland has formed it becomes exposed to more erosion and a sequence of erosion features **cave, arch, stack, stump**.

A cave is eroded through the headland to form an arch

Weathering of the roof of the arch and erosion at the base weakens the roof of the arch.



The roof of the arch collapses forming a stack. The stack eroded at the base by hydraulic action & abrasion & eventually collapses form a stump, covered at high tide.

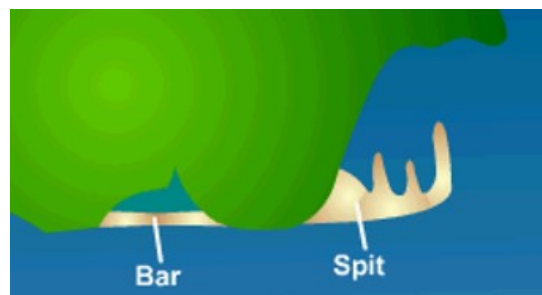
## 11. COASTAL DEPOSITION FEATURES

Where material is deposited at the coast several features may form.

**Sand Dunes** - mounds of loose sand formed as wind has blown

**Spit** - a ridge of land sticking out from the land into the sea.

**Bar** - a ridge of land which has grown across a bay joining two headlands



### APPLYING YOUR KNOWLEDGE...

- Describe the main differences between destructive and constructive waves.
- Describe the main processes of coastal erosion.
- Explain how material is moved along a coastline
- Describe and explain how on feature of coastal erosion is formed.

**Now Challenge yourself even further!**

**Watch this video on coastal management** <https://timeforgeography.co.uk/videos/list/coasts/hard-engineering-approaches-coastal-management/>

**This is hard engineering — what do you think soft is??**

**Question:** Why do you think some areas of coastline are protected from coastal erosion whilst others aren't?

### OTHER RESOURCES

**BBC Bitesize —Coasts**

<https://www.bbc.co.uk/bitesize/topics/zs3ptyc>

**Class Clips (Video) - BBC Coasts** [https://](https://www.bbc.co.uk/bitesize/topics/z6bd7ty/resources/1)

[www.bbc.co.uk/bitesize/topics/z6bd7ty/resources/1](https://www.bbc.co.uk/bitesize/topics/z6bd7ty/resources/1)

### KS3 Schoology



Key Term	Definition
Abrasion	rocks scraping away against cliffs
Arch	An opening through a headland
Attrition	Rocks in the sea smash again each other breaking down
Backwash	The movement of material down a beach
Bay	Indent in the coastline between two headlands.
Bar	A strip of deposited material joining two headlands
Beach	Material lying between the high and low tide mark.
Cliff	Steep rock face along a coastline
Coast	The meeting point between the land and sea.
Concordant	Where the same type of rock is parallel to the coastline
Constructive Waves	Gentle, low energy waves, swash > backwash
Destructive Waves	Frequent, high energy waves, backwash < swash
Discordant Coastline	Different types of rock outcrop at 90o to the coastline
Deposition	Where material is dropped due to a loss off energy
Erosion	The breakdown and removal of rocks
Estuary	A tidal river mouth (where freshwater meets saltwater)
Fetch	Distance of open water over which the wind has blown
Headland	Resistant areas of land sticking out into the sea.
Hydraulic Power	Force of water hitting cliffs, breaks them down & waves force water into crack compressing air forcing rock apart
Load	The material carried by water
Longshore Drift	The movement of material along a coastline
Mass Movement	Material moving down slope due to the pull of gravity.
Prevailing Wind	The main direction from which the wind is coming from
Saltation	The 'hopping' / 'bouncing' motion of particles along the bed.
Solution	Dissolved load - e.g. from limestone or chalk
Stack	An isolated pillar of rock separated from a headland
Stump	Isolated section of rock in front of a stack
Suspension	Small particles carried within the water
Swash	The movement of material up a beach
Spit	Narrow ridge of sand/shingle sticking out from a coastline
Traction	Large pebbles rolled along the seabed
Wave-Cut Platform	Gently sloping rock platform often covered at high tide

To test yourself Read, cover ,write, check OR try this quizlet [tiny.cc/ks3coasts](https://tiny.cc/ks3coasts)