

## Year 9 Knowledge Organiser 3: Coasts

<b>Key term</b>	<b>Definition</b>
<i>Waves</i>	Movements of water created by wind blowing over the sea surface.
<i>Swash</i>	The movement of waves up the beach.
<i>Backwash</i>	The movement of waves back down the beach.
<i>Constructive waves</i>	Low, gentle waves with strong swash and weak backwash that builds up beaches.
<i>Destructive waves</i>	High, powerful waves with weak swash and strong backwash that erode beaches.
<i>Erosion</i>	The gradual wearing away of the coastline.
<i>Hydraulic action</i>	Erosion caused by waves trapping air into the cracks in the rocks.
<i>Abrasion</i>	Erosion caused by rocks and pebbles in the waves grinding against cliffs.
<i>Attrition</i>	Erosion where rocks carried by waves collide, becoming smaller and rounder.
<i>Solution</i>	Erosion when rocks are dissolved in the water.
<i>Transportation</i>	The movement of eroded material along the coastline.
<i>Weathering</i>	The breakdown of rock material in their original place.
<i>Longshore drift</i>	The zig-zag movement of sediment along the coast by waves coming at an angle.
<i>Deposition</i>	When waves lose energy and drop the material they are carrying.
<i>Concordant coastline</i>	Hard and soft rock layers run parallel to the coast.
<i>Discordant coastline</i>	Hard and soft rock layers run perpendicular (at right angles) to the coast.
<i>Caves</i>	A hollow in a cliff formed by erosion along a weakness (wave-cut notches).
<i>Arches</i>	A natural opening through a headland when a cave is eroded all the way through.
<i>Stacks</i>	A tall pillar of rock isolated from the headland after an arch collapses.
<i>Stumps</i>	The remaining part of a collapsed stack due to erosional processes.
<i>Headland</i>	A piece of resistant rock that sticks out into the sea.
<i>Bay</i>	A curved inlet of softer rock between headlands.
<i>Spit</i>	A long, narrow ridge of sand extending from the coastline, formed by longshore drift.
<i>Bar</i>	A spit that extends across a bay, joining two headlands.
<i>Hard engineering</i>	Man-made structures built to reduce coastal erosion and flooding.
<i>Soft engineering</i>	Sustainable, natural approaches to managing coastal erosion and flooding.

### **Key questions:**

- How do waves, weathering and erosion shape the coastline?
- What landforms are created by coastal processes?
- How can we manage and protect coastlines sustainably?

### **Things you need to know:**

The coastline is a dynamic system constantly changing through erosion, transportation and deposition. Coasts are shaped through inputs (sediment, wind energy, waves) and outputs (landforms such as beaches and spits).

Constructive waves build beaches and destructive waves erode them

Weathering breaks down rocks, erosion wears it away, transportation moves sediment and deposition drops it

Hard rock forms headlands and soft rock forms bays

Erosional landforms: cliffs, caves, arches, stacks, stumps

Depositional landforms: beaches, spits, bars

Coasts are managed with hard engineering and soft engineering

Hard engineering: Sea walls (curved structures reflecting waves back into the sea), Rock armour (large, heavy boulders placed along the coastline), Groynes (wooden structures built at right angles to the coastline to trap sediment from longshore drift)

Soft engineering: Beach nourishment (adding sand to widen the beach), Managed retreat (allowing some areas to flood naturally), beach reprofiling (reshaping the beach to absorb wave energy)