Geography Curriculum Overview Year 8 2024-25

3 hours per two weeks

	Autumn 1	Autumn 2	Spring 1 & 2	Summer 1	Summer 2
	Why is our Earth restless?	**What hazards does our restless Earth create?**	**What geographical issues are facing our world?**	**How can we journey from north to south across the Americas?**	**How have human and physical processes changed the oceans?**
Overview of Scheme of Learning	The students will learn about the history and structure of the Earth and how this shapes our oceans and continents. They will then learn about plate boundaries and movements.	The students will develop their knowledge of the restless Earth to understand how plate tectonics gives rise to hazards such as volcanoes, earthquakes and tsunamis.	The students will study a wide range of geographical issues, including water stress and population pressure.	The students will explore a range of places and geographical topics on their journey from north to south. This will include issues in locations including Alaska, Mexico, Panama, Venezuela, the Galapagos and Chile.	Students will find out many ways in which our oceans are changing due to human and physical processes. They will learn about ways in which humans use resources from the oceans, and how human activities can interact with and change physical processes.
Cultural capital	**Visit** The Natural History Museum	**Read** "Disaster by Choice" by Ilan Kelman. **Watch** A Perfect Planet Series 1:1. Volcano **Watch "**The Impossible" **Watch "**Into the Inferno"	**Research** geographical issues in the news e.g. search water shortage on the BBC News website. **Read** "Journey to the River Sea" by Eva Ibbotson **Read "**How we are f***ing up our planet." By DK Tony Juniper. **Read "**Factfulness" by Hans Rosling.	**Research** current affairs on this large continent: https://www.bbc.co.uk/news /world/us_and_canada **Read** "Shoeless Joe" by W. P. P. Kinsella **Watch** "Field of Dreams" Simon Reeve – "the Americas"	**Watch** "Blue Planet" on iPlayer **Watch** "Seaspiracy" on Netflix **Watch** "An Inconvenient Truth"

			Read "Turning the tide on plastic; How humanity (and you) can make our globe clean again" by Lucy Siegle. **Read** "No one is too small to make a difference" by Greta Thunberg.		
Prior learning	In Year 7, students will have learned that some places experience tectonic hazards.	Students may have learned about volcanoes in years 4 to 6.	In Year 7, students will have learnt the water cycle and how it contributes to global water supplies. They also will have learnt some challenges faced by Fantastic Places. Students will also have some understanding of the key terms associated with population. Students will use their prior learning on climate zones.	Students will already have locational knowledge and know that North America and South America are continents including several countries. They will already have studied relevant topics including climate change.	Students will have studied the water cycle, the causes and impacts of climate change, and have touched on species adaptation in year 7.
Number of lessons	10		9	8	11
Assessment Overview	**Pre-assessment –** this pre-assessment will consolidate learning on plate boundaries.	**Pre-assessment –** Students will write an article on the Haiti earthquake. This will help assess their communication of issues, longer writing, and	**Assessment –** Includes a range of short and long answers, and the use of graphs to interpret and figures to support answers. The use of resources like this is an	**Pre-assessment** – a piece of evaluative writing to practise organisation and structure of writing.	**Pre-assessment –** A piece of evaluative writing using evidence on whether we should use the oceans to generate energy. **End of Year Assessment –** A mixture of shorter and

		understanding of the causes of earthquakes. **Assessment –** Includes a range of short and long answers, with key terms and foundation knowledge (convection currents & plate boundaries) assessed.	important skill to develop in Geography.		longer answers, with some skills questions and a piece of evaluative writing to build on the learning from the pre-assessment.
Link to detailed content (Knowledge Organiser/Unit Overview/Scheme of Learning)	*Knowledge organiser 01 Restless Earth*	*Knowledge organiser 01 Restless Earth*	*Knowledge organiser 02 Geographical issues*		*Knowledge organiser 03 Coasts*

Knowledge organiser: Why is planet Earth becoming so restless?

History of the Earth

There are different geological time periods.

The Big Bang theory is one theory of the creation of the universe.

Alfred Wagner came up with the theory of continental drift. He noticed that the continents look like they fit together.

Structure of the Earth

Outer layer is the crust, mantle is the thickest layer, outer core, inner core is the middle layer.

The crust is broken up into plates. Oceanic crust is newer and denser than continental crust. Where two plates meet is known as a plate margin. Convection currents in the mantle drive the plates.

What are earthquakes

Earthquakes are vibrations caused by earth movement at plate boundaries. They can occur at any of the plate margins. Earthquakes are measured using the Richter scale (the magnitude) or the Mercalli scale (the damage)

Earthquake case study – Haiti

7 magnitude, 12th January 2010, epicentre was close to the capital Port-au-Prince. 300,000 people injured and 1,000,000 homeless. Over 200,000 died.

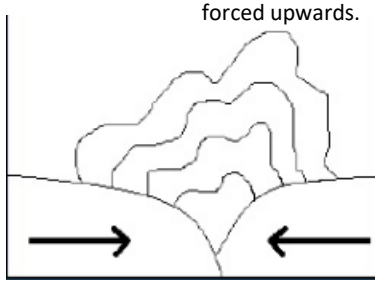
Volcano case study – Montserrat

In the Caribbean, 1995 – volcano became active. Worst eruption June 1997, 19 people killed by pyroclastic flows. South of the Island out of bounds. Today less that 5000 people live on the island.

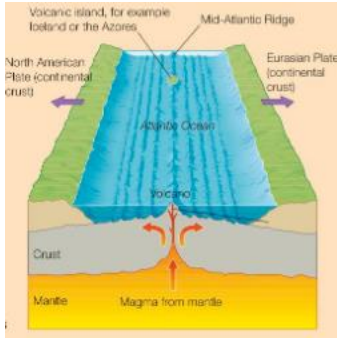
Plate margins

Collision margin

Two plates that have the same density move together, neither is subducted, the land is forced upwards.

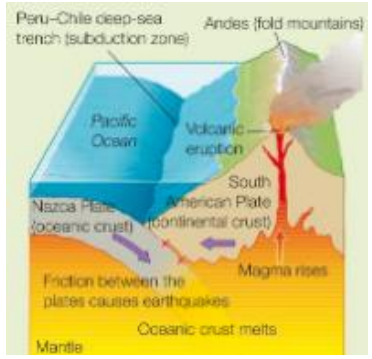


Constructive margin



Conservative margin

Destructive margin



What is a volcano?

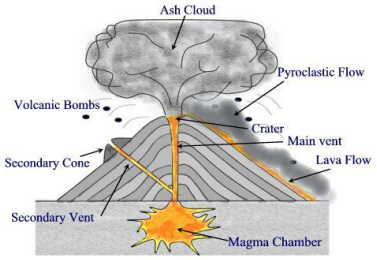
A volcano is a vent or opening in the earth's surface.

This is where liquid rock of magma shoots out or erupts through the ground.

Liquid rock above the ground is called lava, inside the earth it is called magma.

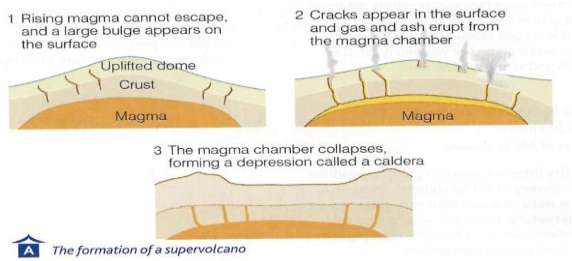
There are three types of volcano – active, which could erupt at any time, dormant, not erupted for over 500 years, extinct, not erupted in a long time and unlikely to erupt again.

Volcanoes have specific characte-ristics and structure.



Main Features of a Volcano

What is a super volcano?



The formation of a supervolcano

The likely effects would be catastrophic.

Why do people live in hazardous environments?

There are many reasons why people may live in hazardous environments, including – poverty, family ties, tourism, fertile soils, geothermal energy. E.G Iceland, Montserrat.

How can the danger of earthquakes be reduced?

It is possible to make some buildings earthquake proof by building them with strong foundations, shutters on the windows, cross bracing and rolling weights to counteract the shock waves.

Key terms used in this unit:

Geological
Big Bang Theory
Inner core
Outer core
Mantle
Crust – continental & oceanic
Constructive margin
Destructive margin
Collision margin
Conservative margin
Volcano
Lava
Magma
Ash cloud
Volcanic bombs
Cone
Vent
Magma chamber
Lava flow
Pyroclastic flow
Crater
Richter scale
Seismic waves
Focus
Epicentre
Haiti
Montserrat
Supervolcano
Caldera
Fissures
Geothermal
Geyser
Hot spot
Cross bracing
Foundations

What Geographical Issues are facing the world?

Lesson enquiry question:	Key knowledge to be covered:	Key terms to be used:
1. What are renewable and non-renewable resources?	Renewable and non-renewable resources. Renewable resources can be used over and over again and will not run out. e.g. solar energy, wind energy Non-renewable resources are finite – once they're gone they cannot be replaced. Fossil fuels are formed over thousands of years. e.g. coal, natural gas, oil Coal – cheap, easy to produce, large reserves left, produces CO2, mining can be dangerous. Oil – reserves are running low, oil spills are dangerous, price can fluctuate, contributes to air pollution Natural gas – danger of explosions, less polluting than oil and coal, efficient. Nuclear – clean and efficient, dangers of radiation, nuclear accidents can be catastrophic, less polluting than coal. Biofuel – plant/animal matter used to produce energy, cheaper than fossil fuels, takes up land. Solar/wind/tidal/hydro-elecrtic – non-polluting, usage increasing, uses natural resources, can be an eye-sore.	Renewable resources Non-renewable resources Solar Wind Coal Natural gas Oil Nuclear Biofuel Tidal Hydro-electric
2. Is there enough water?	**<u>Distribution of water</u>** Many countries are experiencing water stress, such as Australia, Northern Africa, India and the Middle East. There is a scarcity of fresh water. Women and girls may walk hours to get (possibly) unclean water. Many die due to waterborne diseases. Domestic water use accounts for 8%, 70% for agriculture and 22% for industry.	Distribution Water stress Scarcity Domestic

Lesson enquiry question:	Key knowledge to be covered:	Key terms to be used:
3. What is desertification?	There are many causes of desertification, such as – Deforestation - the removal of trees for firewood and for the expansion of urban areas has led to the soil being left exposed to the wind and rain as there is less interception by the leaves. The nutrients in the soil then get washed or leeched away leaving soil infertile. Drought – vegetation dies Over-farming - Over use of land to grow crops each year without allowing the nutrients in the ground to return leaves the soil of poor quality where nothing can grow. Over grazing – removal of vegetation which leads to soil erosion Over use of fertilisers - This leads to a breakdown of the soil quality. The soil becomes salty (Salinization) and crops can't be planted. Population growth - This leads to the need for more food at greater expense to the land. Lack of irrigation - This causes crops to die and poor farming methods to be used. The soil becomes compacted and of poor quality. Poverty and civil war - Lack of farming investment and lack of money leads to people using any available land and overusing it. War also means people stay in the same areas, water gets polluted, overused and land gets destroyed. There are also many ways to manage desertification – Afforestation - A green wall helps the soil regenerate, protects it from soil erosion Irrigation systems - Irrigation schemes or dams to store water for use on farmers' fields. Education - Educate the farmers on their farming methods so they use the land in a productive way and protect it. Allow the soil time to regenerate using crop rotation to use different areas every two years. Use of natural fertilisers - This will hold all the nutrients in and reduce wind and rain erosion. Build terraces on the land - help conserve water and reduce the amount of runoff. This will also reduce the nutrients lost through leeching. Building stone lines across fields - Build bunds or stone lines across fields to trap moisture and reduce the top soil loss through erosion	Desertification Deforestation Vegetation Overgrazing Over-farming Fertilisers Irrigation Afforestation Terraces Erosion
4. What are the effects of desertification?	<u>Desertification in the Sahel</u> Location – Central Africa, south of the Sahara desert, covers many countries in Africa, including Nigeria, Burkina Faso and Ethiopia. Stretches from east to west. It is one of the world's poorest regions. There are many causes such as drought. It affects the area in many different ways such as soil erosion, food insecurity and the removal of vegetation. People therefore have to migrate to other regions. Soil fertility is reduced as more intensive farming methods are used. Management is important. The Great Green Wall, soil pits and rows of stones are used. The growth of vegetation improves soil fertility and reduces soil erosion.	Desertification Sahel Drought Migrate Great Green Wall

Lesson enquiry question:	Key knowledge to be covered:	Key terms to be used:
5. What is deforestation?	Deforestation is the cutting down of trees, often on a very large scale. The timber is a highly valued export. Deforestation means the land can be used for other profit-making enterprises, like cattle ranching commercial farming, the production of rubber and palm oil. The rate of deforestation in Malaysia is increasing faster than in any tropical country in the world. Between 2000-2013 Malaysia's total forest loss was an area larger than Denmark.	Deforestation Timber Commercial farming Subsistence farming
6. How does deforestation affect people in the Amazon	Positives – HEP, contribution to economy, income for people. Negatives – change in climate and global weather patterns, more CO_2 in the atmosphere, indigenous populations forced out, soil erosion and loss of fertility, spread of disease, species threatened.	HEP Indigenous Soil erosion Fertility Biodiversity
7. So….where is everyone?	The highest population density can be found in the continents of Asia and Europe. Australia and the northern parts of North America are the least densely populated. Australia, Russia and Canada have low population densities because of their extreme climates. Europe, Japan and China have high populations because of food health care, lots of jobs available, temperature climate and stable governments. India, parts of Africa and Indonesia have large populations because of a lack of contraception, children needed for work and a lack of women's rights.	Population density Population distribution
8. Why is our population rising?	Natural increase – depends on birth rate and death rate If there are more births than death, population will increase If there are more deaths than births, population will decrease If the quality of food improves, more hospitals/services are provided, increased access to contraception and women get good jobs then the birth rate will fall. If there is a war, spread of diseases or famine, then the death rate will increase. Some countries have a high % of their population which are undernourished. Central Africa, India and Mongolia are examples	Birth rate Death rate Natural increase
9. Why do people migrate?		

Lesson enquiry question:	Key knowledge to be covered:	Key terms to be used:
10. How has the Earth's temperature changed over time?		
11. What ae the causes of global warming?		
12. How does climate change over time?		
13. How Is it possible to try and prevent global warming?		

Knowledge organiser: What Geographical issues are facing the world?

Renewable and non-renewable resources.

Renewable resources can be used over and over again and will not run out.e.g. solar energy, wind energy

Non-renewable resources are finite – once they're gone they cannot be replaced. Fossil fuels are formed over thousands of years. e.g. coal, natural gas, oil

Distribution of water

Many countries are experiencing water stress, such as Australia, Northern Africa, India and the Middle East.

There is a scarcity of fresh water. Women and girls may walk hours to get (possibly) unclean water. Many die due to waterborne diseases.

Domestic water use accounts for 8%, 70% for agriculture and 22% for industry.

Desertification

Desertification is the process by which dry environments become more like a desert.

It occurs on the edges of existing deserts, for example Australia and around the Sahara.

There are many causes of desertification, such as deforestation, drought, over-farming and over grazing, over use of fertilisers population growth, lack of irrigation, poverty and civil war.

Desertification –ways to manage

There are also many ways to manage desertification, such as afforestation, irrigation systems, education, use of natural fertilisers, build terraces on the land and building stone lines across fields.

Desertification in the Sahel

Location – Central Africa, south of the Sahara desert, covers many countries in Africa, including Nigeria, Burkino Faso and Ethiopia. Stretches from east to west. It is one of the world's poorest regions.

There are many causes such as drought.

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Management is important. The Great Green Wall, soil pits and rows of stones are used. The growth of vegetation improves soil fertility and reduces soil erosion.

Deforestation

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Deforestation in the Amazon

Positives – HEP, contribution to economy, income for people.

Negatives – change in climate and global weather patterns, more CO_2 in the atmosphere, indigenous populations forced out, soil erosion and loss of fertility, spread of disease, species threatened.

Global population distribution

Australia, Russia and Canada have low population densities because of their extreme climates. Europe, Japan and China have high populations because of food health care, lots of jobs available, temperature climate and stable governments.

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Why is our population rising?

Natural increase – depends on birth rate and death rate

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If the quality of food improves, more hospitals/services are provided, increased access to contraception and women get good jobs then the birth rate will fall.

If there is a war, spread of diseases or famine, then the death rate will increase.

Some countries have a high % of their population which are undernourished. Central Africa, India and Mongolia are examples

Key terms:

Renewable resources
Non-renewable resources
Water stress
Distribution
Water surplus
Water deficit
Geology
Distribution
Desertification
Deforestation
Water stress
Scarcity
Domestic
Population density
Population distribution
HEP
Indigenous
Soil erosion
Fertility
Biodiversity
Birth rate
Death rate
Natural increase
Deforestation
Timber
Commercial farming
Subsistence farming
Desertification
Sahel
Drought
Migrate
Great Green Wall

Relief of the UK

Relief of the UK can be divided into uplands and lowlands. Each have their own characteristics.

Key

Lowlands

Uplands

Areas +600m: Peaks and ridges cold, misty and snow common. i.e. Scotland

Areas -200m: Flat or rolling hills. Warmer weather. i.e. Fens

Types of Erosion

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 hurled at the base of a cliff to break pieces apart.
Hydraulic Action	Water enters cracks in the cliff, air compresses, causing the crack to expand.

Types of Transportation

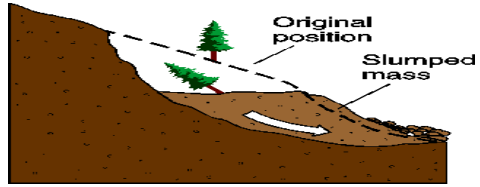
A natural process by which eroded material is carried/transported.

Solution	Minerals dissolve in water and are carried along.
Suspension	Sediment is carried along in the flow of the water.
Saltation	Pebbles that bounce along the sea/river bed.
Traction	Boulders that roll along a river/sea bed by the force of the flowing water.

Mass Movement

A large movement of soil and rock debris that moves down slopes in response to the pull of gravity in a vertical direction.

1	Rain saturates the permeable rock above the impermeable rock making it heavy.
2	Waves or a river will erode the base of the slope making it unstable.
3	Eventually the weight of the permeable rock above the impermeable rock weakens and collapses.
4	The debris at the base of the cliff is then removed and transported by waves or river.



Types of Weathering

Weathering is the breakdown of rocks where they are.

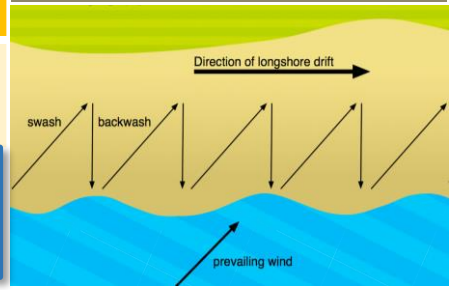
Chemical	Breakdown of rock by changing its chemical composition, e.g. acidic rainwater
Mechanical	Breakdown of rock without changing its chemical composition, e.g. freeze-thaw weathering
Biological weathering	This occurs due to the actions of plants and animals. E.g plant roots break rocks, animals burrow into weak rocks.

What is Deposition?

When the sea or river loses energy, it drops the sand, rock particles and pebbles it has been carrying. This is called deposition.

What is longshore drift?

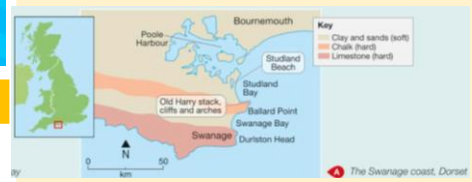
The movement of material along the beach. When the waves approach at an angle, sediment will be moved along in a zig-zag pattern.



Why are our coastlines ever-changing?

Coastal landforms at Swanage

Where?
Dorset, south coast of England. It has many erosional and depositional landforms. It is also known as the Jurassic Coast.



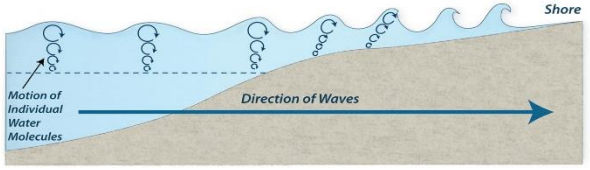
Landforms -
This indented coastline is called a discordant coastline. The south coast has one rock type – limestone – this forms a concordant coastline.
To the south of Swanage is Poole Harbour. A lot of deposition has taken place in this bay. There are two spits at the mouth of the harbour.
At Studland there are lagoons, saltmarshes and sand dunes.

How do waves form?

Waves are created by wind blowing over the surface of the sea. As the wind blows over the sea, friction is created - producing a swell in the water.

Why do waves break?

1	Waves start out at sea.
2	As waves approaches the shore, friction slows the base.
3	This causes the orbit to become elliptical.
4	Until the top of the wave breaks over.



Mechanical Weathering Example: Freeze-thaw weathering

Stage One
Water seeps into cracks and fractures in the rock.

Stage Two
When the water freezes, it expands about 9%. This wedges apart the rock.

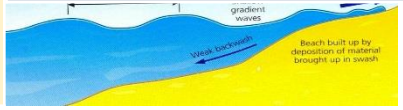
Stage Three
With repeated freeze-thaw cycles, the rock breaks off.

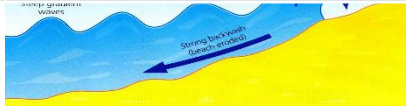
Size of waves

- **Fetch** how far the wave has travelled
- Strength of the wind.
- How long the wind has been blowing for.

Types of Waves

Constructive Waves	Destructive Waves
This wave has a **swash that is stronger** than the backwash. This therefore builds up the coast. They form gentle beaches	This wave has a **backwash that is stronger** than the swash. This therefore erodes the coast. They form more steep beaches





Coastal Defences - Hard Engineering Defences

Groynes	Wood barriers prevent longshore drift, so the beach can build up.	£150,000 each, at 200m intervals	✓ Beach still accessible. ✗ No deposition further down coast = erodes faster.
Sea Walls	Concrete walls break up the energy of the wave . Has a lip to stop waves going over.	£5000-100000 per metre	✓ Long life span ✓ Protects from flooding ✗ Curved shape encourages erosion of beach deposits.
Gabions or Rip Rap	Cages of rocks/boulders absorb the waves energy, protecting the cliff behind.	Up to £50,000 per 100m.	✓ Cheap ✓ Local material can be used to look less strange. ✗ Will need replacing.

Coastal Defences - Soft Engineering Defences

Beach Nourishment	Beaches built up with sand, so waves have to travel further before eroding cliffs.	up to £5000,000 per 100m	✓ Cheap ✓ Beach for tourists. ✗ Storms = need replacing. ✗ Offshore dredging damages seabed.
Dune regeneration	Grasses planted tostabilise dunes and help them develop. Fences used to keep people off sand dunes.	£200-1000 per 100m	✓ Cheap ✓ Maintains a natural coastline, popular with people and wildlife. ✗ Time consuming to plant grasses and fence areas off. ✗ Can be damaged by storms.
Managed Retreat	Low value areas of the coast are left to flood & erode. **Medmerry Managed retreat, West Sussex –** the flat, low lying coast is mainly used for farming and caravan parks. It was protected by a sea wall, but this now need repairing. Due to the low value of the land, it was decided to allow the sea to breach the wall.		✓ Reduce flood risk ✓ Creates wildlife habitats. ✓ Most sustainable option ✗ Compensation for land.

Case Study: Lyme Regis

Location and Background
Located on the south coast of England, on the Jurassic coast.
It is a popular tourist destination.

What are the issues?
Much of the town has been built on unstable cliffs. The coastline is eroding rapidly. Many properties have been destroyed. The sea wall has been breached many times.

Management
Phase 1 – 1990-1995 – New sea wall and promenade, 2003-2004 a £1.4 million emergency project was completed to stabilise the cliffs. Hundred of large nails were used to hold the rocks together.
Phase 2 – 2005-2007 – improvements to the sea front, costing £22 million. New sea walls, creation of wide sand and shingle (from the English channel) beach to absorb wave energy, extension of rock armour at The Cobb.
Phase 3 – The plan aws to help prevent landslips and erosion to the west of The Cobb. It was decided to leave this area alone as the costs outweighed the benefits.
Phase 4 – 2013-2015 – final phase focused on the coast east of the town. Cost £20 million. Construction of a 390m sea wall infront of the existing wall, nailing, piling and drainage to provide cliff stabilisation to protect 480 homes.

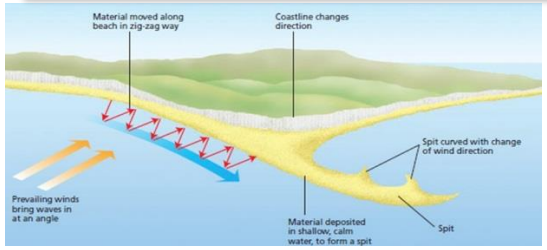
How successful?
Positives – increased visitors due to beaches, defences have stood up to stormy winters, boat owners and fishermen benefit from harbour being better protected.
Negatives – increased visitors lead to conflict with locals, natural landscape spoilt, sea defences interfere with other stretches of coastline.

Why are our coastlines ever-changing?

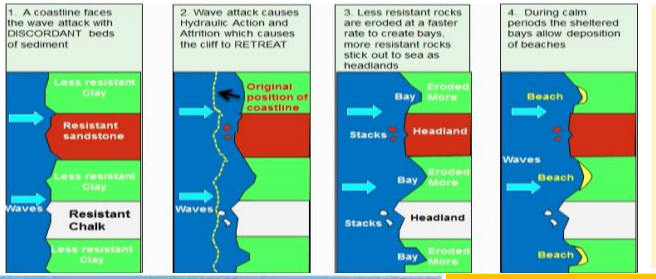
Formation of Coastal Spits and Bars- Deposition

Example: Spurn Head, Holderness Coast.

1) Swash moves up the beach at the angle of the prevailing wind.
2) Backwash moves down the beach at 90° to coastline, due to gravity.
3) Zigzag movement (Longshore Drift) transports material along beach.
4) Deposition causes beach to extend, until reaching a river estuary.
5) Change in prevailing wind direction forms a hook.
6) Sheltered area behind spit encourages deposition, salt marsh forms.
7) A bar forms when a spit grows right across a bay.

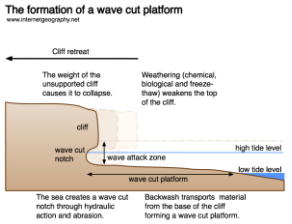


Formation of Bays and Headlands



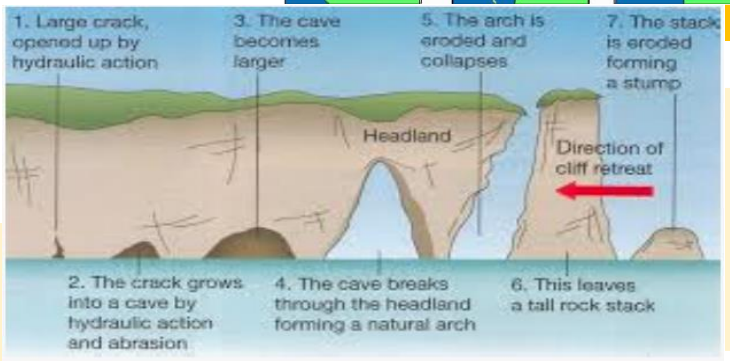
1) Waves attack the coastline.
2) Softer rock is eroded by the sea quicker forming a bay, calm area cases deposition.
3) More resistant rock is left jutting out into the sea. This is a headland and is now more vulnerable to erosion.

Formation of cliffs and wave-cut platforms.



1) When a wave breaks against a cliff, erosion will wear away at the bottom on a cliff, forming a wave-cut notch.
2) Over a long period of time, the notch will get deeper and deeper, undercutting the cliff.
3) Eventually, the cliff above collapses.
4) Over time the cliff will retreat
5) In it's place will be a gentle sloping rocky platform called a wave-cut platform.

Formation of Coastal Stack



Example: Old Harry Rocks, Dorset

1) Hydraulic action widens cracks in the cliff face over time.
2) Abrasion forms a wave cut notch between HT and LT.
3) Further abrasion widens the wave cut notch to from a cave.
4) Caves from both sides of the headland break through to form an arch.
5) Weather above/erosion below –arch collapses leaving stack.
6) Further weathering and erosion eaves a stump.