Year 8 Geography - Term 2 - Coasts

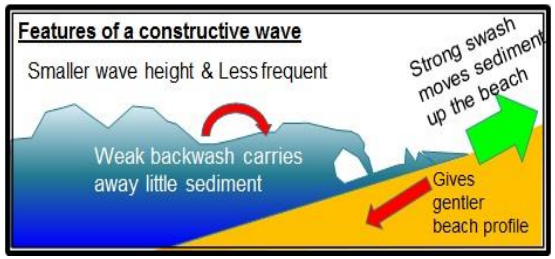
EROSION	The breaking down/wearing away of rocks
ATTRITION	Rocks hitting together and becoming smaller/smoother
ABRASION	Rocks scraping away at the river bed
SOLUTION	Rocks dissolved by minerals carried by the river
HYDRAULIC ACTION	Water enters cracks in the rock and weakens from within
TRANSPORTATION	Eroded material carried/transported (see longshore drift)
DEPOSITION	When the sea loses energy and drops material
SWASH	When waves rush up the beach
BACKWASH	When waves retreats back down the sea to the sea
FETCH	The distance of open sea that waves travel across

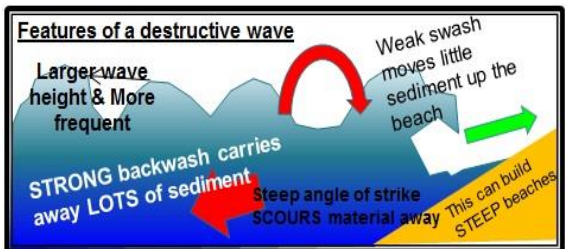
COASTAL DEFENCES – HARD AND SOFT ENGINEERING

	METHOD	HOW?	ISSUES
HARD	SEA WALL	Stops sea water flooding the land behind – reflects wave power (curved)	Very expensive, ugly, access issues, reflected waves can damage the beach.
	GROYNES	Prevents longshore drift from moving .material and builds up beach – helps reduce erosion, and good for tourism	Can starve areas further along the coast of material (leading to more erosion). Expensive to maintain. Access issues along beach.
	ROCK ARMOUR/ GABIONS	Placed at the cliff base – gaps between the rocks slow down the wave's energy	Ugly, can cause damage when installed. Gaps in between can attract litter and vermin.
	CLIFF DRAINAGE	Pipe in the cliff to remove excess water – less slumping	Can weaken rocks when installing pipe work
SOFT	BEACH REPLENISHMENT	Adding more sand to the beach – bigger beach = less erosion and more tourism	Needs annual maintenance as it is often just transported elsewhere
	CLIFF STABILISATION	Planting in the cliff face to hold the soil and material in place – less erosion occurs	Plant roots can actually cause biological weathering where the roots damage the rocks

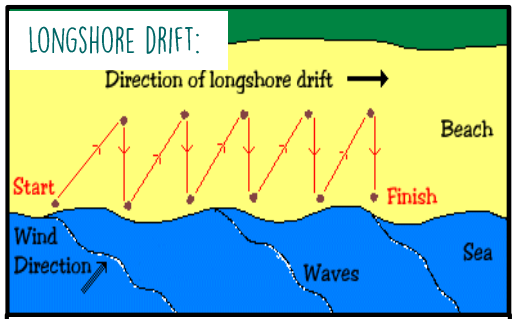
WHAT AFFECTS WAVES?

The strength and height of waves depends on 3 things:
the speed of the wind;
the time the wind blows for; and
the length of water the wind blows over (this distance is called the FETCH)



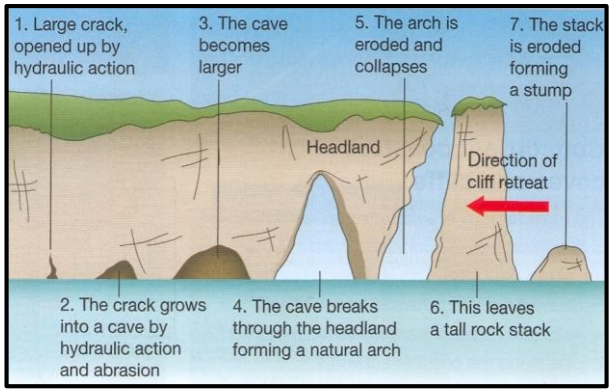


LONGSHORE DRIFT:

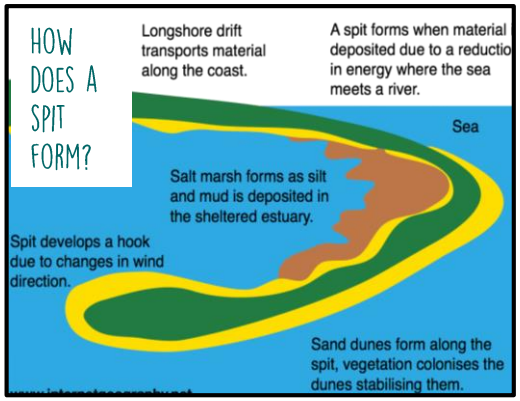


Swash moves up the beach at the angle of the prevailing wind. Backwash moves down the beach at 90° to the coastline (due to gravity). The zigzag movement transports material along the beach. Can led to spit formation.

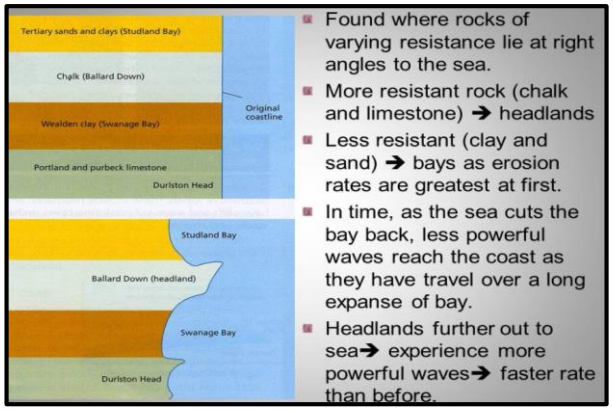
HOW DO CAVES, ARCHES, STACKS AND STUMPS FORM?



HOW DOES A SPIT FORM?



HOW DO BAYS AND HEADLANDS FORM?



- Found where rocks of varying resistance lie at right angles to the sea.
- More resistant rock (chalk and limestone) ➔ headlands
- Less resistant (clay and sand) ➔ bays as erosion rates are greatest at first.
- In time, as the sea cuts the bay back, less powerful waves reach the coast as they have travel over a long expanse of bay.
- Headlands further out to sea➔ experience more powerful waves➔ faster rate than before.