COASTAL PROCESSES

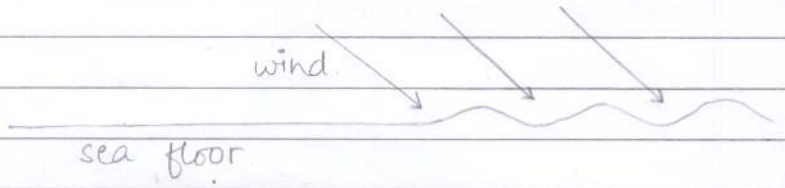
⇒ Coast is the boundry between land & sea.

⇒ Waves:

→ Waves are the agent of erosion, transportation & deposition at the coast.

→ Creation of waves:

- due to tsunami (but these waves don't cause formation of any landforms of the coast)
-

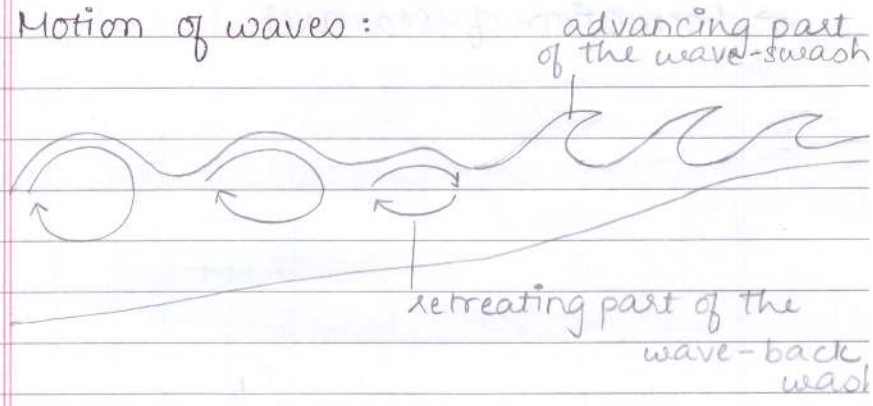


→ Waves have energy. The strength/energy of waves depends on:

- Strength of wind – The greater the strength of wind, the stronger the waves.
- Depth of water – The deeper the water, the stronger the waves.
- Direction of wind.

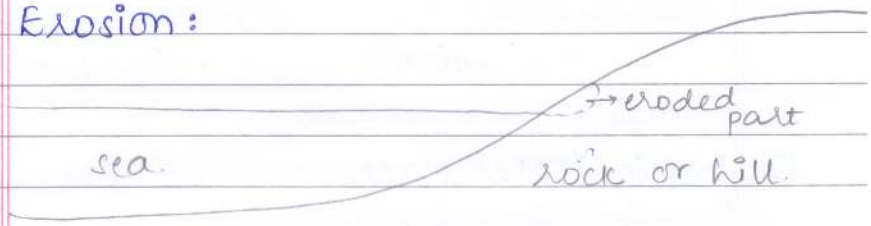
→ Fetch is the total length through which the winds are allowed to blow.

→ Motion of waves :



→ How do waves work ?

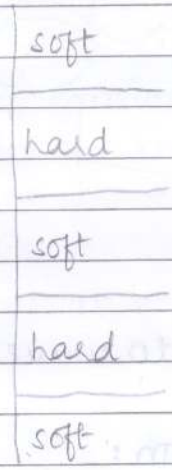
① Erosion :



② Formation of sea cave :

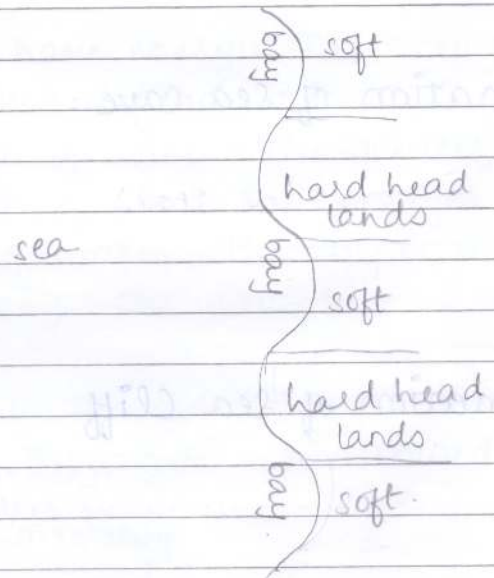
③ Formation of sea Cliff.

→ Formation of sea arch.

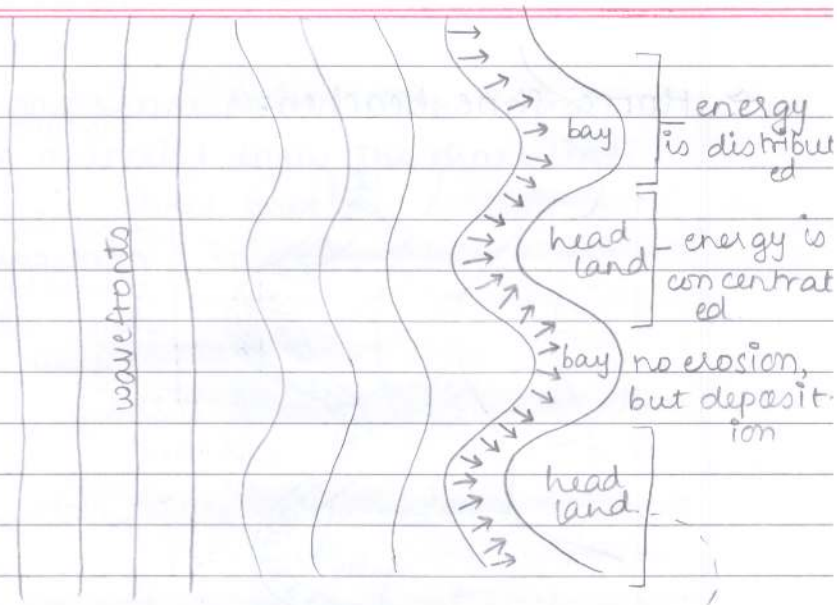
① 

• View from top

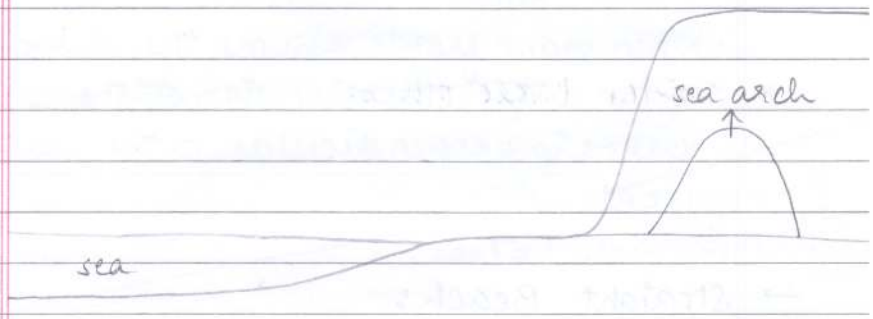
② Erosion takes place



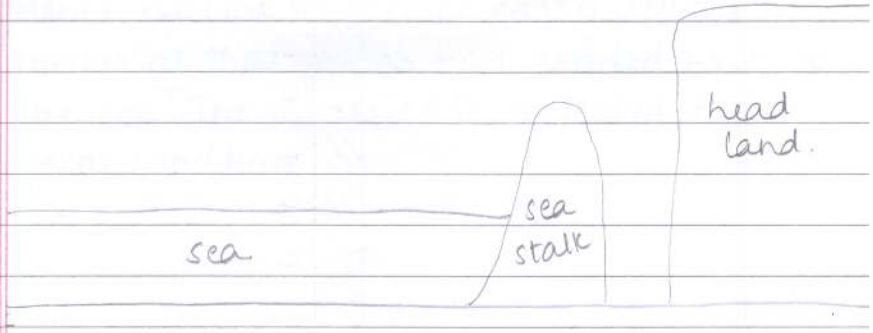
③



④

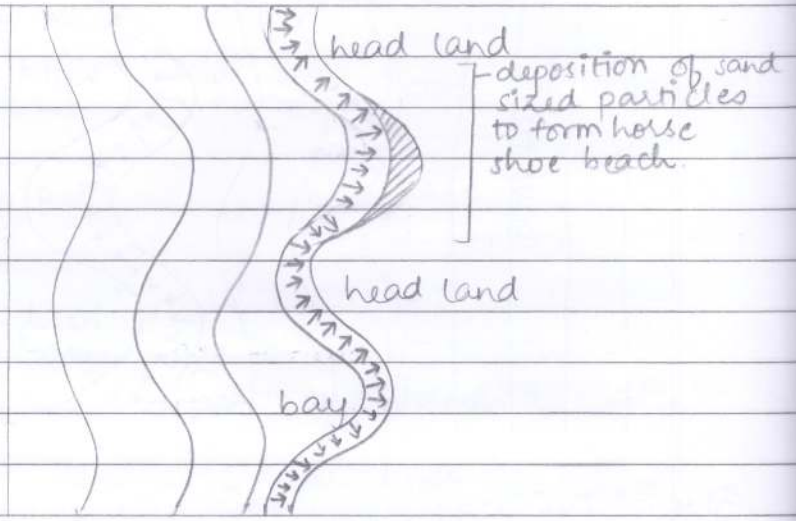


⑤ Formation of Sea Stalk.



→ Horse shoe beaches:

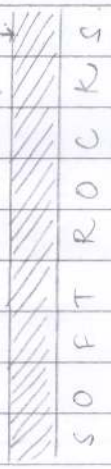
(Top view).



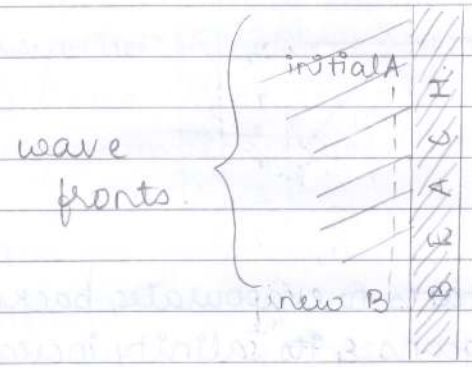
Wave Fronts

- When wave fronts assume the shape of the shore, the direction of the waves is perpendicular to the wave fronts.

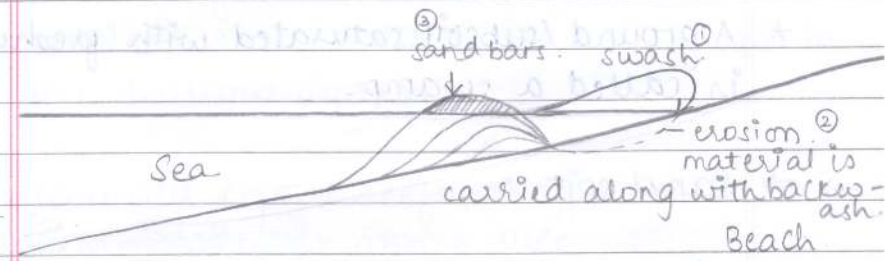
→ Straight Beach:



→ Long Shore Drift which is transportation of material down the shore line

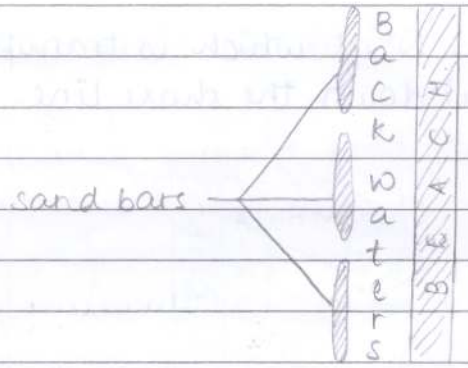


→ Backwaters, Lagoons & Marshes.



swash is more powerful than backwash. Hence, backwash cannot carry all the material that swash has eroded back to the sea. The material is collected to form sandbars.

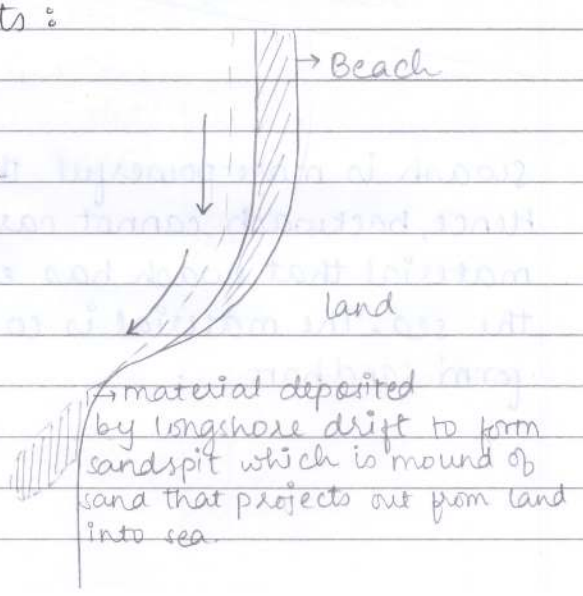
(Top view).



As water ~~starts to~~ evapourates, backwaters become lagoons & ~~its~~ the salinity of water increases. Eventually, lagoons vanish but the subsoil is saturated with salt water. This subsoil is called a marsh.

★ A ground/subsoil saturated with freshwater is called a swamp.

→ ## Sand spits :



⇒ CORAL REEFS :

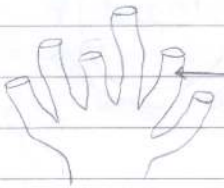
POLYP is a meat eating marine material. They live in colonies of thousands & millions. Coral reefs are made of these tiny animals - polyps, who (Individual coral is called polyp)

Each polyp is connected by living tissue to form a community. Only the top layer of a coral reef contains living polyp. As new layers of the coral reef are built, the polyps leave the lower layers.

Coral reefs are majorly found in the tropical regions. They are only found in the shallow waters.

To build coral reefs, polyps need :

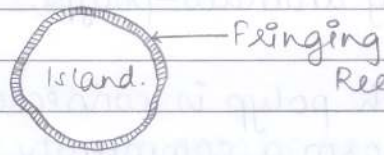
→ Temperatures above 44°C.
→ A substrate
→ Unpolluted water.
→ Sunlight throughout the years

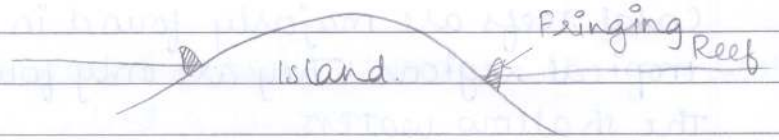


Coral reefs are made up of cup like skeletons of limestone excreted by polyp.

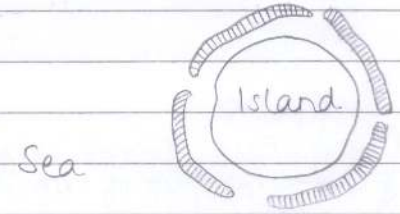
→ Coral Reefs are found in 3 forms:

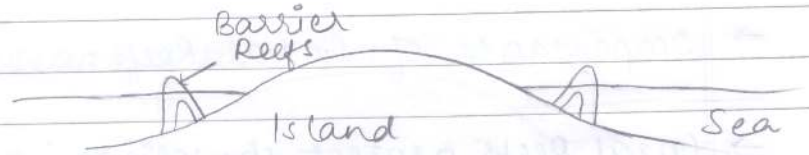
→ Fringing Reef:
Fringing Reefs grow on the shore line.



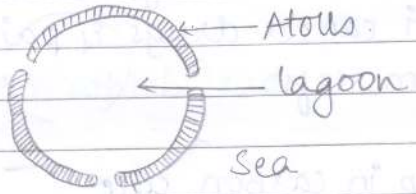


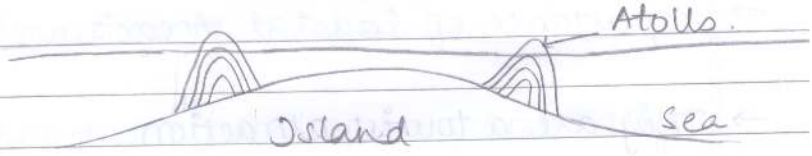
→ Barrier Reefs:
Barrier Reefs grow further from a shore line as the island sinks in the sea because of tectonic activity.





→ Atolls :
Atoll is a ring of coral surrounding a lagoon of water as the island sinks further.





→ Importance of Coral Reefs:

→ Coral Reefs protect shorelines from bigwaves by absorbing wave energy.

→ They provide a safe place for fish to

→ They provide habitats for a large variety of organisms.

→ Are a source of medication - some anti cancer drugs & pain killers come from reefs.

→ Help in carbon cycle.

→ Are a sign of good ocean water quality.

→ Are a tourist attraction.

⇒ Importance of Coastal Areas:

→ They are a tourist attraction.

→ They offer sports activities (water sports)

→ Fishing.

→ Means of transportation.

→ Oil reserves are found in continental shelfs~~.~~ ves

→ They provide coral reefs to thrive

⇒ Why are ~~coasts~~ coral reefs under threat?

→ Sewage disposal.

→ Oil Spills.

→ Urbanisation which leads to land reclanation.

→ Global Warming. (as level of sea rises, coral reefs get destroyed).

→ Over fishing.

→ Pollution of the beaches.

→ Coastal erosion & longshore drift.

→ Fertiliser used on farms washes into the ocean.

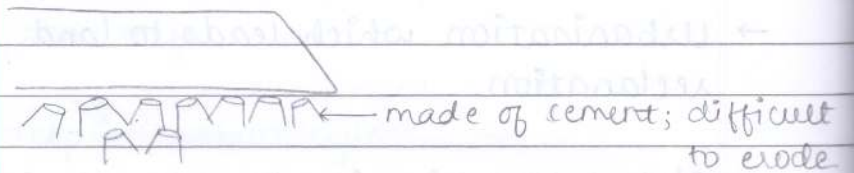
→ As CO_2 emissions increases, water of seas & oceans becomes acidic.

→ Dangerous fishing methods like cyanide or blast fishing.

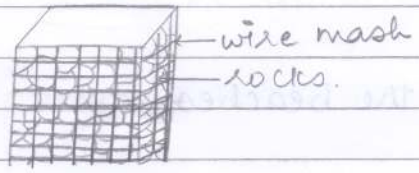
⇒ Preventing Coastal Erosion:

→ Hard Engineering:

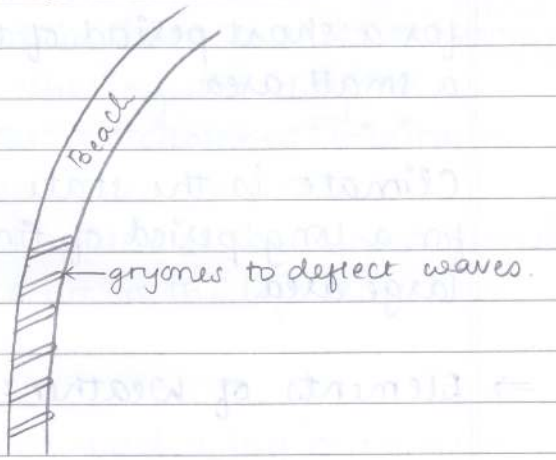
- Rip Rap.



- Gabion for rocky coasts.



- Dyke / Gryone



- Wave Breaker.

→ Soft Engineering:

- Plant mangrooves.
- Slope.