

PiXL Independence:

Geography – Student Booklet

KS5

AQA Style, Coastal Systems and Landscapes

Contents:

- I. Multiple Choice Questions – 10 credits
- II. Short Answer Questions – 10 credits each
- III. Annotation – 30 credits each
- IV. Suggested Reading/Watching – 50 credits each
- V. Long Answer Questions – 100 credits and 20 credits for marking your own
- VI. Synoptic Thinking – 30 credits each

I. Multiple Choice Questions

1. What is a coastal system?
 - a. The coastal system is an example of a closed system.
 - b. The coastal system is an example of an Open system.
 - c. The coastal system is a dynamic system.

2. Input in to the coastal system is defined as....
 - a. Material or energy moving out of the system to the outside.
 - b. Material or energy moving through the system.
 - c. Material or energy moving into the system from the outside.

3. What is a sediment cell?
 - a. A sediment cell is a way of describing sediment movement from a source, through various transfers to an output
 - b. A sediment cell is a way of describing how sediment is moved along the coast by the prevailing wind.
 - c. A sediment cell is a way of describing how landforms within an area are created by deposition.

4. What is dynamic equilibrium?
 - a. A state of imbalance where inputs are bigger than outputs in a system that is continually changing.
 - b. A state of balance where inputs equal outputs in a system that is continually changing.
 - c. A state of balance where inputs equal outputs in a system that is then not changing.

5. The amount of energy in a wave will be dependent on –
 - a. The strength of the wind, the duration it blows for, the length of the fetch.
 - b. The strength of the wind and the length of the fetch.
 - c. The strength of the wind, the duration it blows for, the height of the fetch

6. Destructive waves characteristics are –

- a. High, plunging waves that have a long wave length, strong swash, strong backwash, and they erode the coastline
- b. Low gentle waves that have a short wave length, weak swash, strong backwash, and they deposit on to the coastline.
- c. High, plunging waves that have a short-wave length, weak swash, strong backwash, and they erode the coastline

7. Tides exist because of the –

- a. Gravitational pull of the moon on the sea water.
- b. Gravitational pull of the moon and sun on the sea water.
- c. Gravitational pull of the moon and sun on earth.

8. A rip current is created because –

- a. There is a build-up of water due to waves at the top of the beach trying to return to the sea.
- b. The tides have moved water into and out of a bay.
- c. The water needs to move due to the force of gravity towards the headlands in a bay.

9. What is a high-energy coastline?

- a. Coastline dominated by rocky landscapes with depositional landforms.
- b. Coastline dominated by sandy and estuarine landscapes with depositional landforms.
- c. Coastline dominated by rocky landscapes with erosional landforms.

10. Wave refraction is when –

- a. Wave energy is concentrated on the headland and dissipated in the bays.
- b. Wave energy is dissipated on the headlands and concentrated on the bays.
- c. Wave energy is lost and a wave cut platform is created.
- d. Describe and explain sediment sources, cells and budgets.

11. The main sources of sediment in the sediment cell are –

- a. Sea bed, beach, rivers, animals, humans, water.
- b. Rivers, cliff erosion, longshore drift, wind, glaciers, off shore.
- c. Dredging, fishing, dune buggy racing.

12. Mechanical weathering is –

- a. The breakdown of rock without any chemical changes taking place (e.g. Freeze thaw).
- b. The breakdown of rock by organic activity (e.g. plant roots breaking up rock).
- c. The breakdown of rock involving a chemical reaction (e.g. Solution).

13. Biological weathering is –

- a. The breakdown of rock without any chemical changes taking place (e.g. Freeze thaw).
- b. The breakdown of rock by organic activity (e.g. plant roots breaking up rock).
- c. The breakdown of rock involving a chemical reaction (e.g. Solution).

14. Chemical weathering is –

- a. The breakdown of rock without any chemical changes taking place (e.g. Freeze thaw).
- b. The breakdown of rock by organic activity (e.g. plant roots breaking up rock).
- c. The breakdown of rock involving a chemical reaction (e.g. Solution).

15. Mass movement is –

- a. The downhill movement of material under the influence of erosion.
- b. The downhill movement of material under the influence of gravity.
- c. The downhill movement of material under the influence of destructive waves

16. Slumping (land slips) are –

- a. A block of rock running very rapidly downhill along a planar surface (slide plane).
- b. The sudden collapse or breaking away of rock fragments on a cliff face.
- c. A whole segment of the cliff moving down-slope along a saturated shear-plane in a curved rather than straight shape.

17. Landslides are –

- a. A block of rock running very rapidly downhill along a planar surface (slide plane).
- b. The sudden collapse or breaking away of rock fragments on a cliff face.
- c. A whole segment of the cliff moving down-slope along a saturated shear-plane in a curved rather than straight shape.

18. Coastal erosion is –

- a. Where people walk on the cliff edge and the footpaths erode away.
- b. The wearing away of land and the removal of beach or dune sediments by wave action, tidal currents, wave currents, drainage or high winds.
- c. When rocks gradually wear away. There are three types physical, chemical, biological erosion.

19. Hydraulic action is –

- a. When the headlands with vertical cliffs concentrate erosive energy by wave refraction.
- b. When rocks and boulders that have already been eroded from the cliffs are broken down into smaller rounder particles.
- c. When air may become trapped in joints and cracks on a cliff face. When a wave breaks, the trapped air is compressed which weakens the cliff and causes erosion.

20. Wave Refraction is –

- a. When the headlands with vertical cliffs concentrate erosive energy on the cliffs and away from the bays.
- b. When rocks and boulders that have already been eroded from the cliffs are broken down into smaller rounder particles.
- c. When air may become trapped in joints and cracks on a cliff face. When a wave breaks, the trapped air is compressed which weakens the cliff and causes erosion.

21. Solution is –

- a. When rocks and boulders that have already been eroded from the cliffs are broken down into smaller rounder particles.
- b. The wearing away of cliffs by large boulders like when they are hurled against them by waves. This is the most effective method of erosion.
- c. The dissolving of the limestone or other rock types by the carbonic acid in the seawater.

22. Solution, saltation, suspension and tractions are all –

- a. Processes of transportation
- b. Processes of erosion
- c. Processes of deposition
- d. Processes of weathering

23. Why does deposition take place?

- a. When the sediment load exceeds the ability of the water to carry it.
- b. When a larger input of energy enters the system.
- c. When backwash is greater than swash
- d. When erosion of the coast increases due to geology.

24. What type of land form is this?

- a. Erosional
- b. Depositional
- c. Mass movement
- d. Fluvial



25. What is the name given to this land form?

- a. Spit
- b. Bar
- c. Arch
- d. Stack

26. What type of coastline is needed for headlands and bays to form?

- a. High energy
- b. Low energy
- c. Concordant
- d. Dis-concordant

27. Which of the following land forms are created by deposition?

- a. Stump
- b. Stack
- c. Beach
- d. Cliff

28. Isostatic sea level change is –

- a. Sea level change which is caused by the vertical movement of the land relative to the sea.
- b. Sea level change which is caused by the volume of water changing.
- c. Sea level change which is caused by climate change.
- d. Sea level change by the melting of ice at the poles and the Greenland ice sheet.

29. Fjords and Rias are all landforms created by ...

- a. Erosion
- b. Sea level rise
- c. Sea level fall
- d. Deposition

30. Which two of the following are types of hard engineering?

- a. Creation of marshland
- b. Break waters
- c. Earth bank
- d. Coastal realignment

31. What is the aim of coastal management?

- a. To protect homes
- b. To protect business
- c. To protect the environment
- d. All of the above

II. Short Answer Questions

Answers should be written in full sentences and use geographical terminology and good spelling, punctuation and grammar.

1. Describe the coastal system.
2. Explain how wind effects the inputs into a system.
3. Outline the inputs of a coastal system.
4. Describe constructive waves.
5. Explain the reasons for waves being destructive.
6. Outline how waves can erode the coastline.
7. Describe the 4 main processes of transportation.
8. Explain the process of littoral drift.
9. Outline the reasons why deposition takes place on the coast.
10. Describe the 4 main processes of wreathing along the coastline.
11. Explain the reasons mass movement occurs at the coastline.
12. Outline what landscape you would expect to see on a high energy coastline.
13. Describe land forms of erosion.
14. Explain why headlands and bays are formed.
15. Outline what coastal landscape you would expect to see on a low energy coastline.
16. Describe landforms of deposition.
17. Explain how bars, tombolos and spits are formed.
18. Outline the process of a sand dune succession.

19. Describe the formation of mudflats and saltmarshes.
20. Explain the difference between eustatic and isostatic sea level change.
21. Outline the reasons for eustatic sea level change.
22. Describe how sea levels have risen in the last 10,000 years.
23. Explain how climate change has caused sea level changes.
24. Outline the difference between hard engineering and soft engineering.
25. Describe how management strategies can be sustainable.
26. Explain why coastal management schemes face challenges from different stake holders.
27. Outline the impacts of coastal erosion on an area you have studied.

III. Annotation

Study the images and identify evidence, then explain that evidence.

Annotate is more than just label. You need to identify and then develop this further with an explanation as to why what you have pointed to is relevant to the question asked.

Study the image of Cromer, a seaside town in Norfolk, England. Annotate the image to show the coastal management being used in Cromer and explain how it works and why it might be used in this location.



Study the image of the cliffs at Sidmouth in Dorset, England. Annotate the image to explain how this coastal landscape could be susceptible to coastal erosion and how this shapes the coastal landscape.



Study the image of the Twelve Apostles in Victoria, Australia. Annotate the image to identify the different coastal land forms and explain their formation.



IV. Suggested Reading/Watching

1. Costal management details from Dover county council
<https://www.dover.gov.uk/Environment/Coast--Rivers/Coast--Rivers.aspx>
2. Flood and coastal risk management strategy for England
<https://www.gov.uk/government/collections/flood-and-coastal-risk-management-strategy-for-england>
3. Interactive map of coastal map of the UK coastline.
<https://www.gov.uk/check-plans-to-stop-coastal-erosion-in-your-area>
4. Details of current schemes and strategies for coastal erosion risk management
<https://www.gov.uk/government/collections/flood-risk-management-current-schemes-and-strategies>
5. Links to all the shoreline management plans in England and Wales
<https://www.gov.uk/government/publications/shoreline-management-plans-smps>
6. Coastal management due to sea level rise in Eurobodalla Australia.
<http://www.naroomanewsonline.com.au/story/4956562/coastal-hazard-info-sessions-after-new-maps-predict-widespread-inundation/>
7. Coastal wetlands dramatically reduce property losses during hurricanes
<https://news.ucsc.edu/2017/08/coastal-wetlands.html>
8. TED talk - The Sea Also Rises: Prepare for a Changing Shoreline
https://www.youtube.com/watch?v=pKyK_YpGdn8
9. TED talk - Sea level rise - fact & fiction
<https://www.youtube.com/watch?v=TH8Q8Ki9fCA>
10. TED Talk - Brazil, Coastal Erosion, Sustainable Development
<https://www.youtube.com/watch?v=Vj3gCWmJSiE&t=7s>
11. What is coastal erosion?
https://www.youtube.com/watch?v=zUh3WeilFN4&list=PLnZ7BK9X_VPtclxCxwoUR_5iwWRxuGHA

V. Long Answer Questions

All answers should be written in full sentences and use geographical terminology.

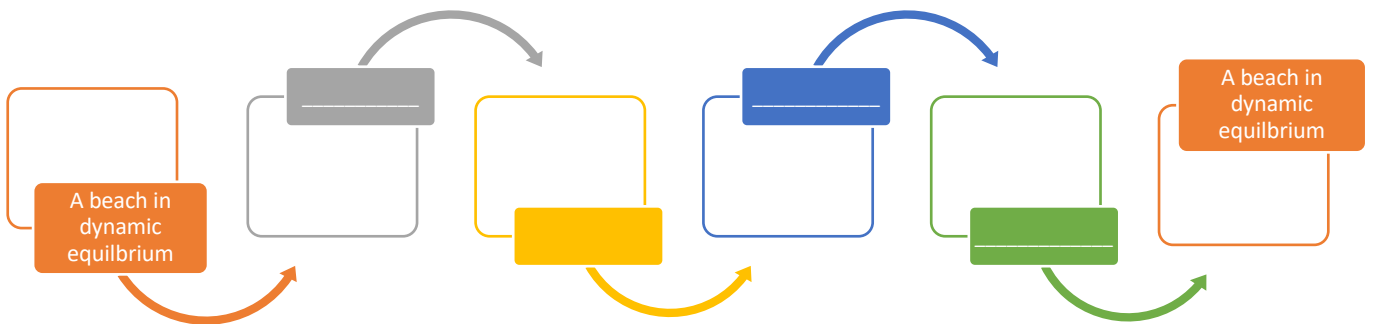
Your answer should be approx. 1000 words long and have a clear structure. Make sure for each point you make you have thought of P.E.E.L. (Point, Evidence, Explanation and Link). Make sure you have used real life examples which in turn have good detail as evidence to back up your points.

1. Using examples, suggest the reasons why some coastal areas choose to “hold the line” while others choose to not.
2. Analyse the reasons why some coastal landscapes are more susceptible to coastal erosion than others.
3. Using examples discuss how coastlines can create both opportunities and risks.
4. Examine the roles of wind, waves and geology in shaping the coastal landscape.
5. Using example/s you have studied evaluate how engineering has been used to manage the coastline.
6. Assess the impacts sea level rise could have on coastal regions.
7. To what extent can coastline management can be sustainable?
8. Coastal management will never be sustainable as we can't fully control sea level rise. Do you agree with this statement? Justify your reasons.
9. Examine the reasons for sea level change and explain the impact this will have on the coastal landscape.
10. “Coastal erosion is the main process that shapes our coastal landscape.” Discuss this statement.

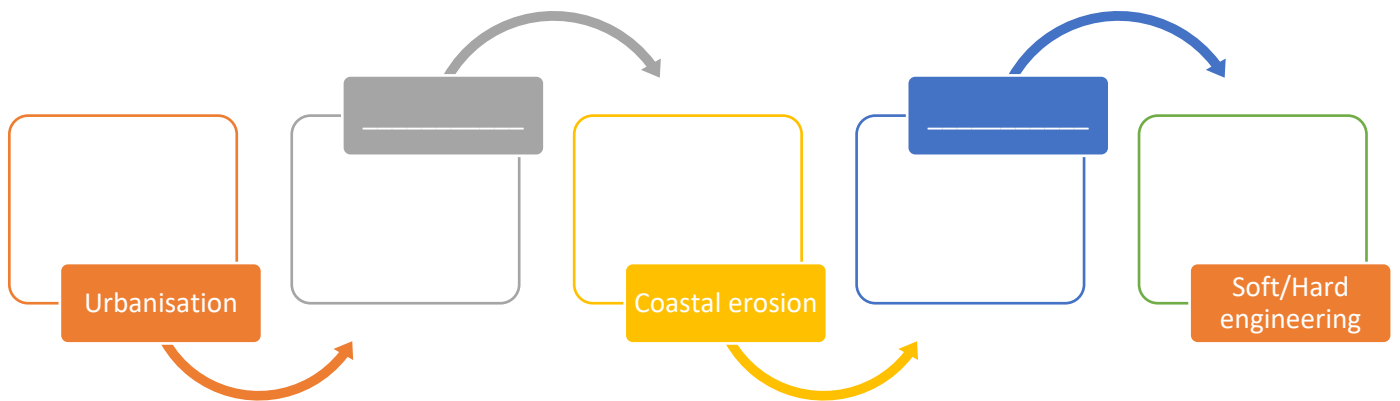
VI. Synoptic Thinking

Can you find the processes, interactions, links that connect the top and the bottom of the chain?

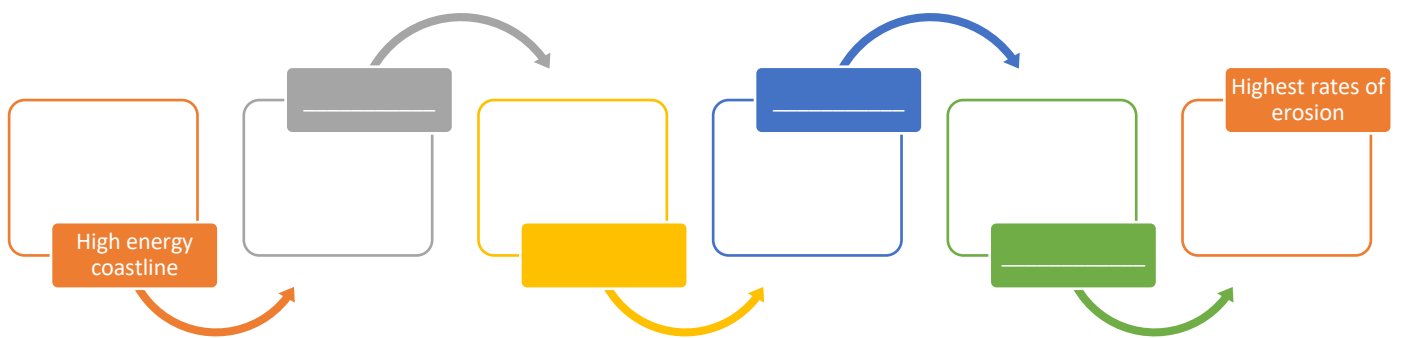
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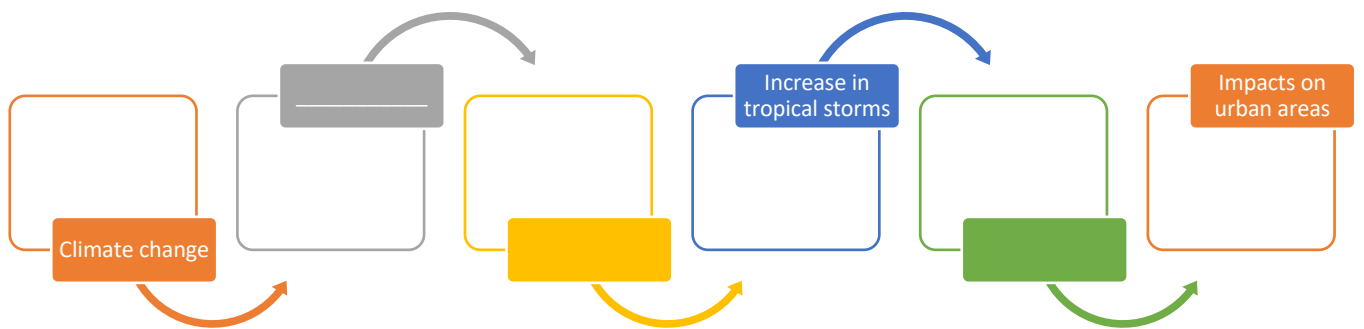
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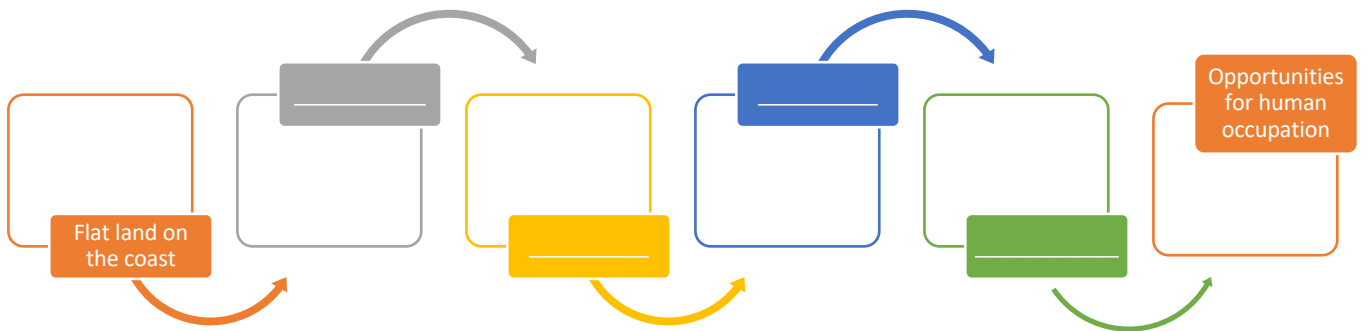
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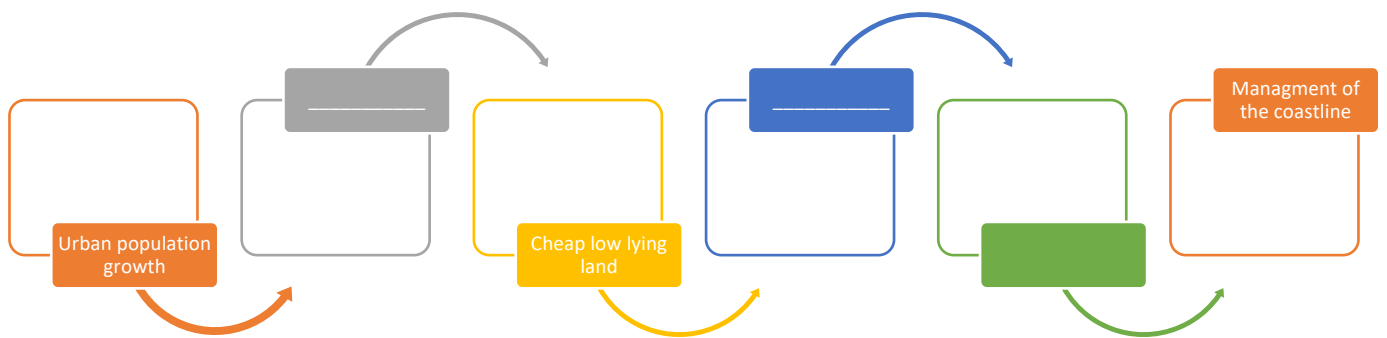
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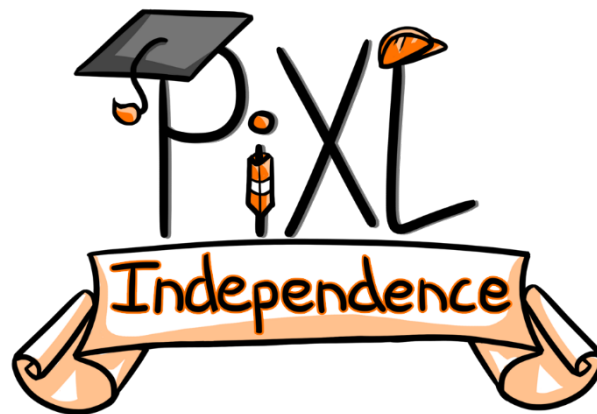


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