AQA A-LEVEL GEOGRAPHY

3.1 Physical geography

3.1.3 COASTAL SYSTEMS AND LANDSCAPES

COASTS AS NATURAL SYSTEMS	
Systems that are classified as **Isolated, Closed and Open systems** The four major subsystems of the earth **Atmosphere, Lithosphere, Hydrosphere, Biosphere.** They are interlinked as a '**cascading system'.**	
Characteristic coastal **landscapes** are the combination of related **landforms**. Coastal environments as **open systems**. Elements of a coastal system: **Inputs**, **Components/stores**, **Transfers/flows**, **Outputs** Coastal landscapes adjust to maintain **dynamic equilibrium** through **Positive feedback** and **Negative feedback**	
The coastline is made up of zones **Backshore**, **Foreshore**, **Inshore**, **Offshore**, **Nearshore**, **Swash zone**, **Surf zone**, **Breaker zone**	
Sources of energy in a coastal: **Wind**, **Waves**, **Tides** & **Sea currents**	
Sources of sediment: **Rivers and streams reaching the coast**, **Estuaries**, **Cliff erosion**, **Offshore sand banks**, **Material from a biological origin** Features of coastal **sediment cells** – to understand these using a systems approach. The concept of the coastal sediment budget: **Positive budgets - negative budgets**	
Coastlines are affected by two main sets of geomorphological processes	
Marine processes: • **Marine erosion (Hydraulic action; Wave quarrying; abrasion/corrasion; attrition; contribution of solution/corrosion)** • **Marine transportation – traction; saltation; suspension; solution; longshore/littoral drift** • **Marine and aeolian deposition**	
Sub-aerial processes: • **Sub-aerial weathering – mechanical/physical; biological; chemical** • **Mass movement – landslides; rock falls; mudflows; rotational slip/ slumping** • **Run-off**	
COASTS AS CHARACTERISTIC LANDSCAPES	
Characteristics and the factors and processes in the development of **landscapes of coastal erosion: Cliffs and wave cut platforms, Cliff profile features – caves, arches and stacks**	
Characteristics and the factors and processes in the development of landforms and landscapes of **coastal deposition**: **Beaches**, **Simple and compound spits**, **Tombolos**, **Offshore bars**, **Barrier beaches and islands**, **Sand dunes**	
Estuarine mudflat/saltmarsh environments and associated landscapes	
The causes and impacts **of eustatic, isostatic and tectonic sea level change**, especially major changes in sea level in the last 10,000 years. landforms of coastlines of **emergence**: **Raised beaches and marine platforms and submergence**: **Rias, fjords and Dalmatian coasts**	
Understanding of the nature and causes of **recent and predicted climate change** and the potential impact on coasts.	
Students will explore the relationship between process, time, landforms and landscapes in coastal settings.	

COASTAL MANAGEMENT	
Traditional approaches to coastal flood risk and coastal erosion: **Hard engineering (sea walls; rock armour/rip rap; gabions; revetments; groynes; cliff fixing; offshore reefs; barrages)** & **Soft engineering (beach nourishment; dune regeneration; managed retreat; land-use management; "Do nothing")**	
Sustainable approaches to coastal flood risk and coastal erosion management: shoreline management plans **(SMP)** & Integrated coastal zone management **(ICZM)**	
CASE STUDIES	
CASE STUDY 1 **HOLDERNESS COAST** The coastal landscape is distinctive and is the unique combination of the processes and environmental characteristics that created it at a local scale The combination of local coastal processes and landscape features present specific challenges for sustainable management	
CASE STUDY 2 **ODISHA COAST** How the human population of the **Odisha** interacts with their coastal landscape, including: An understanding of the coastal processes that combined to create this unique coastal landscape, the challenges and risks of living in the Odisha, the opportunities offered by living in Odisha, the human response to the challenges of Odisha, Including strategies aimed at resilience, mitigation and adaptation. The potential for possible sustainable development in the future for the people of the Odisha	

QUANTITATIVE AND QUALITATIVE SKILLS

Students must engage with a range of quantitative and relevant qualitative skills, within the theme landscape systems. These should include observation skills, measurement and geospatial mapping skills and data manipulation and statistical skills applied to field measurements.

MAKING CONNECTIONS

Students must consider connections across the themes within the theme of coastal systems and landscapes, connections between this and other themes in the specification and connections with novel geographical themes beyond the specification.