

## Year 7 Spring 2 Knowledge Organiser: Coasts

**What is the coast?** The coast is the place where the land meets the sea.

### Wave types

**Destructive waves** have a strong swash and a weak backwash. They are big strong waves made when the wind is powerful. They have high energy and they erode the coast.

**Constructive waves** have a weak swash and a strong backwash. They are less powerful. They have low energy and they build beaches.

### What are the processes occurring at the coast?

**Erosion:** the breaking down of rock

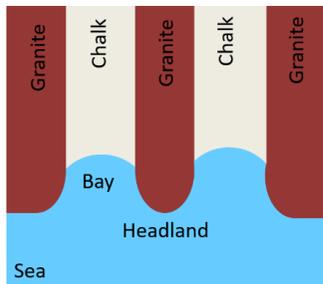
**Transportation:** the movement of rock

**Deposition:** the building up of rock

### Types of erosion

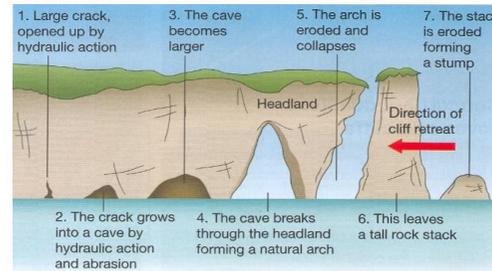
Hydraulic action	Air may become trapped in joints and cracks on a cliff face. When a wave breaks, the trapped air is compressed which weakens the cliff and causes erosion.
Abrasion	Bits of rock and sand in waves grind down cliff surfaces like sandpaper.
Attrition	Waves smash rocks and pebbles on the shore into each other, and they break and become smoother.
Solution	Acids contained in sea water will dissolve some types of rock such as chalk or limestone.

### Landforms of EROSION and DEPOSITION



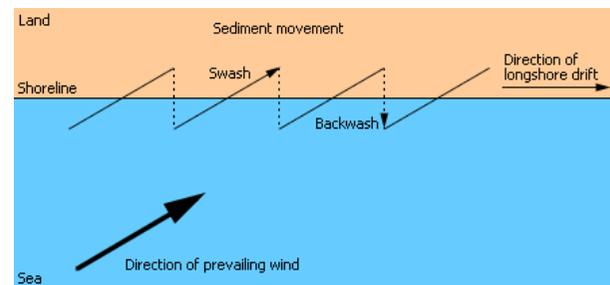
Soft rock erodes faster than hard rock. When hard rock and soft rock are next to each other the coast forms into **headlands and bays**. **Headlands** stick out into the ocean. **Bays** are where the soft rock has eroded away.

### Landforms of EROSION: Caves arches stacks and stumps



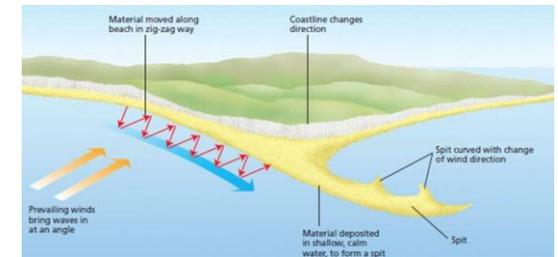
- Caves** occur when waves force their way into cracks in the cliff face. Water contains sand and other materials that grind away at the rock until the cracks become a cave. This is hydraulic action.
- If the cave is formed in a headland, it may eventually break through to the other side forming an **arch**.
- The arch will gradually become bigger until it can no longer support the top of the arch. When the arch **collapses**, it leaves the headland on one side and a **stack** (a tall column of rock) on the other.
- The stack will be eroded at the base. This weakens the structure and it will eventually **collapse** to form a **stump**.

### TRANSPORTATION: Longshore drift



- Waves approach the coast at an angle.
- Swash carries sediment up the beach at an angle.
- Backwash carries sediment down the beach with gravity – at right angles to the beach.
- This creates a zig-zag movement of sediment along the beach.

### Landforms of DEPOSITION: 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.

### Coastal management strategies

Hard Engineering	Soft Engineering
<p>Man-made structures e.g. Sea wall, gabions, rock armour, groynes.</p> <p>E.g. Sea wall—a wall made of concrete that reflects waves back to the sea. Positive—prevents flooding. Negative—creates a strong backwash. Expensive to build and maintain.</p>	<p>Natural engineering to protect the coast, e.g. reprofiling, recharging, regenerating, recycling.</p> <p>E.g. Dune regeneration—creating sand dunes by planting vegetation to stabilise it. Positive: provides a barrier, is cheap. Negative – Nourishment is expensive and limited to a small area.</p>

**Advantages of tourism at Swanage:** money from tourists means more lifeguards, better incomes, opportunities for young people to socialise.

**Disadvantages of tourism at Swanage:** coastline ruined, ugly hotels, tourists drop litter, noise pollution from the nightclubs.