Paper 1: Section C KO – 'Physical Landscapes in the UK'

The shape of river valleys changes as rivers flow downstream (CGP: pages 49-50).

1. The **long profile** and **changing cross profile** of a river and its valley.	- Upper course: narrow channel, steep valley → vertical erosion dominates - Lower course: wide channel, shallow valley → lateral erosion dominates
2. Erosion → process which erode the river bed / river banks and bedload	a. hydraulic action: sheer power of moving water b. abrasion: sandpapering of bedload c. attrition: bedload collisions in the river d.corrosion: acids dissolve alkaline minerals
3. Transportation	a. traction: coarse bedload rolls along the river bed b. saltation: pebbles /gravels skips along the river bed c. suspension: fine bedload carried by the current d. solution: alkaline minerals dissolve
4. Deposition → A decrease in energy causes deposition because	a. shallow slopes – less gravity b. low discharges in the summer – less power c. flooding on floodplains – more friction

Distinctive fluvial landforms result from different physical processes (CGP: pages 51-55).

5. **Characteristics** and **formation of landforms** resulting from erosion	Upper course: → interlocking spurs, waterfalls and gorges.
6. **Characteristics** and **formation of landforms** resulting from erosion and deposition	Middle course: → meanders and oxbow lakes
7. **Characteristics** and **formation of landforms** resulting from deposition	Lower course: → levées, flood plains and estuaries
8. An example of a **river valley in the UK** to identify its major landforms of erosion and deposition	Glen Chalmadale, Isle of Arran → interlocking spurs; meanders; floodplains.

Different management strategies protect river landscapes from effects of flooding. (CGP: pages 56-57)

9. Physical and human factors affect the flood risk.	a. precipitation: intensive and extensive rainfall. b. geology: impermeable vs permeable bedrock. c. relief: steep slopes vs gentle slopes. d. land use: urbanisation vs forestry.
10. Hydrographs show the relationship between precipitation and discharge in a river.	a. high peak discharge & a short lag time is the result of intense precipitation, impermeable bedrock, steep relief and urbanisation in a river's drainage basin. b. low peak discharge and a long lag time is the result of extensive precipitation, permeable bedrock, gentle slopes and forestry in a river's drainage basin.
11. Costs and benefits of **flood management strategies.**	a. hard engineering – dams and reservoirs, straightening, embankments, flood relief channels. b. soft engineering – flood warnings and preparation, flood plain zoning, planting trees and river restoration.
12. An example of a **flood management scheme in the UK.**	→Boscastle flash flooding, River Valency, 2004 a. why the scheme was required: 1 in 400 year flood. b. the management strategy: canalisation / restoration c i. social issues: reduced risk improves mental health c ii. economic issues: reduced risk increases tourism c iii. environmental issue: afforestation uses farmland

The coast is shaped by a number of physical processes. (CGP: pages 40-41)

13. Wave types and characteristics.	a. Constructive waves: strong swash → deposition. b. Destructive waves: strong backwash → erosion.
14. Weathering	a. mechanical: freeze thaw causes cliffs to crumble b. chemical: acids in rain attack cliffs causing collapse
15. Mass movement	a. sliding / slumping: wet sediment dragged downhill. b. rock falls: freeze thaw fractures and shatters cliffs.
16. Erosion	a. hydraulic power: waves force air into weaknesses. b. abrasion: waves launch sediment at cliffs. c. attrition: collision of sediment eroded from cliffs.
17. Transportation (longshore drift)	Prevailing wind causes longshore sediment transport through swash and backwash/
18. Deposition	Sediment is deposited in coastal areas because of a decrease in energy eg the mouth of a river.

Distinctive coastal landforms are the result of rock type, structure and physical processes. (CGP: pages 42-43)

19. Geological structure and **rock type** influence coastal land forms.	a. Hard rock: slow rates of erosion form headlands. b. Soft rock: fast rates of erosion form bays.
20. Characteristics and **formation** of landforms resulting from erosion.	a. Headlands & bays: differential rates of erosion. b. Cliffs & wave cut platforms: located at headlands. c. Caves: wave attack focused on headlands. d. Arches: 2 caves on a headland erode back to back. e. Stacks: weathering causes arches roof to collapse.
21. Characteristics and **formation** of landforms resulting from deposition.	a. Beaches: shingle vs sandy beaches formed by destructive and constructive waves. b. Sand dunes: longshore drift and aeolian sand build barriers which develop as vegetation colonises. c. Spits: formed at the junction of a low energy river and a high energy sea. d. Bars: spits keep on growing across and cut off bays - rivers don't have the energy to erode the spit.
22. An example of a **section of coastline in the UK** →West Coast, Isle of Arran, Scotland	a. Landforms of erosion: headlands, caves and arches in / on sandstone cliffs. b. Landforms of deposition: sandy beaches in sheltered bays.

Different management strategies can be used to protect coastlines from the effects of physical processes. (CGP: pages 45-77)

23. The costs and benefits of the following **management strategies:**	a. hard engineering – sea walls, rock armour, gabions and groynes. b. soft engineering – beach nourishment & reprofiling, dune regeneration. c. managed retreat – coastal realignment.
24. An example of a **coastal management scheme in the UK**	→Holderness coast - erosion, East Riding Yorkshire a. the reasons for management: 10m erosion / year b. management strategy: hard engineering c effects / conflicts: farmers and caravan/camp sites