



Your teacher will tell you which topic you should revise. Read and learn all the information in the topic, ready for a Quiz in lesson.

Topic 1: Geomorphic processes at the coast

Just like the geomorphic processes that we have studied in rivers, the coastline can be impacted by:

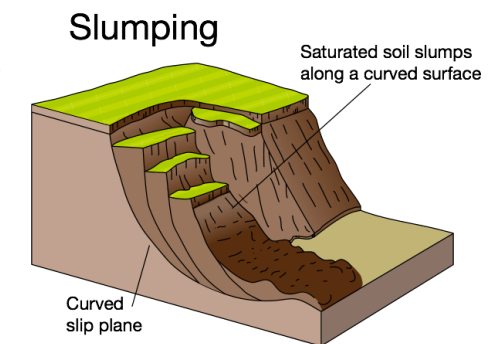
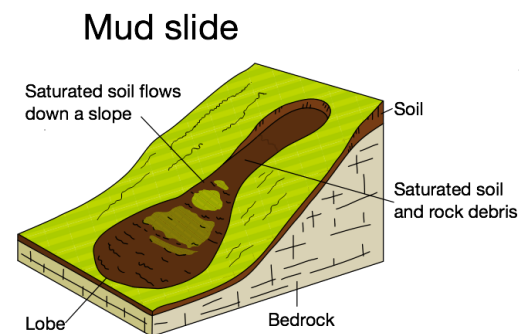
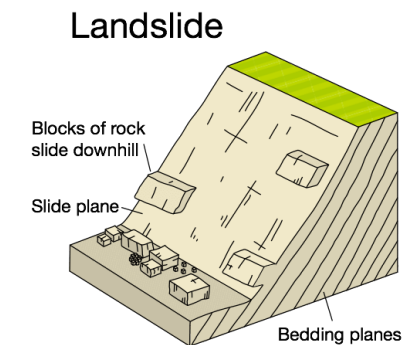
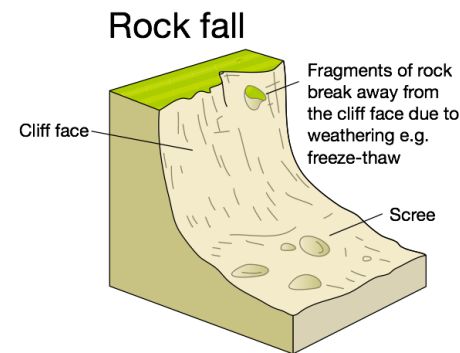
- Weathering
- Mass movement
- Erosion
- Transportation
- Deposition

Weathering

Weathering is a process that breaks down rocks at the coast. There are three types: **mechanical weathering** occurs when water gets into a crack in a rock, freezes, expands then repeats, eventually breaking the rock into pieces; **chemical weathering** occurs when slightly acidic rainwater comes into contact with rock and breaks it down by changing its chemical structure; **biological weathering** occurs through the actions of plants and animals, the roots of plants and trees can get into cracks in rocks causing them to split, this can also be done by burrowing animals and worms in the soil.

Mass movement:

Mass movement is the downhill movement of rock at the coastline, often seen with cliffs. This is known as a landslide (material falling in a straight line), slumping (material shifting with a rotation) or rock fall (the rock material breaks up and moves down the slope). Mass movement generally occurs due to gravity and weathering rather than the action of the sea.





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Topic 2: Landforms created at the coast

Erosion: Erosion is the wearing or breaking down of rock material. There are four erosion processes which are similar to those we have studied in rivers:

- Hydraulic action – the power of the wave forces water and air into cracks in the rock.
- Abrasion – the waves pick up rocks from the sea and throw them against the cliffs.
- Attrition – the sea picks up angular rocks and knocks them into each other, making them smoother and rounder.
- Solution – this is where salt or chemicals in the water dissolve the rocks.

As weathering and erosion processes shape the coast, they create landforms that are constantly evolving. These include:

- Wave-cut platforms
- Headlands and bays
- Caves, arches, stacks and stumps.

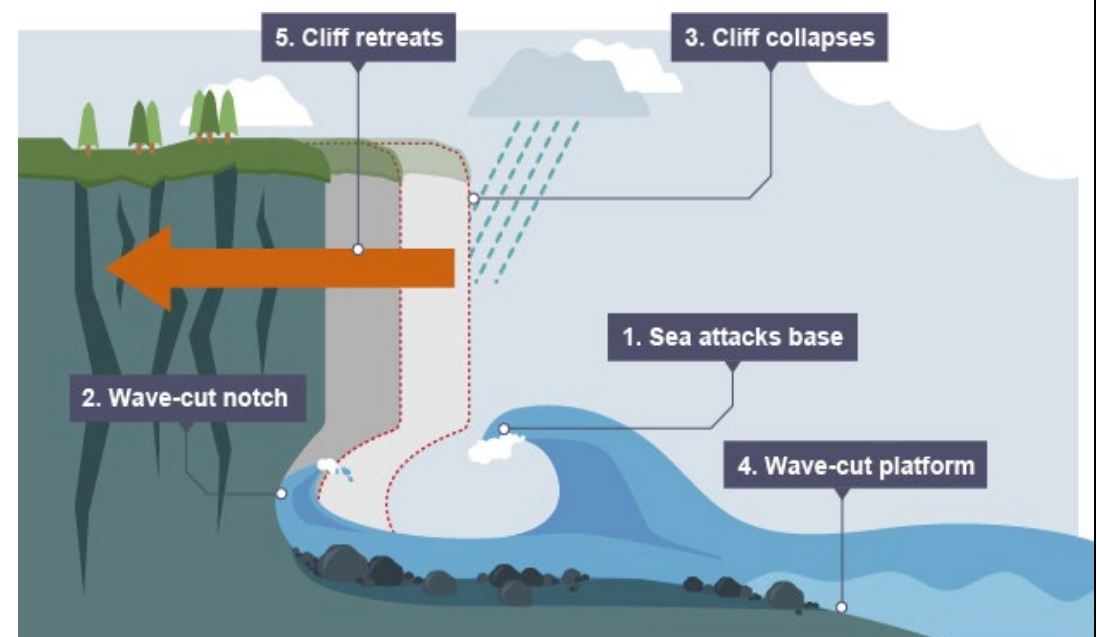
Wave-cut platforms:

Cliffs are shaped through **erosion** and weathering. Soft rock erodes quickly and forms gentle sloping cliffs, whereas hard rock is more resistant and forms steep cliffs.

A wave-cut platform is a wide gently-sloping surface found at the foot of a cliff.

A wave-cut platform is formed when the following occurs:

1. The sea attacks the base of the cliff between the high and low water mark.
2. A wave-cut notch is formed by erosional processes such as abrasion and hydraulic action - this is a dent in the cliff usually at the level of high tide.
3. As the notch increases in size, the cliff becomes unstable and collapses, leading to the retreat of the cliff face.
4. The backwash carries away the eroded material, leaving a wave-cut platform.
5. The process repeats and the cliff continues to retreat.





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Topic 3: Coastal landforms

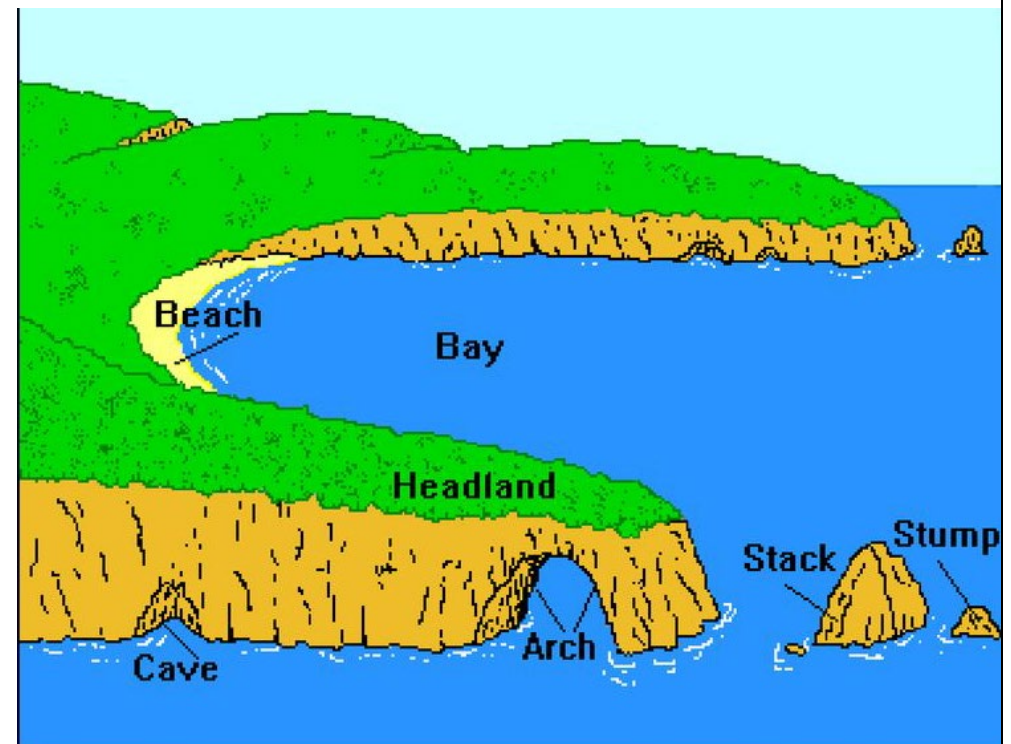
Headlands and bays:

Cliffs along the coastline do not erode at the same pace. When a stretch of coastline is formed from different types of rock, headlands and bays can form. Bands of soft rock such as clay and sand are weaker therefore they can be eroded quickly. This process forms **bays**. A bay is an inlet of the sea where the land curves inwards, usually with a beach. Hard rock such as chalk is more resistant to the processes of erosion. When the softer rock is eroded inwards, the hard rock sticks out into the sea, forming a headland.

Erosional features such as wave-cut platforms and cliffs can be found on headlands, since they are more open to the waves. Bays are more sheltered with constructive waves which deposit sediment to form a beach.

Caves, arches, stacks and stumps are erosional features that are commonly found on a **headland**.

1. **Cracks** are widened in the headland through the erosional processes of hydraulic action and abrasion.
2. As the waves continue to grind away at the crack, it begins to open up to form a **cave**.
3. The cave becomes larger and eventually breaks through the headland to form an **arch**.
4. The base of the arch continually becomes wider through further erosion, until its roof becomes too heavy and collapses into the sea. This leaves a **stack** (an isolated column of rock).
5. The stack is undercut at the base until it collapses to form a **stump**.





Vocabulary	Wider Research	Apply
<ol style="list-style-type: none"> 1. Arches 2. Bars 3. Bay 4. Beach Replenishment 5. Caves 6. Cliffs 7. Coastal engineer 8. Coastline 9. Corrosion 10. Economic 11. Environmental 12. Erosion 13. Groynes 14. Hard engineering 15. Headland 16. Hydraulic action 17. Longshore drift 18. Material 19. Pebbles 20. Revetments 21. Rock armour 22. Sea walls 23. Sediment 24. Social 25. Soft engineering 26. Spit 27. Stacks 28. Stumps 29. Sustainability 30. Wave-cut platforms 	<p>Geomorphic processes: https://www.bbc.co.uk/bitesize/guides/zshpdmn/revision/1</p> <p>Headlands and bays: https://www.internetgeography.net/topics/bays-and-headlands/</p> <p>Wave-cut platforms: https://timeforgeography.co.uk/videos_list/coasts/formation-of-a-wave-cut-platform/</p> <p>Caves, arches, stacks and stumps: https://www.bbc.co.uk/bitesize/guides/z86tk7h/revision/1</p> <p>North Norfolk case study: https://www.youtube.com/watch?v=F7xNJiU3ZgE</p> <p>Coastline management: Hard engineering – https://www.bbc.co.uk/bitesize/guides/z8kksg8/revision/1</p> <p>Soft engineering – https://www.bbc.co.uk/bitesize/guides/z8kksg8/revision/2</p>	<p>Using your wider research complete the following exam questions</p> <ol style="list-style-type: none"> 1) Explain the process of chemical weathering. [2 marks] 2) Describe the difference between constructive and destructive waves. [4 marks] 3) Explain the process of longshore drift. [4 marks] 4) Justify why deposition can lead to the formation of spits on the coastline. [4 marks] 5) Describe what will happen to a cave over time. [4 marks] 6) Explain how erosion processes can lead to the formation of new landforms at the coast. [6 marks] 7) Justify which method of coastal engineering is more effective; hard or soft engineering. [6 marks] <p>Create some revision material</p> <ul style="list-style-type: none"> • Create a series of detailed mind maps showing the different geomorphic processes that take place at the coast. • Your case study for this term is the North Norfolk coast. Conduct some research about the area and create some flashcards to show why the area is subject to lots of weathering and erosion. Draw annotated diagrams of the different landforms that are formed at the coast.