What happens where land meets the sea?

Key Words

1. Coastline – Area of land where the sea meets the shore.
2. Weathering – Process that changes the appearance of materials (e.g. rocks and cliffs).
3. Geomorphology – The shape of the landscape.
4. Geology – Type of rocks.
5. Erosion – breaking down & removal of material (e.g. rocks).
6. Subarial Erosion – weathering and movement of the top of a cliff.
7. Headland – Area of the coastline that sticks out.
8. Bay – Area of the coastline that goes inward (opposite of headland).
9. Glacial Till – soft rock which was dumped by glaciers. This rock erodes easily, usually forms bays and found in Holderness.
10 Chalk – Sedimentary rock which is quite hard, so it does not erode easily. This rock often forms headlands and can be found in Flamborough Head.
11. Transportation – Eroded material is carried away from beaches and cliffs. This process is controlled by the waves.
12. Waves – Waves are formed by the movement of wind as wind blowing over the sea surface creates friction. This pushes the water along, causing a wave to build up.
13. Tides – Tides are controlled by the moon.
Deposition – Dropping of material after it has been eroded and transported.
14. Bar – A feature formed by deposition. Longshore drift pushes material along, creating a spit that joins up two headlands.
15. Tombolo – A feature formed by deposition. A spit joins a headland.
16. Spit – A feature formed by deposition. Longshore drift pushes material out from the headland. If the wind changes direction, the spit will curve and a saltmarsh will form behind it.
Fun Fact: Beaches, Spits and Bars are used for fishing, tourism and sailing. They also form habitats for birds and seals.
17. Hard Engineering – defences made by humans (normally expensive).
18. Soft Engineering – Natural defences.

19. Coastal Positives

- 3 million people live along the coast
- Fishing
- Sea transport and ports
- Tourism

Coastal Negatives

- Risk of flooding
- Damage to houses
- Cliff collapse

20. Norfolk's Disappearing Village

- The coastline retreated by 50 meters each year.
- The 1953 North Sea floods killed 307 people.
- After the floods, flood defences were built.
- £15 million pounds of flood defences were needed.
- The UK will spend £25 billion over the next 20 years on flood defences to protect the coastline from climate change.

21. Four Types of Erosion

- Hydraulic action – The power of the wave forces water + air into cracks in the rock. This pressure makes the rock split apart. This process forms faults and notches.
- Abrasion – Waves pick up rocks and throw them against other rocks or cliffs. This process smooths rocks surfaces over time.
- Corrosion (Solution) – Salt or chemicals in water dissolve rocks. Limestone is dissolved by sea salt.
- Attrition – The sea picks up angular rocks and knocks them into each other. This makes the rocks rounder.

22. Cave, Arch, Stack, Stump

1) A fault opens in the rock
2) Hydraulic action makes the fault bigger, so it forms a notch.
3) Abrasion + hydraulic action widens the notch into a cave.
4) The erosion continues, which turns the cave into an arch.
5) The arch widens, so the roof becomes to heavy, so it collapses.
6) This forms a stack.
7) The stack will eventually collapse, leaving a stump

23. Wave-Cut Platforms

1) Erosion forms a notch at the base of the cliff.
2) Hydraulic action and attrition cause the notch to grow over time.
3) The notch makes the cliff unstable, so it collapses under gravity.
4) The process happens again which causes the cliff to retreat towards the land.

24. Destructive Waves

- Large wave height
- Lots of Energy
- Crashing Breakers
- Weak swash movement.
- Erodes the beach

25. Constructive Waves

- Small wave height
- Less energy
- Waves gently spill over
- Strong swash movement
- Builds up the beach

26. Engineering

Hard Engineering = Sea Wall:
+ Reflect wave energy + protects land.
- Unattractive + cost £5000 – 1000.
Soft Engineering = Managed Retreat:
+ Absorbs wave energy + is attractive.
- Causes farmland to be lost.
Hard Engineering = Rock Armour
+ Natural looking, breaks up wave power.
- Expensive (can cost 1 million pounds!)

27. Longshore Drift.

1) The wind pushes a wave up the beach (called the swash).
2) Material is picked up n the swash.
3) The backward movement of the sea towards the land drags and deposits material down the beach.
4) This process is called backwash.
5) The process repeats, so material is moved up and down the beach until it meets a barrier (headlands).