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| 1. **Types Of Waves**   Waves are created by the friction of wind on the water. There are two types:  Destructive:  Constructive:  Swash means Backwash means | 1. **Coastal Erosion Processes**   The sea (and rivers) erodes rocks and cliffs. Remember ‘HACC’:  ● Hydraulic Action: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  ● Attrition: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  ● Corrasion: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  ● Corrosion: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  The most important of these are hydraulic action and corrasion. Always mention these and describe them when explaining how coastal erosion features from |
| 1. **Coastal Transportation Processes**   The sea (and rivers) transport the pieces they have eroded:  ● Traction: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  ● Saltation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  ● Suspension: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  ● Solution: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 1. **Longshore Drift – Transportation Along The Beach**   Because of prevailing winds and waves, beach material zigzags along the beach.   1. Driven by south-westerly prevailing winds, waves strike the beach at an angle 2. The swash carries beach material up the beach at the same angle 3. But backwash carries it down at a right angle to the sea 4. The process is repeated 5. Overall, the pebbles move along the shore in a zigzag way (eastwards on the south coast |
| 1. **Coastal Erosion Features: Cliffs, Wave-Cut Notches And Wave-Cut Platforms**   On An OS Map:   1. Between the high water line and low-water, destructive waves erode\* a wave-cut notch 2. This gets deeper until the land above collapses making a cliff 3. The process repeats and gradually the cliff retreats 4. Leaving a wave-cut platform   \*erosion is due to hydraulic action and corrosion | 1. **Coastal Erosion Features: Arches, Stacks And Stumps**   On An OS Map:  E.g. Durdel Door (Arch), Old Harry (Stack)   1. Cracks form when destructive waves erode\* lines of weakness such as faults and bedding planes in a rock line like Purbeck Limestone 2. A cave forms when \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. An arch forms when \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 4. A stack forms when \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 5. A stump forms when \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   \*erosion is due to hydraulic action and corrasion |
| 1. **Coastal Deposition Features: Beaches And Bars**   Beaches form where the sea is shallow and sheltered, there are mostly constructive waves and there is a good supply of beach material. A bay is ideal. Beaches can be:  Shingle Sand  Bars are beaches that join up headlands, trapping water behind in a lagoon. Longshore drift enables bars to form. E.g. Chesil Beach and the Fleet Lagoon, Dorset | 1. **Coastal Deposition Features: Spits**   Spits are curved fingers of beach sticking out to sea. They form if: 1) the coastline bends round; 2) beach material is moving along the coast by longshore drift; and 3) the sea is shallow so the beach builds up   1. Prevailing winds and longshore drift is moving \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   1. But the coastline \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. So the beach begins to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. Secondary winds and waves \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 4. The primary winds alternate with the secondary ones forming multiple \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 5. In the sheltered water behind the spit, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 1. **Case Study For Management Of A Coastal Resort: Studland Beach, Dorset**  |  |  | | --- | --- | | ***Problems*** | ***Solutions*** | | Litter |  | | Fires And Barbecues |  | | Nudism |  | | Dune And Footpath Erosion |  | | Anchors Harming Seabed |  | | 1. **Case Study For Coastal Erosion: Barton, Hampshire**   The high rate of coastal erosion at Barton is due to:   1. *Destructive Waves*: A huge fetch (distance of open sea over which they have formed) 2. *Geology*: Sand and clay cliffs are soft anyway, but also: 3. Rainwater seeps through the permeable sand at the top; 4. But cannot get through the impermeable clay beneath; 5. So sand becomes saturated and heavy 6. So it slides off the clay in a rotational slip movement 7. *Interference*: Groynes at Highcliffe stop new beach material   Sea defences at Barton:  ● Rock Groynes that slow longshore drift and keep the beach  ● Rock Armouring that absorbs the impacts of the waves  ● Drainage Pipes dry sand, so it doesn’t get heavy and slide off |
| 1. **Geology And Differential Erosion**   Some rocks are eroded by hydraulic action and corrasion more quickly than others. This is called differential erosion.  Slow-erosion rocks can be hard igneous ones like granite, or massive sedimentary rocks like Portland Limestone which don’t have lines of weakness such as bedding planes  Fast eroding rocks can be soft sedimentary ones like clay or chalk, or non-massive ones which have lines of weakness (bedding planes), such as Purbeck Limestone  Hard Defences are unattractive, costly and work against nature  Soft Defences are attractive, cheap and work with nature | 1. **Coastal Defences**  |  |  |  |  | | --- | --- | --- | --- | |  | ***Defences*** | ***Aim*** | ***Problem?*** | | H  A  R  D | Groynes |  |  | | Sea Wall |  |  | | Gabions |  |  | | Rock Revetment/ Armouring |  |  | | S  O  F  T | Beach Replenishment |  |  | | Dune Replanting |  |  | |