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Knowledge organiser: Where the land meets the sea?

Key Concepts

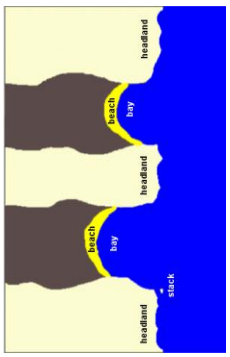
Coastal locations and the coastal system

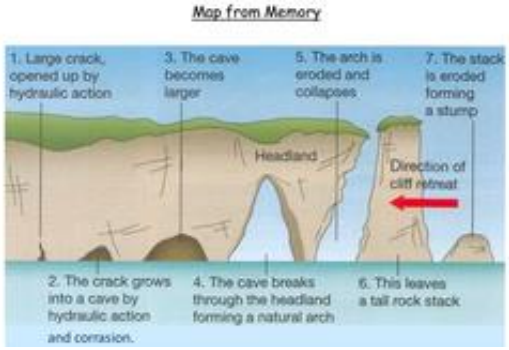
There are many different types of coastline. Erosion, deposition, waves, and weathering are constantly changing the shape of the coastline.
One of the most important factors is the local geology. Where we find hard, resistant rock e.g. chalk we find very different coastlines to where we have softer, less resistant rock e.g. clay.

Erosional landforms

Arch – stump. Weathering and erosion can create caves, arches, stacks and stumps along a headland.

Headlands and bays - Headlands are formed when the sea attacks a section of coast with alternating bands of hard and soft rock. The bands of soft rock, such as sand and clay, erode more quickly than those of more resistant rock, such as chalk.





Depositional landforms

Spits
Longshore drift moves material along the coastline.

A spit forms when the material is deposited.

Over time, the spit grows and develops a hook if wind direction changes further out.

Waves cannot get past a spit, which creates a sheltered area where silt is deposited and mud flats or salt marshes form.

Key Vocabulary

Erosion - the wearing down of material e.g. cliffs

Deposition – the dropping of material.

Weathering – the weakening of rocks e.g. physical, chemical or biological weathering.

Waves – created by wind passing across water. There are two types 1) destructive which erode land and 2) constructive that deposit material.

Fetch - the distance wind has travelled over the sea.

Hydraulic action – the power of the waves erodes the cliff as they smash into it.

Abrasion - waves carrying material e.g. pebbles, smash into cliffs breaking them down.

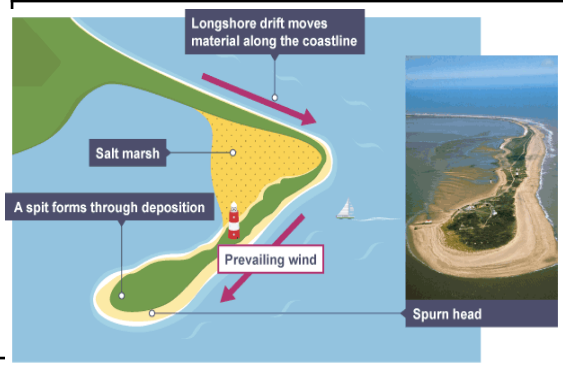
Solution – acidic water breaking down rock by dissolving it.

Attrition - Rocks and pebbles are carried in the flow of a river. They repeatedly knock into each other, which causes the rocks to erode or to break.

Longshore drift – the movement of sediment / material down a beach.

Swash – waves going up the beach.

Backwash – waves coming back down the beach.



Key Concepts

Storm surges

Bangladesh storm surge 2007
- 220 km/hr wind speed
- 3,363 deaths
- 55,282 injured
- Cost of £25 million
- Houses damaged 1,500,000

UK storm surge 2013
- 200 km/hr wind speed
- 2 deaths
- 1,400 homes flooded
- £100 million damage

Bangladesh is a LIC and the UK is a HIC.

	Hard engineering	**Soft engineering**
Examples	• Groynes • Sea walls • Rock armour	• Beach nourishment • Managed retreat
Positives	• Stops erosion • Stops flooding	• Cheaper and easy to maintain • Can increase tourism
Negatives	• Expensive • Looks ugly	• Cheaper • Doesn't stop erosion or flooding

Example: Holderness Coast

Causes of erosion
- Soft rock e.g. clay
- Storms / storm surges

Impacts

Loss of businesses e.g. caravan sites.

Beach starvation from use of groynes

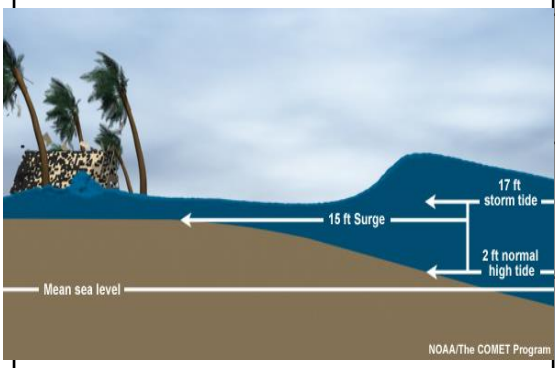
Loss of tourism e.g. beach erosion.

Management
- Groynes - Hornsea
- Sea walls - Bridlington
- Do nothing

Key Vocabulary

Low pressure – rising air which can lead to storms.

Storm surge – the rising of sea level due to high wind speed.



Hard engineering – using man made structures to stop erosion and flooding.

Soft engineering – using natural processes to stop erosion and flooding.

Managed retreat – allowing an area of land to erode or flood naturally.