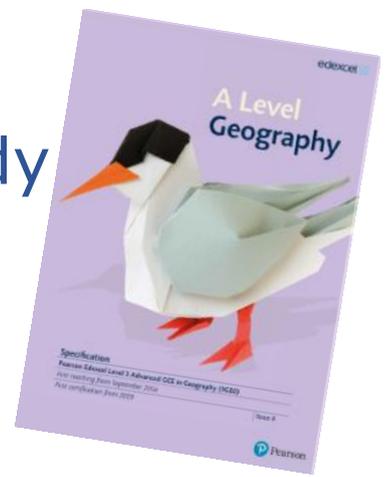
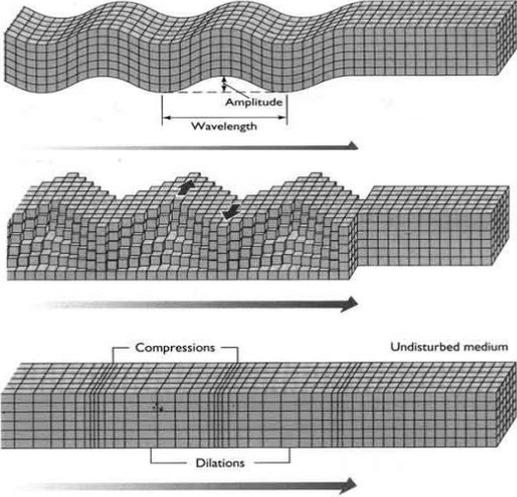


Geography Independent study Tasks (physical)



Tectonic Processes and Hazards

EQ1.	
Spec detail	Suggested activities
<p>1.1</p> <p>The global distribution of tectonic hazards can be explained by plate boundary and other tectonic processes.</p> <p>a. The global distribution and causes of earthquakes, volcanic eruptions and tsunamis.</p> <p>b. The distribution of plate boundaries resulting from divergent, convergent and conservative plate movements (oceanic, continental and combined situations).</p> <p>c. The causes of intra-plate earthquakes, and volcanoes associated with hot spots from mantle plumes.</p>	<ul style="list-style-type: none"> Visit the USGS website https://www.usgs.gov/ <ul style="list-style-type: none"> See if you can identify types of margin on the live mapping system. What are the characteristics of the different plate margins that you can see (zoom in!!) Identify recent tectonic activity – look up on the news to see the scale of the event and take some facts from this.
<p>1.2</p> <p>There are theoretical frameworks that attempt to explain plate movements.</p> <p>a. The theory of plate tectonics and its key elements (the earth's internal structure, mantle convection, palaeomagnetism and sea floor spreading, subduction and slab pull).</p> <p>b. The operation of these processes at different plate margins (destructive, constructive, collision and transform).</p> <p>c. Physical processes impact on the magnitude and type of volcanic</p>	<ul style="list-style-type: none"> Watch the following clip to consolidate class work on tectonic theories: https://www.youtube.com/watch?v=nCIROpZuqck Use the clip to explain what Palaeomagnetism is and why it's important https://www.youtube.com/watch?v=k0tnqPmwWvk

<p>eruption, and earthquake magnitude and focal depth (Benioff zone).</p>	
<p>1.3</p> <p>Physical processes explain the causes of tectonic hazards.</p> <p>a. Earthquake waves (P, S and L waves) cause crustal fracturing, ground shaking and secondary hazards (liquefaction and landslides).</p> <p>b. Volcanoes cause lava flows, pyroclastic flows, ash falls, gas eruptions, and secondary hazards (lahars, jökulhlaups).</p> <p>c. Tsunamis can be caused by submarine earthquakes at subduction zones as a result of sea-bed and water column displacement. (3)</p>	<ul style="list-style-type: none"> IDENTIFY EACH WAVE & MATCH THE CHARACTERISTICS (below) TO THE CORRECT DIAGRAM  <p>Able to travel through both solid rock and liquid material</p> <p>Fastest wave</p> <p>Cannot travel through a liquid</p> <p>Material moves parallel to direction of wave</p> <p>A transverse wave</p> <p>Causes the most damage</p> <p>A longitudinal (compression) wave</p> <p>Hits first</p> <p>Hits last</p> <p>Has the most complex motion</p> <p>Material moves perpendicular to direction of the wave</p> <ul style="list-style-type: none"> http://www.bbc.co.uk/science/earth/natural_disasters/tsunami#p00hs2py <p>- Watch this clip and make a case study flashcard on the Boxing Day tsunami to use as an example</p>
<p>EQ2</p>	
<p>1.4</p> <p>Disaster occurrence can be explained by the relationship between hazards, vulnerability, resilience and disaster.</p>	<ul style="list-style-type: none"> What is the difference between a Natural HAZARD and a natural DISASTER? Fill in the missing words...

- a. Definition of a natural hazard and a disaster, the importance of vulnerability and a community's threshold for resilience, the hazard risk equation.
- b. The Pressure and Release model (PAR) and the complex inter-relationships between the hazard and its wider context.
- c. The social and economic impacts of tectonic hazards (volcanic eruptions, earthquakes and tsunamis) on the people, economy and environment of contrasting locations in the developed, emerging and developing world.

A **natural** is a of a naturally occurring event that will have a negative effect on When the hazardous threat actually happens and humans, we call the event a **natural**

Threat.	Hazard.	Harms.
Disaster.	Humans.	

THE DISASTER RISK EQUATION

$$\text{Risk [R]} = \frac{\text{Hazard [H]} \times \text{Vulnerability [V]}}{\text{Capacity to cope [C]}}$$

The risk of a disaster increases as the frequency or severity of hazards increases, people's vulnerability increases and people's capacity to cope (ability to cope with the consequences) is decreased.

- Watch this video from 7:15 and take notes on what the lecturer says to help you remember the PAR Model easily.

Link: [PAR MODEL](#)

1.5

Tectonic hazard profiles are important to an understanding of contrasting hazard impacts, vulnerability and resilience.

- a) The magnitude and intensity of tectonic hazards is measured using different scales (Mercalli, Moment Magnitude Scale (MMS) and Volcanic Explosivity Index (VEI)).
- b) Comparing the characteristics of earthquakes, volcanoes and tsunamis (magnitude, speed of onset and areal extent, duration, frequency, spatial predictability) through hazard profiles.
- c) Profiles of earthquake, volcano and tsunami events showing the severity of social and economic impact in developed, emerging and developing countries. (4)

Task

- <https://geology.com/stories/13/volcanic-explosivity-index/>
Read this page and create a mind map on the topic using the detail on the website. Also use some of the case studies given and expand on one.
- http://ete.cet.edu/gcc/?/volcanoes_explosivity/
Use this website to copy 3 of the volcano examples on the table. Only write down the VEI, the eruption classification, the description of the volcano and examples.
- <https://sites.google.com/site/cahazardprofilemitigationplan/about-us>
Read this website and either copy or print out the hazard profile on the right hand side. Make a small case study on California's own hazard profile and how they use it.
- <https://handygeography.wordpress.com/gcse/the-restless-earth-revision-materials/earthquake-case-study-haiti-poor/>
- <https://handygeography.wordpress.com/gcse/the-restless-earth-revision-materials/volcano-case-study-mt-merapi/>

	<ul style="list-style-type: none"> • https://handygeography.wordpress.com/gcse/the-restless-earth-revision-materials/tsunami-case-study-japan/ Print out the table of effects and highlight the social and economic impacts for developing, emerging and developed countries.
<p>1.6</p> <p>Inequality of access to education, housing, healthcare and income opportunities can influence vulnerability and resilience.</p> <p>a. Governance (P: local and national government) and geographical factors (population density, isolation/accessibility, degree of urbanisation) influence vulnerability and a community's resilience.</p> <p>b. Contrasting hazard events in developed, emerging and developing countries to show the interaction of physical factors and the significance of context in influencing the scale of disaster. (5)</p>	<ul style="list-style-type: none"> • What are the definition of resilience and vulnerability? <p>Draw a spider diagram of the different educational awareness schemes provided by various countries e.g. Disaster Prevention day in Japan. Repeat for housing, healthcare and income. Include case studies such as Japan, Indian Ocean, China</p> <ul style="list-style-type: none"> • https://www.education.psu.edu/geog30/node/379 • Read the Human Factors information on this website. Summarise wealth and education. <ul style="list-style-type: none"> - For governance summarise and include the Haiti case study. • Make case study flash cards for good governance from a national government e.g. Japan 2011 tsunami and poor governance e.g. China Sichuan 2008 with poor local government's preventing foreign aid efforts. • Developed: Tohoku Tsunami 2011 Japan • https://www.livescience.com/39110-japan-2011-earthquake-tsunami-facts.html • Highlight key facts and action taken. Think about how significant the type/scale of the hazard was and why that influenced the impacts. • Emerging: China Sichuan 2008 Earthquake • https://www.britannica.com/event/Sichuan-earthquake-of-2008 • Why was the earthquake so devastating? Was the local governments as efficient as the central government? • Think about how geographic location (mountainous regions) added to the impacts. • Developing: Indian Ocean Tsunami 2004 https://m.youtube.com/watch?v=TkiBHX58J4I • Watch video and make a mind map on social, economic and environmental impacts including key facts and numbers. Also include responses.
EQ3	

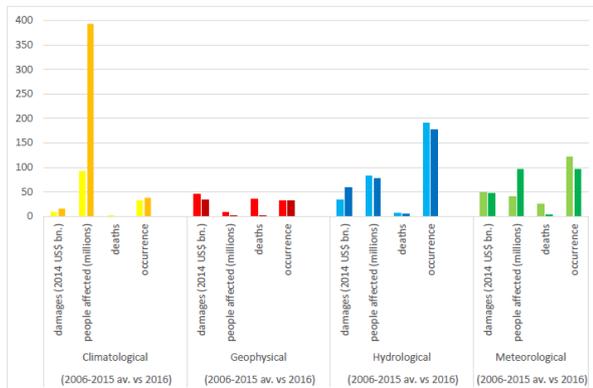
1.7

Understanding the complex trends and patterns for tectonic disasters helps explain differential impacts.

- a. Tectonic disaster trends since 1960 (number of deaths, numbers affected, level of economic damage) in the context of overall disaster trends. (6); research into the accuracy and reliability of the data to interpret complex trends.
- b. Tectonic mega-disasters can have regional or even global significance in terms of economic and human impacts. (□ 2004 Asian tsunami, 2010 Eyafjallajokull eruption in Iceland (global interdependence) and 2011 Japanese tsunami (energy policy))
- c. The concept of a multiple-hazard zone and how linked hydrometeorological hazards sometimes contribute to a tectonic disaster (the Philippines)

- Use the graph from EM-DAT to look at how tectonic disasters in 2016 compare to the averages from 2006-2015 and then assess how accurate/reliable the data is

Figure 6 – Natural disasters impact by disaster sub-group: 2016 vs 2006-2015 annual average



- <http://www.acegeography.com/volcano-case-studies.html>
Use this link to find a case study on the Eyafjallajokull eruption and then describe how the eruption had impacts on both a national and global scale.
- https://youtu.be/nzo5hOE_eHM
Watch this video and identify the reasons that the Philippines is a multiple-hazard zone, and the different types of hazards/disasters that happen there

1.8

Theoretical frameworks can be used to understand the predication, impact and management of tectonic hazards.

- a. Prediction and forecasting (**P: role of scientists**) accuracy depend on the type and location of the tectonic hazard.
- b. The importance of different stages in the hazard management cycle (response, recovery, mitigation, preparedness). (**P: role of emergency planners**)
- c. Use of Park’s Model to compare the response curve of hazard events, comparing areas at different stages of development.

- A. look at this article of information:
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5020329/>
1. Read this article of information and then draw your own Diagrams attached with a small box of notes.
- B. Visit this clip:
<https://www.youtube.com/watch?v=xYSH-95VILc>
1. Visit this clip, watch the information provided about the different stages Of the hazard management cycle.
- C. Visit this image:
https://www.google.co.uk/search?safe=active&biw=1366&bih=674&tbm=isch&sa=1&ei=bfiYW9HnOMzxkwWTtaewAQ&q=parks+model+geography+tectonic+hazards+&oq=parks+model+geography+tectonic+hazards+&gs_l=img.3...28404.28404..28706..0.0..0.0.0.....0.....1..gws-wiz-

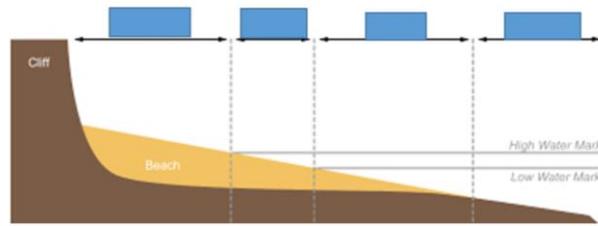
	<p>img.9eRHzyetyvA#imgrc=g5tPN0F5njMS5M:&spf=1536751756868</p> <ol style="list-style-type: none"> 1. Look at the image of the parks model, try and remember the Different key words at the different stages. 2. After, cover up the key words and see if you can remember the Different parts of the model. <p>2. Once you have watched the clip, from memory recreate the hazard management cycle and label the importance of each stage.</p>
<p>1.9</p> <p>Tectonic hazard impacts can be managed by a variety of mitigation and adaptation strategies, which vary in their effectiveness.</p> <ol style="list-style-type: none"> a. Strategies to modify the event include land-use zoning, hazard-resistant design and engineering defences as well as diversion of lava flows. b. Strategies to modify vulnerability and resilience include hi-tech monitoring, prediction, education, community preparedness and adaption. <p>Strategies to modify loss include emergency, short and longer term aid and insurance and the actions of affected communities themselves.</p>	<p>Fill in the blanks:</p> <p>Hazard mitigation- strategies meant to a....., d..... or p..... hazard events. For example- L..... Z....., d..... l..... f....., G..... m..... and h.....r..... d.....</p> <p>Hazard adaptation- strategies designed to r..... the i..... of hazard events. For example- H.....-tech m....., C..... m....., p..... e..... and C..... p.....</p> <p>Answers:</p> <p>Hazard mitigation- strategies meant to avoid, delay or prevent hazard events. For example- Land-use mapping, diverting lava flows, GIS mapping and hazard-resistant design.</p> <p>Hazard adaptation- strategies designed to reduce the impacts of hazard events. For example- high-tech monitoring, crisis mapping, public education and community preparedness.</p> <ul style="list-style-type: none"> • http://emergency.lacity.org/what-hazard-mitigation <p>How are LA making sure communities are coping with natural hazards?</p>

Landscape Systems, Processes and Change

EQ1	
<p>2B.1 LIBERTY SMITH</p> <p>The coast, and wider littoral zone, has distinctive features and landscapes.</p> <ol style="list-style-type: none"> a. The littoral zone consists of backshore, nearshore and offshore zones, includes a wide variety of 	<ul style="list-style-type: none"> • Watch this video to gain a better understanding of high and low energy coastlines: https://www.youtube.com/watch?v=ZrjZXLlyF08 <p>Try and complete the littoral zone diagram by filling in the gaps with the missing words.</p>

coastal types and is a dynamic zone of rapid change

- b. Coasts can be classified by using longer term criteria such as geology and changes of sea level or shorter term processes such as inputs from rivers, waves and tides.
- c. Rocky coasts (high and low relief) result from resistant geology (to the erosive forces of sea, rain and wind), often in a high-energy environment, whereas coastal plain landscapes (sandy and estuarine coasts) are found near areas of low relief and result from supply of sediment from different terrestrial and offshore sources, often in a low-energy environment.

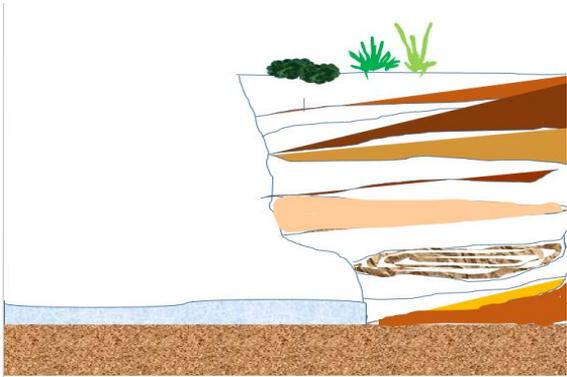


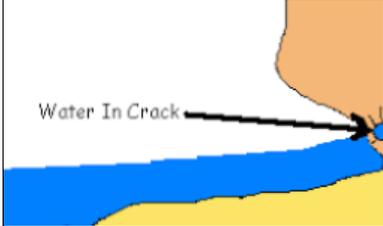
2B.2

- a. Geological structure is responsible for the formation of concordant and discordant coasts.
- b. Geological structure influences coastal morphology: Dalmatian and Haff type concordant coasts and headlands and bays on discordant coasts.
- c. Geological structure (jointing, dip, faulting, folding) is an important influence on coastal morphology and erosion rates, and also on the formation of cliff profiles and the occurrence of micro-features, e.g. caves (ü Glamorgan Heritage Coast). (2)

or

- Draw each characteristic of lithology <https://tinyurl.com/y8yaer78> use this link to write down the usual geology of concordant and discordant coasts (page 2)
- Watch this clip on concordant and discordant coasts. <https://www.youtube.com/watch?v=G36qKGq21wE> Create a table of the characteristics of each one to examine the differences between them.
- Read the information on concordant and discordant coastal landforms and create an A3 case study sheet of examples of coasts in the UK which link to them. <https://www.bbc.com/bitesize/guides/z82f9qt/revision/3>
- Research joints, dips, faults and folds and fill in a keyword sheet with the meanings of each.
- https://www.google.co.uk/search?q=cliff+profiles&safe=active&source=Inms&tbm=isch&sa=X&ved=0ahUKEwiBt5rxtrXdAhWSXsAKHV5rBvoQ_AUICigB&biw=1366&bih=674#imgrc=SftxpvnrsreNtUM:&spf=1536754033577 use the link and label the image of the cliff profile with the keywords you created.

	<p>Create a crossword using all of the keywords you have learnt from this area of the specification.</p> <ul style="list-style-type: none"> •
<p>2B.3</p> <p>Rates of coastal recession and stability depend on lithology and other factors.</p> <p>a. Bedrock lithology (igneous, sedimentary, metamorphic) and unconsolidated material geology are important in understanding rates of coastal recession</p> <p>b. Differential erosion of alternating strata in cliffs (permeable/impermeable, resistant / less resistant) produces complex cliff profiles and influences rates of erosion. (3)</p> <p>c. Vegetation is important in stabilising sandy coastlines through dune successional development on sandy coastlines and salt marsh succession development in estuarine areas.</p>	<ul style="list-style-type: none"> • Create a Cliff! <p>The aim of the task is to draw a diagram of a cliff. Your cliff needs to include different layers of igneous, metamorphic and sedimentary rocks. Add labels providing examples of these rocks (e.g sandstone, basalt), as well as if they are prone to erosion.</p> <p>Also add some vegetation examples on top of the cliff (e.g marram grass) and explain how it helps to stabilise coastlines.</p> 
<p>EQ2</p>	
<p>2B.4</p> <p>Marine erosion creates distinctive coastal landforms and contributes to coastal landscapes.</p> <p>a. different wave types (constructive and destructive) influence beach morphology and beach sediment profiles, which vary at a variety of temporal scales from short term (daily) through to longer periods</p> <p>b. the importance of erosion processes (hydraulic action, corrosion, abrasion, attrition) and how they are influenced by wave type, size and lithology.</p> <p>c. Erosion creates distinctive coastal landforms (wavecut notches,, wave cut platforms, cliffs, the cave-arch-stack-stump sequence)</p>	<ul style="list-style-type: none"> • Waves ___ Read through this revision page then answer the following questions. https://revisionworld.com/a2-level-level-revision/geography-level-revision/coastal-environments/marine-processes/waves • What are waves created by? • What does the size and strength of individual waves depend on? • What is Wave energy proportional to? • When waves approach a coast with headlands and bays, the waves are refracted, what does this mean? • Give two differences between constructive and destructive waves? <p>For each picture name the coastal landform or process.</p>  

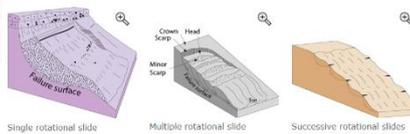
	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Three</p>  <p>Four</p> </div> <div style="text-align: center;"> <p>One</p>  <p>Two</p> </div> </div>
<p>2B.5</p> <p>Sediment transport and deposition create distinctive landforms and contribute to coastal landscapes.</p> <ol style="list-style-type: none"> a. Sediment transportation is influenced by the angle of wave attack, tides and currents and the process of longshore drift. b. Transportation and deposition processes produce distinctive coastal landforms (beaches, recurved and double spits, offshore bars, barrier beaches and bars, tombolos and cusped forelands), which can be stabilised by plant succession. c. The Sediment Cell concept (sources, transfers and sinks) is important in understanding the coast as a system with both negative and positive feedback, it is an example of dynamic equilibrium. 	<ul style="list-style-type: none"> • Use this YouTube link detailing how Longshore Drift works to explain how the process creates deposition change and distinctive landforms: https://youtu.be/BIDzalE-ajQ • Look through this slideshow and for each of the landforms shown, try to think of how they were formed. Also, follow the instructions in the slideshow. https://www.slideshare.net/tudorgeog/distinctive-coastal-erosional-landforms • On http://www.scribblemaps.com create a map of the UK marking the sediment cells and sediment cell boundaries.
<p>2B.6</p> <p>Subaerial processes of mass movement and weathering influence coastal landforms and contribute to coastal landscapes</p> <ol style="list-style-type: none"> a. Weathering (mechanical, chemical, biological) is important in sediment production and influences rates of recession. b. Mass movement (blockfall, rotational slumping, landslides) is important on some coasts with weak and/or complex geology. 	<p>B- Weathering:</p> <p>https://www.earthclipse.com/geology/different-types-of-weathering.html</p> <p>https://quizlet.com/4zmfmk</p> <p>Go on the link and make flashcards on the general definition of what weathering is and the three different types:</p> <p style="text-align: center;"> Mechanical Biological Chemical </p> <p>C- Mass movement:</p> <p>https://www.youtube.com/watch?v=YW8BKbpaXPI</p> <p>https://www.youtube.com/watch?v=mknStAMia0Q</p>

- c. Mass movement creates distinctive landforms (rotational scars, talus scree slopes, terraced cliff profiles).

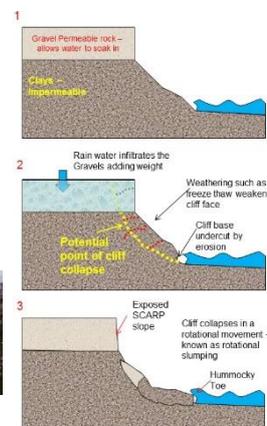
http://www.bbc.co.uk/bitesize/higher/geography/interactions/rural_land_resources/revision/3/
<https://www.bgs.ac.uk/discoveringGeology/hazards/landslides/rotationalSlides.html>
<https://quizlet.com/4zmfmk>

Read/ watch- pick out the key bits of information and create a mini revision guide or mind map based all the aspects of mass movements (the diagrams are for rotational slumping)

Include examples of where they can be found



c- Mass movement- distinctive landforms:



Label the distinctive landforms and provide a brief description of what they are and where you can find them

EQ3

2B.7

Sea level change influences coasts on different timescales.

- Longer-term sea level changes result from a complex interplay of factors both eustatic (ice formation/melting, thermal changes) and isostatic (post glacial adjustment, subsidence, accretion) and tectonics.
- Sea level change has produced emergent coastlines (raised beaches with fossil cliffs) and submergent coastlines (rias, fjords and Dalmatian). (6)
- Contemporary sea level change from global warming

- Firstly, watch the following videos that help to explain the differences between isostatic and eustatic sea level change.

1.) <https://www.youtube.com/watch?v=d3jF6H9mqJ4>

2.) <https://www.youtube.com/watch?v=UOna6sImGc>

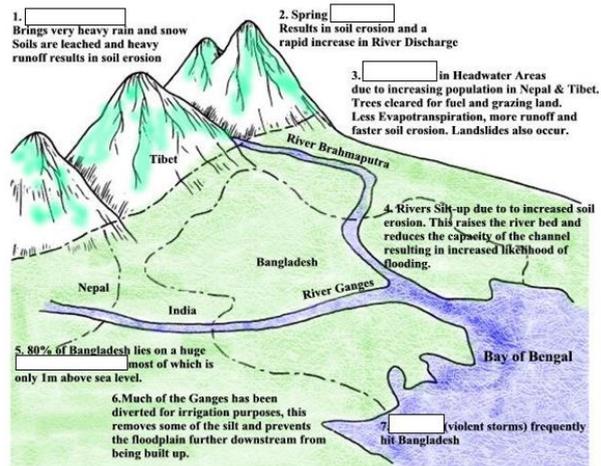
From watching both videos, create a story board of images explaining the process of isostatic and eustatic sea level change.

- There is an exam question following the second videos to complete when you fully understand the process.

<p>2B.8</p> <p>Rapid coastal retreat causes threats to people at the coast.</p> <ol style="list-style-type: none"> Rapid coastal recession is caused by physical factors (geological and marine) but can be influenced by human actions (dredging or coastal management) (e.g. the Nile Delta or Guinea coastline or Californian coastline). (A: actions of different players may alter natural systems) Subaerial processes (weather and mass movement) work together to influence rates of coastal recession. Subaerial processes (weather and mass movement) work together to influence rates of coastal recession. 	<ul style="list-style-type: none"> Rapid coastal recession is caused by physical factors, and also by human factors. A key case study is the Nile delta for human impact. Click here to a link to a Nile delta case study. H:\A -LEVEL\Geography\physical\human impacts on the nile delta 11.pdf Subaerial processes (weather and mass movement work together to influence rates of coastal recession. Click the link for a YouTube video. http://youtube.be/kVukTNQFMKs Rates of recession are not constant and can be influenced by different factors both short-term and long term. Click here for further information. https://geographyas.info/coasts/coastal-erosion/ <p>Answer this short question: What are the factors that affect the rate of coastal recession?</p> <p>https://www.theguardian.com/environment/2016/nov/07/study-reveals-huge-acceleration-in-erosion-of-englands-white-cliffs interesting article</p> <p>https://www.tutor2u.net/geography/blog/the-physical-causes-of-coastal-erosion physical causes of coastal recession</p>
<p>2B.9</p> <p>Coastal flooding is a significant and increasing risk for some coastlines.</p> <ol style="list-style-type: none"> Local factors increase flood risk on some low-lying and estuarine coasts (height, degree of subsidence, vegetation removal); global sea level rise further increases risk (e.g. Bangladesh or the Maldives). Storm surge events can cause severe coastal flooding with dramatic short-term impacts (depressions, tropical cyclones) can cause severe coastal flooding. Climate change may increase coastal flood risk (frequency and magnitude of storms, sea level rise) 	<ul style="list-style-type: none"> https://getrevising.co.uk/diagrams/rising-sea-level-maldives -use the mind map to write up a case study about sea level rise in the Maldives <p>complete the diagram below by adding the missing words about coastal flooding in Bangladesh</p>

but the pace and magnitude of this threat is uncertain. **(F: this risk is creating an uncertain future and needs mitigation and adaptation)**

Some Causes of Flooding in Bangladesh



Monsoon climate Deforestation
 Floodplain and delta Snow-melt
 Cyclones

- <https://www.bbc.co.uk/news/av/uk-25229885/what-creates-a-storm-surge>
 -Watch the video on storm surges then explain how they are caused
- <https://www.nationalgeographic.org/encyclopedia/storm-surge/>
 -Read the article on the impacts of a storm surge and coastal communities
 -What can coastal communities do to try and reduce the damage of the hazard?
- <https://www.bbc.com/bitesize/clips/zy9yvk7>
 -Examine the link between climate change, thermal expansion and coastal flooding
 -How would this effect HICs and LICs differently?
- <https://coggle.it/diagram/WP-yk410-AABzKGJ/t/how-is-coastal-flooding-a-signifiant-risk-on-some-coastlines>
 - using the Mind map consolidate work on coastal flooding

EQ4

2B.10

Increasing risks of coastal recession and coastal flooding have serious consequences for affected communities.

- a. Economic losses and social losses from coastal recession can be significant, especially in areas of dense coastal developments.
- b. Coastal flooding and storm surge events can have serious economic and social consequences for coastal communities in both developing and developed countries.
- c. Climate change may create environmental refugees in coastal areas.

- Read the table below & answer the questions to compare the social and economic impacts of coastal storm surges in developed and developing

Example	Cause	Economic costs	Social costs
Netherlands 1953 (North Sea flood)	Mid-latitude depression moving south through the North Sea generating a 5 m storm surge	Almost 10% of Dutch farmland flooded 40,000 buildings damaged and 10,000 destroyed	1800 deaths
UK 2013–2014 Winter storms	Coastal and other flooding caused by a succession of depressions and their storm surges	Damage of around £1 billion over the course of the winter	17 deaths (from all causes)
USA 2012 Hurricane Sandy	Landfall of hurricane Sandy in New Jersey and other US states with a storm surge up to 4 m	US\$70 billion in damage 6 million people lost power and 350,000 homes in New Jersey were damaged or destroyed	71 deaths
Philippines 2013 Typhoon Haiyan	One of the most powerful tropical storms ever with a 4–5 m storm surge	Damages of around US\$2 billion, centred on the city of Tacloban	At least 6,300 deaths, 30,000 injured

countries

- Which coastal storm surge produced the greatest economic damage and how much was this?
- Which storm surge was the highest and how was this caused?
- Which coastal storm surge caused the greatest number of deaths and how much was this?
- How many homes were damaged during Hurricane Sandy?

Overall, which coastal storm surge caused the least social and economic impacts? Explain your answer.

2B.11

There are different approaches to managing the risks associated with coastal recession and flooding:

- a. Hard engineering approaches (groynes, sea walls, rip rap, revetments, offshore breakwaters) are economically costly and directly alter physical processes and systems. (8)
(A: actions by different players may have unforeseen consequences)
- b. Soft engineering approaches (beach nourishment, cliff re-grading and drainage, dune stabilisation) attempt to work with physical systems and processes to protect coasts (9) and manage changes in sea level.
- c. Sustainable management is designed to cope with future threats (increased storm events, rising sea levels) but its implementation can lead to local conflicts in many countries. **(F: mitigation and adaptation will both be needed for future stability)**

- Check knowledge and understanding of hard and soft engineering methods using the flashcards:

[Flashcards on engineering](#)

- Example case study for 2.11C-Read the article and create a mindmap for each of these points:
- State 4 facts from the article
- 3 peoples view points on the managed retreat and who is in contrast with them
- Why the environmental agency has decided on managed retreat?
- What have places in the US done?
<https://thinkprogress.org/one-english-towns-innovative-response-to-sea-level-rise-78f461d02c5b/>

d.	
<p>2B.12</p> <p>Coastlines are now increasingly managed by holistic integrated coastal zone management (ICZM).</p> <p>a. Coastal management increasingly uses the concept of littoral cells to manage extended areas of coastline. Throughout the world, countries are developing schemes that are sustainable and use holistic ICZM strategies</p> <p>b. Policy decisions (No Active Intervention, Strategic Realignment and Hold The Line Advance The Line) are based on complex judgements (engineering feasibility, environmental sensitivity, land value, political and social reasons) (7); Cost Benefit Analysis (CBA) and Environmental Impact Assessment (EIA) are used as part of the decision- making process.</p> <p>c. Policy decisions can lead to conflicts between different players (homeowners, local authorities, environmental pressure groups) with perceived winners and losers in countries at different levels of development (developed and developing or emerging countries) (8) Happpisburgh and Chittagong). (A: attitudes of differing players may vary)</p>	<ul style="list-style-type: none"> Fill in the blanks: answers in small font below <p>The integrated coastal zone management (ICZM) is a(1)..... process to promote a dynamic balance between(2)..... growth, human use of(3)..... and environmental protection of coastal systems. Coastal environments require an ICZM to allow(4)..... between human, political and scientific elements to achieve(5)..... Development of the coastal zone.</p> <ul style="list-style-type: none"> https://quizlet.com/215719824/coastal-change-and-processes-case-studies-condensed-flash-cards/ Take a look at card 11 for the ICZM of Holderness. <p>Questions to consider: Why were Mappleton and Easington under a “do nothing approach”? Was the main priority economic, environmental or social?</p> <p>Card 4 also gives Chittagong, Bangladesh as an example. Below is a detailed website addressing the importance of the coastal zone of Bangladesh https://www.mangrovesforthefuture.org/countries/members/bangladesh/</p> <p>Questions to consider: What are the challenges faced in urban Chittagong? Why is people’s dependence on natural resources a major challenge?</p> <p>Use the link to understand the coast benefit analysis as an example of a coastal management assessment. https://www.geography-fieldwork.org/a-level/coasts/coastal-management/method/#primary-nav</p> 