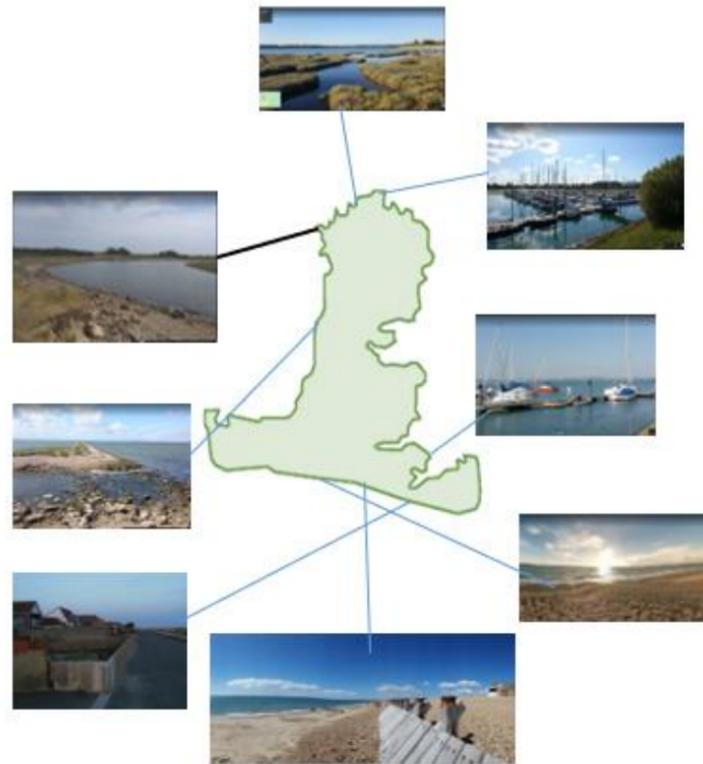


Year 6 Autumn Term Geography – The Changing Coastline

WALT 1: Identify different areas of coastline around Hayling Island.

What does Hayling Island's coastline look like?

Think of the human and physical features.



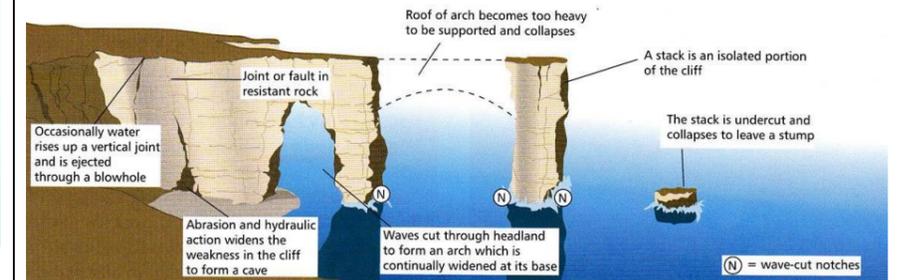
WALT 2: Explain how headlands and bays are formed.



Bays – Bays are hollowed-out parts of the coast, formed where softer rock is found. Very small bays are called **coves**. The size of the bay depends on how much of the coast contains soft rocks. Bays are more sheltered from storm waves than headlands. At the back of the bay, it is common to find a wide, gently sloping **beach** and possible **sand dunes**. (Examples: Gower, Swansea is a wide bay; Lulworth Cove, Dorset is a circular bay)

Headlands – where there are hard and soft rocks along a coast, the harder rocks are left standing out as headlands. Many parts of the coast have areas of hard rock, separated by areas that are made of softer rocks. Waves can wear away soft rock faster and, as a result, form a coast of headlands and bays. A headland is part of a coastline that juts out to sea and because it is made of hard rock it is able to stand up to the battering of the waves. Because headlands run out to sea, waves can attack them on two sides. This gives waves a chance to wear away weaker parts of the headland.

WALT 3: Describe the process of erosion causing arches, stacks and stumps. AS



Caves - Sea caves are deep, natural hollows or tunnels in a cliff/headland. They are formed when waves pound on a band of weaker rock. This means that the weak rock can be worked away faster than its surroundings/ erosion. Sea caves can form in any rock that is strong enough to support a cave roof without it collapsing. **Blowholes** – are when water is eventually forced through the roof of the cave.

Arch - As caves become deeper, there is a chance they might break right through a headland. When this happens, they make a natural stone arch.

Stack - The roof of the arch gradually gets worn higher and higher and wider. Eventually the top of the arch collapses and leaves one wall of the arch standing in its own in the sea. This pillar of rock is called a **stack**, a **needle** is very thin, and a **stump** is mostly worn down.

WALT 4: Explain how coastlines have changed overtime.

Erosion	Transportation	Deposition
<p>Hydraulic power – as the powerful waves smash into the cliff face, air is compressed in the small cracks in the rock. Tiny fragments of rock get blasted away as the process is repeated many times.</p> <p>Attrition – eroded material in the sea bumps into each other and eventually wear each other down. Over time, the material becomes smaller and more rounded.</p> <p>Abrasion – during storms, the strong waves pick up rocks, pebbles and sand. The material is then smashed into the cliff face. This can break off pieces of the cliff face.</p>	<p>Longshore drift – material is moved along the coast:</p> <ul style="list-style-type: none"> waves travel in the same direction as the prevailing wind and hit the coast at an angle (swash); material is carried back down the beach at a right angle (backwash); material zig-zags along the coast. 	<p>Constructive waves deposit more material than they erode.</p> <p>Key characteristics:</p> <ul style="list-style-type: none"> low and long waves; low frequency waves (6-8 waves a minute); the wash is more powerful than the backwash, depositing material on the coast. <p>Material carried by seawater is deposited on the coast when the water loses energy. More material will be deposited when there is lots of erosion (e.g. after a storm) or when there is lots of transportation.</p>

WALT 5: Explain the impact humans have had on the coastline.

How can we preserve our coasts?

The coast is one of the most **densely** settled parts of many countries. People prefer to build their houses facing the sea. But in many places the sea is continually eroding the land. Where the rocks are soft, erosion is fast, and people are often in danger of losing their homes. To **prevent** the loss of homes, sea walls and other types of **sea defences** are built.

Sea walls - A wall is built to take the full force of storm waves and protect the people living behind it. Sea walls are very expensive to build; however, they are often breached during severe weather conditions and need repairing (Dawlish, Cornwall this year).

Beach fences - These are groins often found on beaches to hold the sand in place and make the beach wider. When the beach is wide enough, even monster waves will rarely reach the land and waves will break up on the beach. Groins are much cheaper to build than sea walls, which is why they are so commonly used along the coasts where erosion is a problem.

Cliff-foot boulders – Piles of boulders are dumped at the foot of a cliff. Waves crash on the boulders and use up their energy, so there is not enough energy left for erosion. These are not popular in holiday resorts due to the size of the boulders.

Beach nourishment – when shingle and sand is added to a beach to protect it.

Coastal retreat - When land is left to be flooded by the sea.

WALT 6: Write a formal letter explaining the best way to preserve Hayling's coastline.

Come up with a plan to keep Hayling Island and its coastline sustainable for the future. You will need to research the different coastal methods/sea defences and evaluate them to decide how to protect Hayling's Coastline.

You will need to consider:

- Costs to set up ideas and costs to maintain them indefinitely
- Environmental impacts both positive and negative
- Impact on existing attractions, businesses and people
- Social trends – *will your ideas still be popular with a range of people in the future?*