Year 8
How have physical processes shaped the UK?

Key concepts

4 Processes of erosion

The break down and transport of rocks.

Abrasion - Rocks hurled at the base of a cliff/river bank to break pieces apart
Attrition - Rocks that bash together to become smooth/smaller
Hydraulic action – water forced into a crack making it expand
Solution - A chemical reaction that dissolves rocks

3 Types of Weathering

Weathering is the breakdown of rocks where they are.

Biological weathering – plant roots and animals cause cracks in rocks
Chemical weathering – chemical reactions that wear rocks away, e.g. acid rain
Mechanical weathering – rocks are broken down into smaller pieces, e.g. freeze-thaw.

4 types of transportation

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

Traction – Boulders are rolled along the river/sea bed
Saltation - Pebbles bounce along the river/sea bed
Suspension – Sediment is carried –along in the body of the water
Solution – The smallest pieces of sediment are dissolved in the water

4 types of 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.
Rotational slip/slumping – A section of a cliff slides in layers downwards
Landslide – The movement of rocks, debris and soil downwards
Mudflow - Mud travels down a slope quickly
Rockfall – Rocks fall, bounce and roll down a slope

Deposition – when the river or sea loses energy it lets go of its load, placing sediment on the river/sea bed.

Coasts

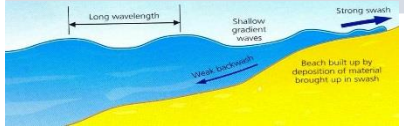
Coasts are dynamic zones which means they are always changing.

Destructive Waves

This wave has a **backwash that is stronger** than the swash. This therefore erodes the coast.

Constructive Waves

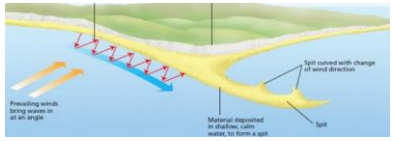
This wave has a **swash that is stronger** than the backwash. This therefore builds up the coast.



Formation of Bays and Headlands

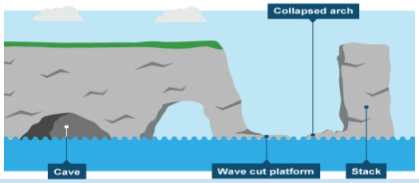
Waves attack the coastline. Softer rock is eroded by the sea quicker forming a bay. More resistant rock is left jutting out into the sea. This is a headland and is now more vulnerable to erosion.

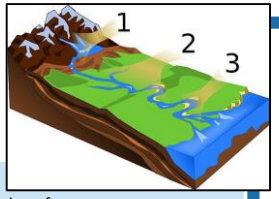
Formation of Spits



Swash moves up the beach at the angle of the prevailing wind. Backwash moves down the beach at 90° to coastline, due to gravity. Zigzag movement (Longshore Drift) transports material along beach. Deposition causes beach to extend, until reaching a river estuary. Change in prevailing wind direction forms a hook. Sheltered area behind spit encourages deposition, salt marsh forms.

Formation of Coastal Stack

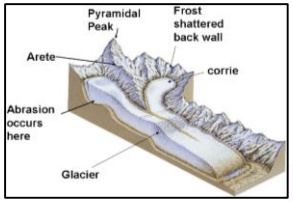




Hydraulic action widens cracks in the cliff face over time.
Abrasion forms a fault line. Further abrasion widens the fault to from a cave.
Caves from both sides of the headland break through to form an arch.
Weathering above/erosion below –arch collapses leaving stack, e.g. Old Harry
Further weathering and erosion eaves a stump.

Hard Engineering	Soft engineering
Using solid structures to resist forces of erosion from waves.	An approach that works with the natural environment to reduce erosion or let it happen.
Sea wall Groynes Rip rap / rock armour Gabions	 Beach nourishment Beach profiling Managed retreat Dune regeneration

Glaciation

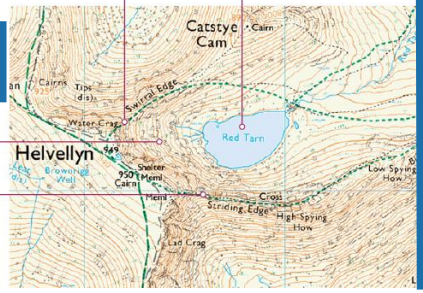


Glaciers are large moving sheets of ice which have eroded the UK landscape in the past

An Ice Age is a period of colder global temperatures when glaciers increase

The most recent ice age was 18,000 years ago.

The Lake District is UK example of a glaciated landscape.



Key Terms

Erosion	The breaking down and movement of sediment
Weathering	The breaking down of sediment where it is
Latitude	Horizontal positioning in the world, e.g. the equator and tropic of cancer
Vegetation	Plants, grass and trees
Topography	The arrangement of physical features in an area
Geology	The study of materials that make up the earth, e.g. sedimentary rocks
Glaciation	A period of time which is much colder and where ice is compacted to make glaciers
Plucking	When individual rocks are picked out of the ground by moving glaciers
Transportation	The movement of sediment. There are 4 ways material is transported.
Deposition	The letting go of material on the ground
Slumping	Large pieces of ground slip downwards as a result of gravity
Longshore drift	The movement of sand along a beach in a zigzag motion
Upland	Areas of land that are high above sea level

Rivers

	Characteristics – what is it like there?	Landforms – what can you see there?
1 – Upper course	The river is narrow and shallow. Sediment is large. The speed is relatively slow.	Waterfalls Gorges V-shaped valleys
2 – middle course	The river starts to get wider and deeper. The water speeds up. The land gets flatter.	Meanders Oxbow lakes
3 – lower course	The river becomes very wide and deep. The water is quick but slows down as it meets the sea. The land is very flat.	Wide floodplains Meanders Oxbow lakes