

# Year 11 Revision Booklet

## Paper 1: Living with the physical environment



- The challenge of natural hazards – Question 1
- The living world – Question 2
- Coastal landscapes in the UK – Question 3
- River landscapes in the UK – Question 4
- IGNORE QUESTION 5!

# The Challenge of Natural Hazards – Section A

Natural hazards pose major risks to people and property

What is a natural hazard?

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What is hazard risk?

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Why is the frequency and strength of natural hazards increasing? (Think about the world's population and what people are doing to make the problem worse).

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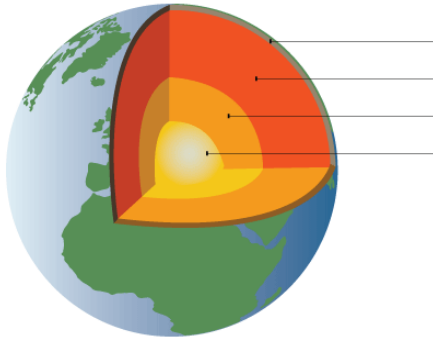
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## Earthquakes and volcanic eruptions are the result of physical processes

Label the layers of the earth on the image below and give three differences between oceanic and continental crust:



Oceanic crust	Continental crust

Describe the **global distribution**

of volcanoes and earthquakes,

i.e. where are they?

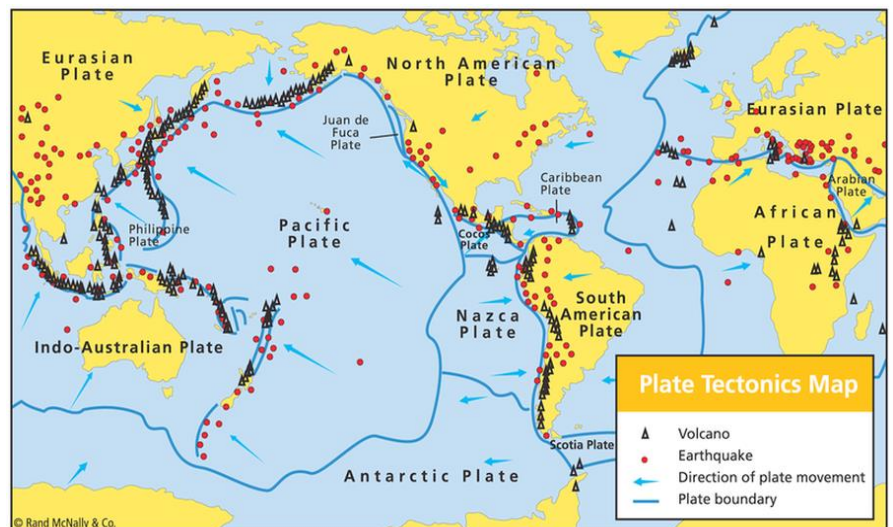
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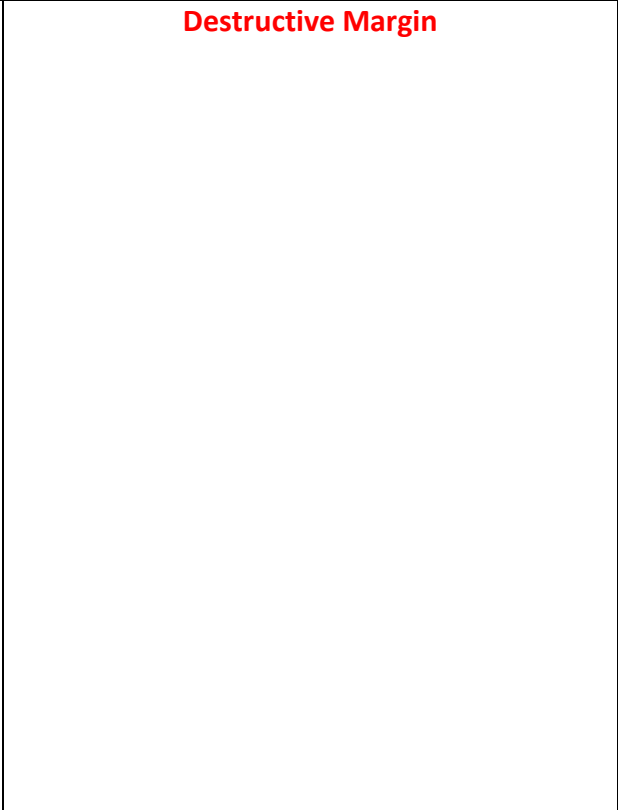

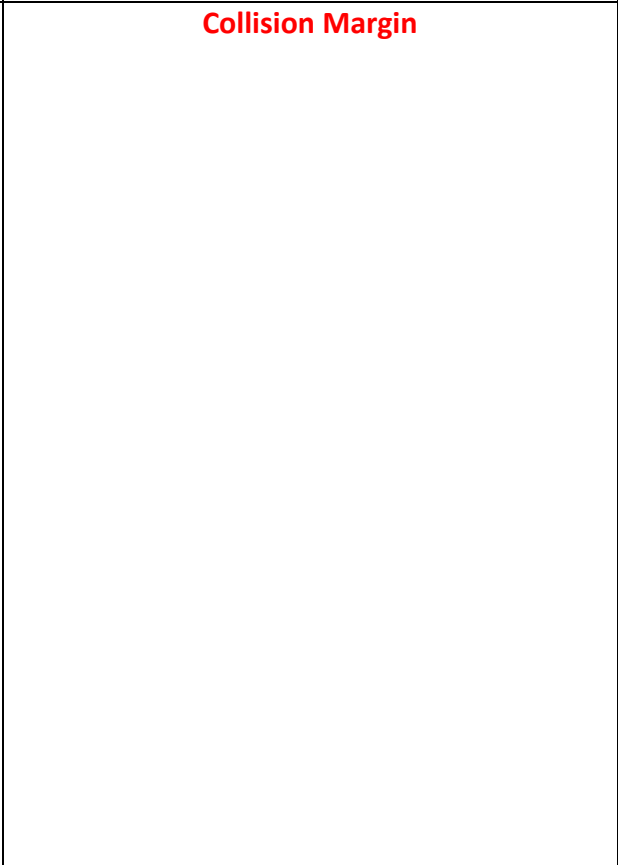
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Draw and annotate the 4 different plate margins in the boxes below. Be sure to explain why earthquakes and volcanoes occur at the plate margins.

<p><b>Constructive Margin</b></p> 	<p><b>Destructive Margin</b></p> 
<p><b>Conservative Margin</b></p> 	<p><b>Collision Margin</b></p> 

**The effects of, and responses to, a tectonic hazard vary between areas of contrasting levels of wealth (i.e. effects of earthquakes are different in rich and poor countries).**

### What are primary and secondary effects?

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### What are immediate and long-term responses?

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Named example of an earthquake in a high income country (HIC) : Christchurch, New Zealand, 2011



Outline the causes of the Christchurch earthquake. Give the date and magnitude of the earthquake.

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Complete the tables below with 3 facts in each column – remember to include SPECIFIC FACTS, i.e. facts that could only have happened in Christchurch, e.g. numbers, names, etc.

Primary effects	Secondary effects

Immediate responses	Long-term responses

Do you think primary effects or secondary effects were more significant in Christchurch?

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Do you think immediate or long-term responses were more significant in Christchurch?  
Why?

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Named example of an earthquake in a low income country (LIC) : Haiti, 2010



Outline the causes of the Haiti earthquake. Give the date, location and magnitude of the earthquake.

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Complete the tables below with 3 facts in each column – remember to include SPECIFIC FACTS, i.e. facts that could only have happened in Haiti, e.g. numbers, names, etc.

Primary effects	Secondary effects

Immediate responses	Long-term responses

Do you think primary effects or secondary effects were more significant in Haiti? Why?

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Do you think immediate or long-term responses were more significant in Haiti? Why?

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Explain why the effects and responses were so different in Christchurch and Haiti.

The effects were so different because...

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The responses were so different because

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**Management can reduce the effects of a tectonic hazard**

Give 4 reasons why people continue to live in areas at risk from a tectonic hazard:

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Which is the biggest benefit and why?

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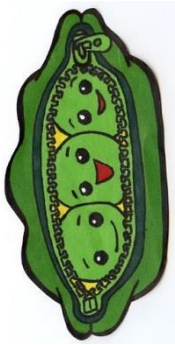
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What are the 3 Ps used to reduce the effects of earthquakes?



Prediction is

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Protection is

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Preparation/ Planning is

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Which of the above three strategies is the most effective in reducing the effects of earthquakes? Why?

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Which of the above three strategies is the least effective in reducing the effects of earthquakes? Why?

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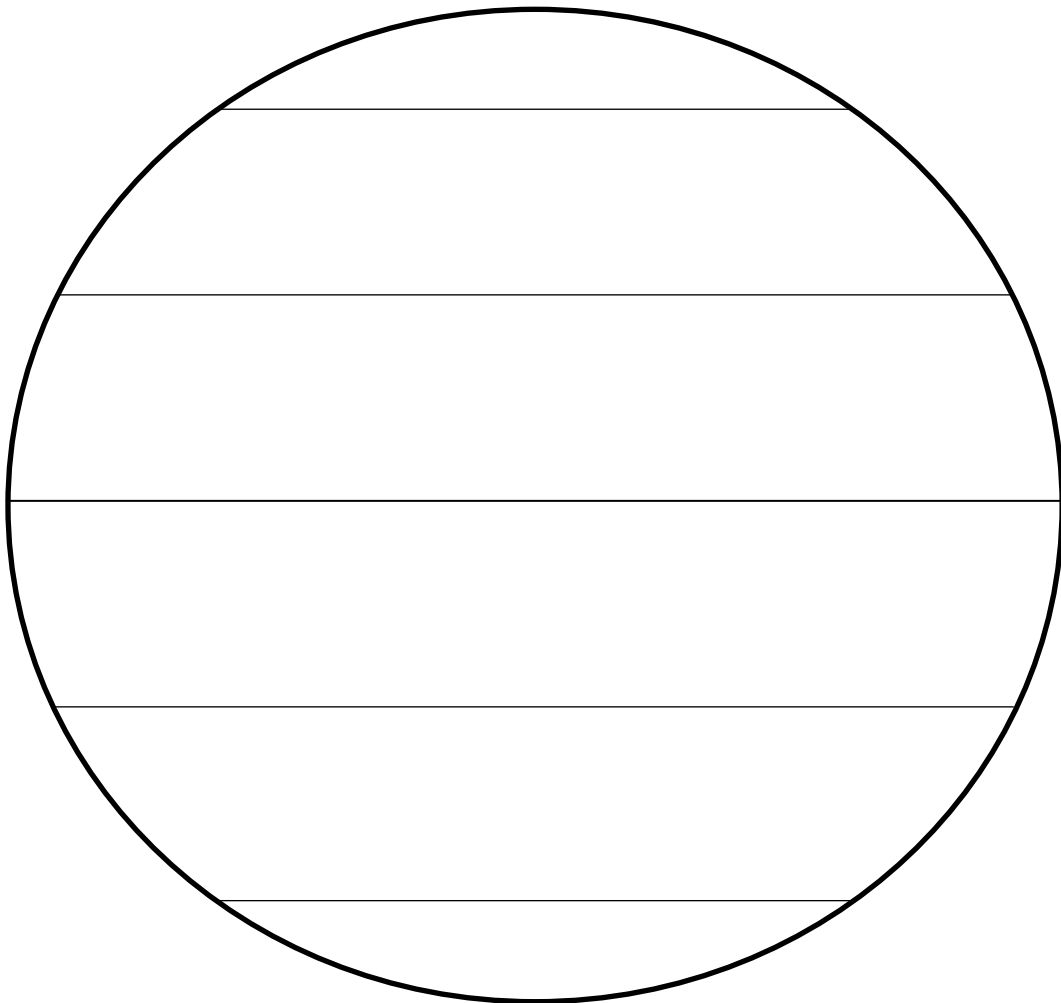
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## Global atmospheric circulation helps to determine patterns of weather and climate

On the model below, add the following features:

- $0^\circ$  (equator),  $30^\circ\text{N}$  and  $\text{S}$ ,  $60^\circ\text{N}$  and  $\text{S}$  and  $90^\circ\text{N}$  and  $\text{S}$
- Polar, Ferrell and Hadley cells
- Areas of high and low pressure with sun and rain
- NE trade winds, SE trade winds, south-westerly winds, north-westerly winds and polar easterly winds



What is the Coriolis Effect?

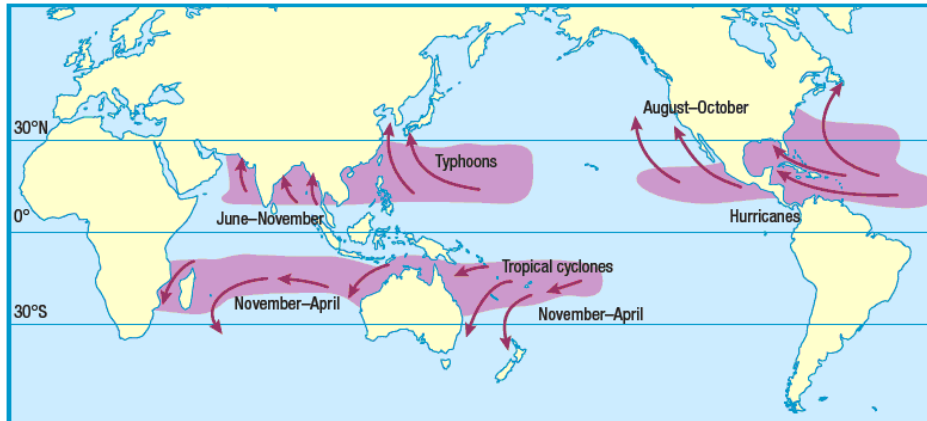
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**Tropical storms (hurricanes, cyclones, typhoons) develop as a result of particular physical conditions**



Describe the distribution of tropical storms. Use lines of latitude and key terms in your answer.

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Give 2 conditions needed for tropical storms to form:

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- .....

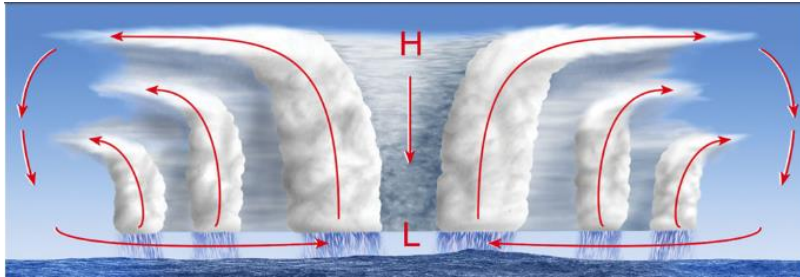
Write a paragraph to explain the sequence of formation of a tropical storm.

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Give 2 reasons why tropical storms may lose their energy:

- .....
- .....

Label the diagram below with the characteristics of tropical storms:



How is climate change likely to affect the distribution, frequency and intensity of tropical storms?

Distribution:

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Frequency:

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Intensity:

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## Named example of a tropical storm: Hurricane Katrina 2005



Describe the path of Hurricane Katrina.

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Complete the tables below with 3 facts in each column – remember to include SPECIFIC FACTS, i.e. facts that could only have happened in Hurricane Katrina, e.g. numbers, names, etc.

Primary effects	Secondary effects

Immediate responses	Long-term responses

Do you think primary effects or secondary effects were more significant in Hurricane Katrina?

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Do you think immediate or long-term responses were more significant in Hurricane Katrina?

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How can you monitor, predict, protect against and prepare for tropical storms? Give some examples of each in the table below:

Monitor	Predict
Protect	Prepare

## The UK is affected by a number of weather hazards

What is extreme weather?

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Annotate the photograph below describing the **social**, **economic** and **environmental** impacts of severe snowfall in the UK (include impacts you might not be able to see in the image):



## Extreme weather events in the UK have impacts on human activity

Named example of a recent extreme weather event in the UK: Boscastle Flood 2005

Outline the causes of the Boscastle flood

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Complete the table below to show the social, economic and environmental impacts of Boscastle Flood (be specific):

Social impacts	Economic impacts	Environmental impacts

What management strategies were used to reduce the risk to people and the environment?

Immediate responses	Long-term responses

Give 3 pieces of evidence to prove that weather is becoming more extreme in the UK (use your timeline and include facts to show why it was extreme):

- .....

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- .....

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- .....

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**Climate change is the result of natural and human factors and has a range of effects**

Complete the table below to briefly explain how each factor provides evidence of climate change:

Long-term evidence	Recent evidence
Ice cores:	Melting ice:
Tree rings:	Seasonal changes:
Ocean sediments:	Instrument readings:



Briefly explain how each of the following factors cause climate change:

Natural causes	Human causes
Orbital changes (Milankovitch theory):	Use of fossil fuels:
Volcanic activity:	Agriculture:
Solar output:	Deforestation:

Add 6 labels onto the map below to show the global effects of climate change on people and the environment (they could be positive or negative):



**Managing climate change involves both mitigation (reducing causes) and adaptation (responding to change)**

What is the definition of mitigation?

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What is the definition of adaptation?

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Complete the table below to show how we can mitigate and adapt to climate change and briefly outline how each one helps to reduce the effects of climate change:

Mitigation methods	Adaptation methods

What are the advantages and disadvantages of mitigation and adaptation?

Method	Advantages	Disadvantages
Mitigation		
Adaptation		

# The Living World – Q2

**Ecosystems exist at a range of scales and involve the interaction between biotic and abiotic components**

**An example of a small scale ecosystem: Pond**

Complete the key terms list below by adding the correct definitions:

Ecosystem:

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Biotic components:

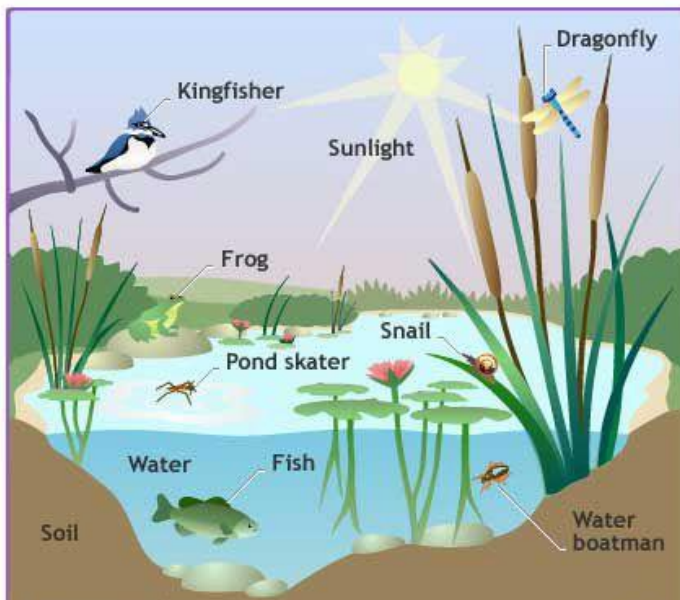
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Abiotic components:

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Describe the pond ecosystem shown opposite

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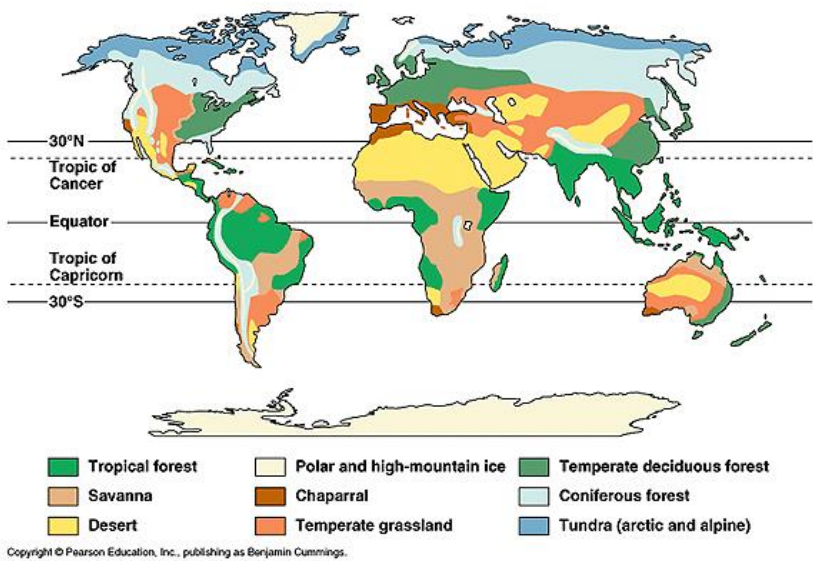
Complete the table below with the correct definitions and give an example for each that would be found in a freshwater pond:

Term	Definition	Example
Producers		
Consumers		
Decomposers		
Food chain		
Food web		
Nutrient cycling		

Ecosystems are very fragile and if there is a change to one component it may well have a knock-on effect on the rest of the ecosystem. Complete the natural and human causes of change in an ecosystem:

Natural changes	Changes due to human activity

Large-scale ecosystems are known as global ecosystems or biomes (see map below):



Explain why ecosystems tend to form broad belts across the world from east to west, parallel to the lines of latitude.

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Complete the table below outlining the location and characteristics of each biome:

Global ecosystem	Location	Characteristics
Tropical rainforest		
Desert		
Polar		
Deciduous and coniferous forests		

Temperate grasslands		
Mediterranean		
Tropical grasslands		
Tundra		

### **Tropical rainforest ecosystems have a range of distinctive characteristics**

Where are tropical rainforests found?

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What is the climate like?

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Why is the temperature constantly high in the rainforest?

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Why is the rainfall high?

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Why does the amount of rainfall vary throughout the year?

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Give 2 reasons why the soils in tropical rainforests are infertile:



1) .....

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2) .....

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**Annotate** the photograph below to describe and explain how plants have adapted to the rainforest:



Explain 3 animal adaptations that enable species to survive in tropical rainforests:

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## Deforestation has economic and environmental impacts

### A case study of a tropical rainforest: Malaysia

What are the causes of deforestation in the Malaysian Rainforest? Complete the table below to outline each of the causes:

Cause	Information
Subsistence and commercial farming	
Logging	
Mineral extraction	
Energy development	
Settlement and population growth	



What are the impacts of deforestation?

How does deforestation lead to soil erosion?

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How does deforestation contribute to climate change?



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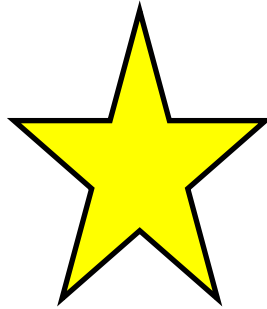
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Complete the table below to show how deforestation can have both economic gains and economic losses:

Economic gains for the country	Economic losses for the country

## Tropical rainforests need to be managed to be sustainable

Complete a mind map below to explain why tropical rainforests are valuable to people and the environment:

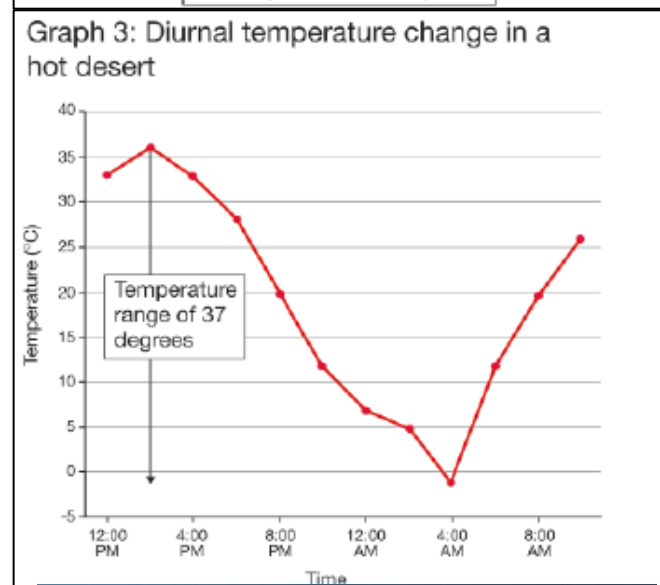
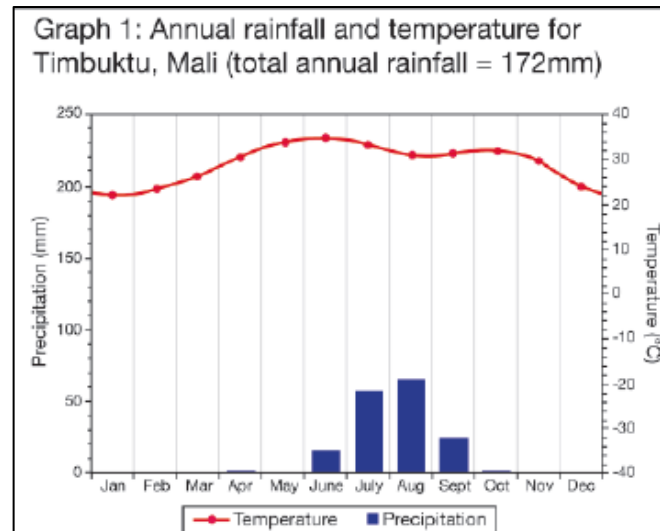


Rainforests need to be managed sustainably so that we can still use valuable resources but without causing long-term damage for future generations. Complete the table below outlining how rainforests can be managed sustainably – include specific facts where possible:

Sustainable strategies	How do they work?
Selective logging and replanting	
Conservation and education	
Ecotourism	
International agreements	

## Hot environments have a range of distinctive characteristics

Annotate the photo and climate graphs below to describe the characteristics of the hot desert



How have plants and animals adapted to the physical conditions of these hot environments?  
Give four examples in the table below:

Animal / plant	Adaptation	How does it help it to survive?

## Development of hot environments creates opportunities and challenges

### A case study of a hot environment: Thar Desert

Describe the location of the Thar Desert

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List 5 facts about the Thar Desert:

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What are the opportunities for development in the Thar Desert?

Complete the table below describing the opportunities in the Thar Desert:

Mineral extraction	Energy developments	Farming	Tourism



Similarly, below, complete the table describing the challenges of developing the Thar Desert:

Extreme temperature	Inaccessibility	Water supply

## Areas on the fringe of hot deserts are at risk of desertification

What is desertification?

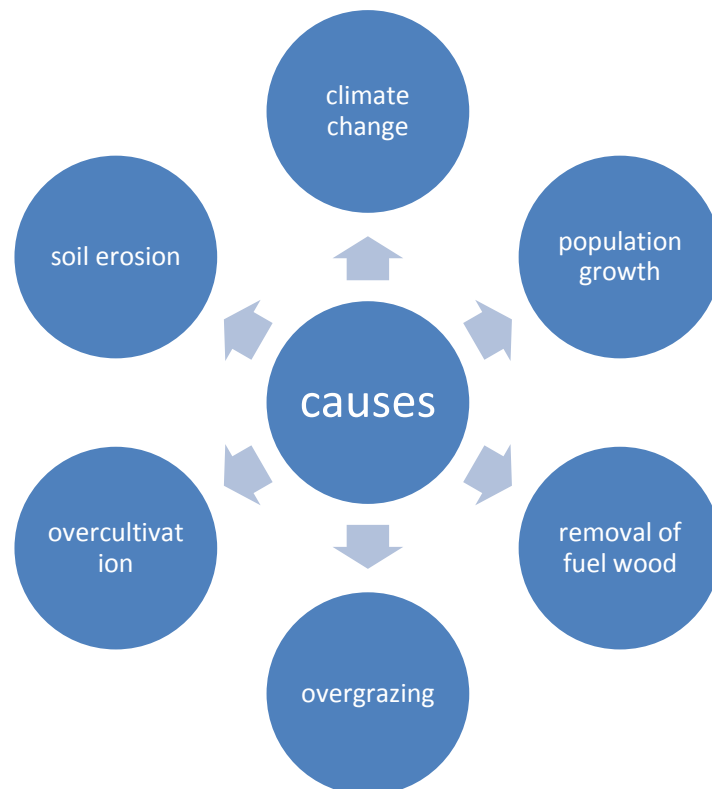
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Complete the spider diagram below to explain the causes of desertification.



Explain how the following strategies can reduce the risk of desertification:

Water and soil management

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Tree planting

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Use of appropriate technology

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# Coastal Landscapes in the UK – Q3

The coast is shaped by a number of physical processes

What is a wave?

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What causes a wave?

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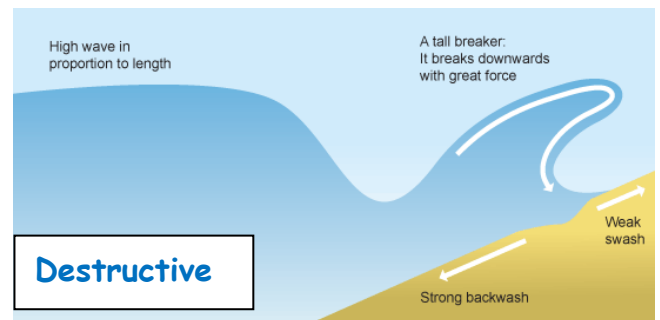
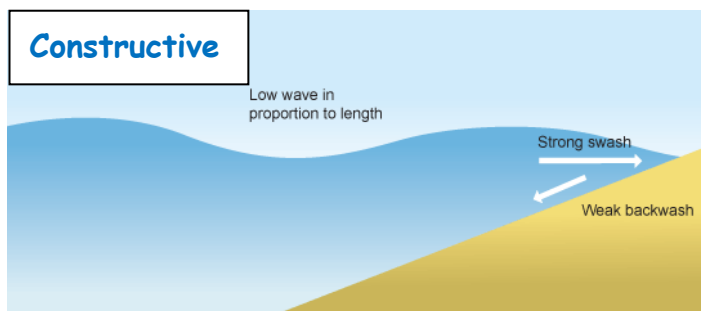
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What is the fetch?

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There are two types of waves: constructive and destructive. Complete the table below to show the characteristics of each wave using the image to help you:



Wave characteristic	Constructive wave	Destructive wave
Wave height		
Wave length		
Strength of swash		
Strength of backwash		
Beach sediment – gain or loss		

Why do you think the backwash is often weaker on a pebbly beach?

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What is weathering?

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What is **mechanical weathering**?

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What is **chemical weathering**?

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What is mass movement?

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Complete four simple diagrams and four definitions to show the different types of mass movement:

**Rockfall**

**Landslide**

**Mudflow**

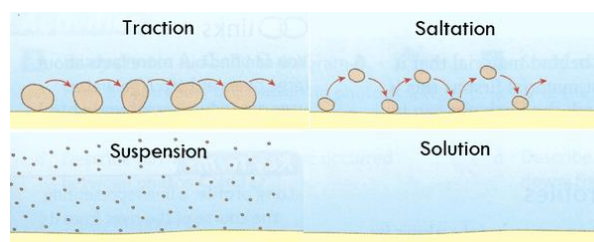
**Rotational slip**

Complete the table below describing the four types of erosion found at the coast:

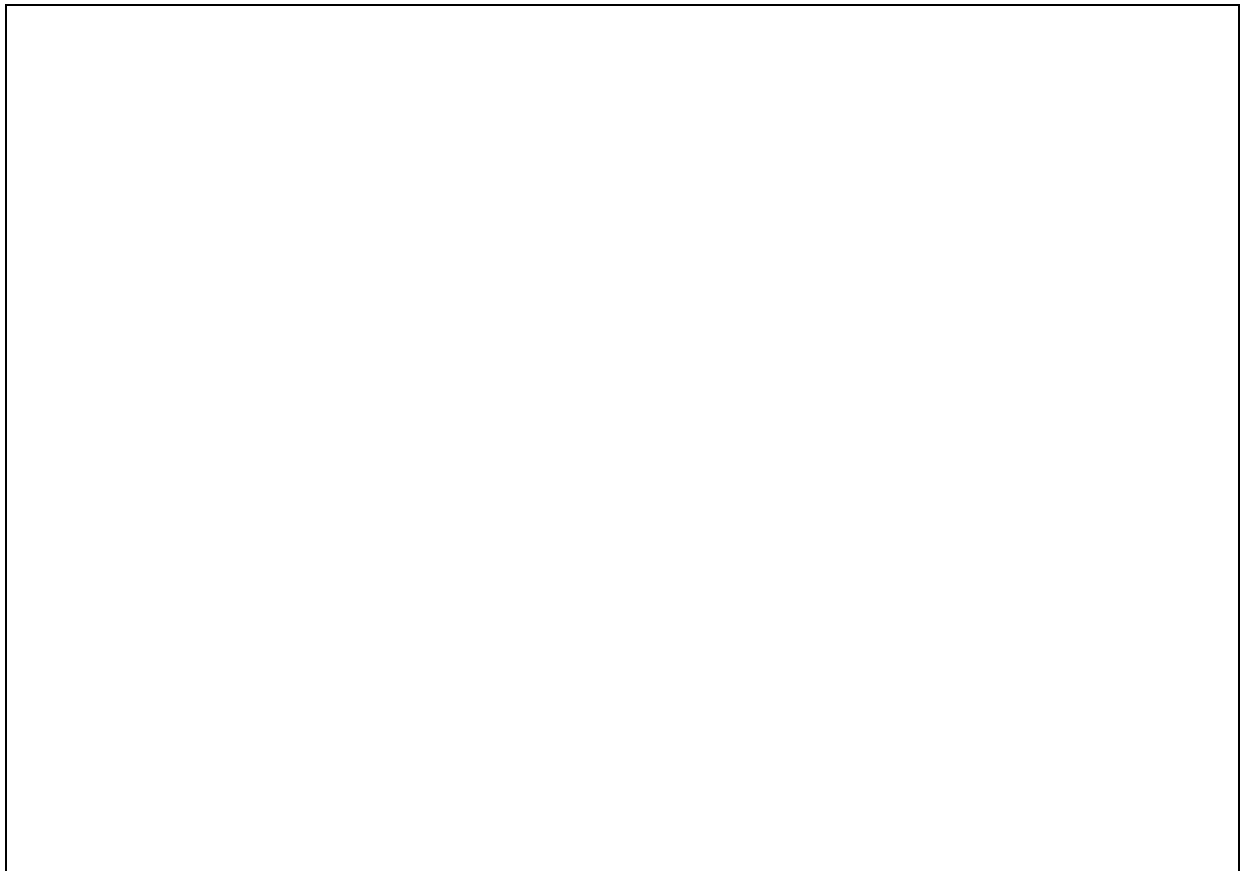
<a href="#"><u>Hydraulic action</u></a>	<a href="#"><u>Abrasion</u></a>
<a href="#"><u>Attrition</u></a>	<a href="#"><u>Solution/ Corrosion</u></a>

Do the same in the table below to describe the four types of transportation found at the coast:

<a href="#"><u>Traction</u></a>	<a href="#"><u>Saltation</u></a>
<a href="#"><u>Suspension</u></a>	<a href="#"><u>Solution</u></a>



Draw an annotated diagram in the box below to explain the process of longshore drift:



What is coastal deposition?

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Give 3 reasons why coastal deposition occurs:

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- .....  
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## Distinctive coastal landforms are the result of rock type, structure and physical processes

Outline the two factors that influence coastal forms:

**Rock type:**

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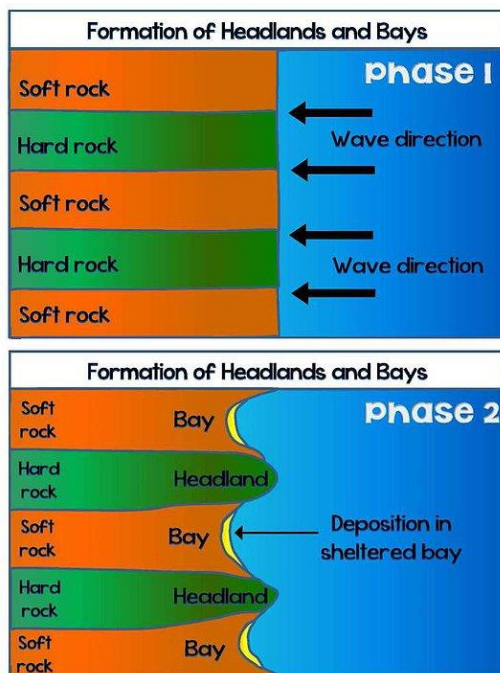
**Geological structure:**

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### Landforms resulting from erosion

#### Headlands and Bays



Explain how headlands and bays form using the diagram to help you. Remember to use SPED

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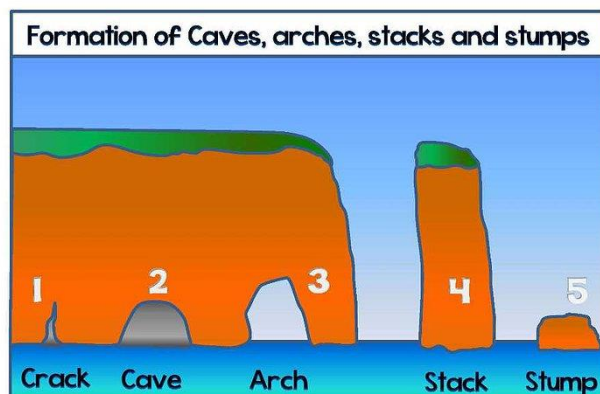
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### Cliffs and wave-cut platforms

Complete annotated diagrams below to explain how a wave-cut platform is created:


### Caves, arches, stacks and stumps

Annotate the diagram below to explain the formation of caves, arches, stacks and stumps. Number your annotations to sequence the formation.



### Landforms resulting from deposition

## Beaches

Beaches are deposits of sand and shingle at the coast. Explain how both sandy and pebbly beaches form:

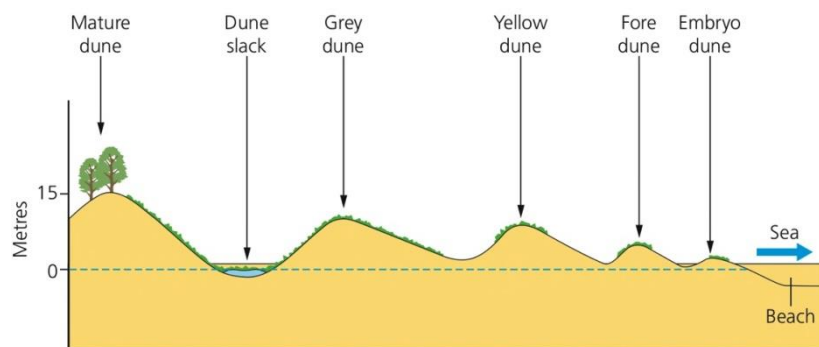
**Sandy:**

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### Shingle/pebble:

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## Sand dunes



Explain the formation of sand dunes from embryo dunes to dune slacks.

## Spits and Bars

Spits are long, narrow fingers of sand or shingle jutting out into the sea. A bar is a spit that has grown across a bay.

Draw an annotated diagram in the box below to explain the formation of spits and bars:



## An example of a section of coastline in the UK: Holderness Coast, Yorkshire

Describe the geology of the Holderness Coast.

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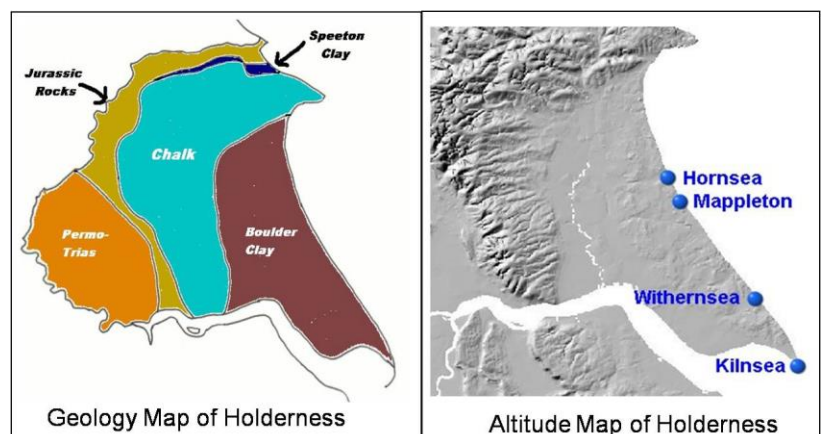
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Describe the features found along the Holderness Coast from Flamborough Head in the north to Spurn Point in the south.

	<b>Flamborough Head</b>
	<b>Slumping at Bridlington/ erosion at Mablethorpe</b>
	<b>Spurn Point</b>

**Different management strategies can be used to protect coastlines from the effects of physical processes**

**Hard engineering:**

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**Soft engineering:**

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**Managed retreat:**

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Complete the table below showing the advantages and disadvantages of hard and soft engineering methods:

Method	Advantages	Disadvantages
Sea wall		
Groynes		
Rock armour		
Gabions		
Beach nourishment		
Dune regeneration		
Managed retreat		

An example of a coastal management scheme in the UK: Holderness Coast

Why does the Holderness Coast need protecting?

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List 5 strategies used in the Holderness Coast to protect the coastline:

- .....
- .....
- .....
- .....
- .....

What are the positive and negative impacts of the defences on the area?

Positive impacts	Negative impacts

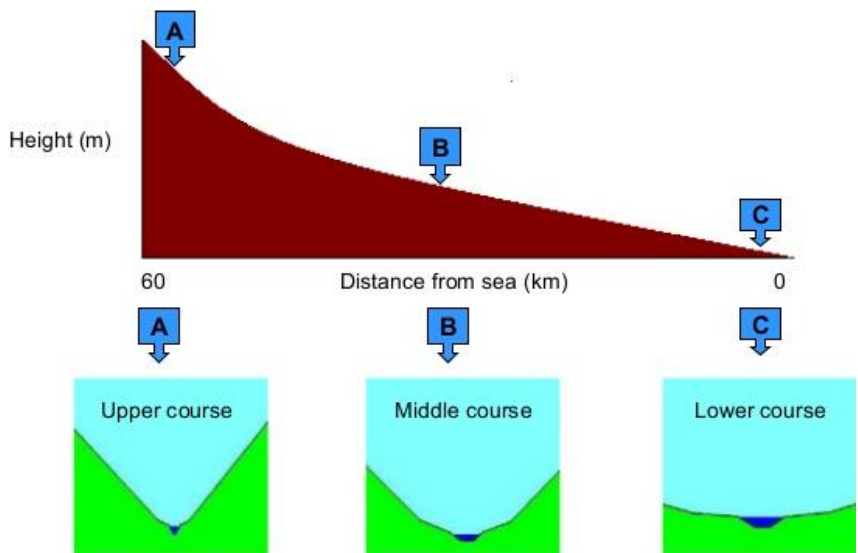
What groups of people might be in conflict over these defences and why?

Groups	Conflict

# River Landscapes in the UK – Q4

The shape of river valleys changes as rivers flow downstream

Using the images below, complete the description of the shape of the long and cross profiles of a river valley:



In the upper course the long profile is \_\_\_\_\_ and \_\_\_\_\_. The cross profile is narrow and v-shaped.

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Complete the definitions of vertical and lateral erosion:

Vertical erosion is

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Lateral erosion is

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Complete the table below describing the four types of erosion found in a river:

<u>Hydraulic action</u>	<u>Abrasion</u>



<u>Attrition</u>	<u>Solution</u>
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Do the same in the table below to describe the four types of transportation in a river:

<u>Traction</u>	<u>Saltation</u>
<u>Suspension</u>	<u>Solution</u>

Give 3 reasons why a river would deposit sediment (put material down):

- .....
- .....
- .....

**Distinctive fluvial landforms result from different physical processes**

Features formed by erosion in the upper course of a river

Explain the formation of **interlocking spurs**



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Draw an **annotated** diagram below to explain the formation of **waterfalls and gorges**:

Features formed by erosion and deposition in the middle course of a river

Draw **annotated** diagrams below to explain the formation of **meanders and ox-bow lakes**:

<p>The fastest flow of the river occurs on the outside of a meander causing erosion. Deposition occurs on the inside of the bend.</p>	

Features formed by deposition in the lower course of a river

Draw **annotated** diagrams below to explain the formation of **levees and floodplains**:

<p>A river is contained within its banks (normal)</p>		
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**Before the last Ice Age**

Land

Sea

River

0 20 km

**After the last Ice Age**

Land

Sea

Estuary

0 20 km

A large river such as the Severn entered the sea at a narrow mouth

After the Ice Age, melting ice caused a rise in sea level. This caused low-lying valley sides either side of the river to become flooded

The original channel of the river is now on the estuary floor where it provides a deep channel for shipping

Describe the features of the River Tees (waterfalls, gorges, meanders, levees and estuaries). Include place names. DO NOT explain how the features were formed, just say what they are like.

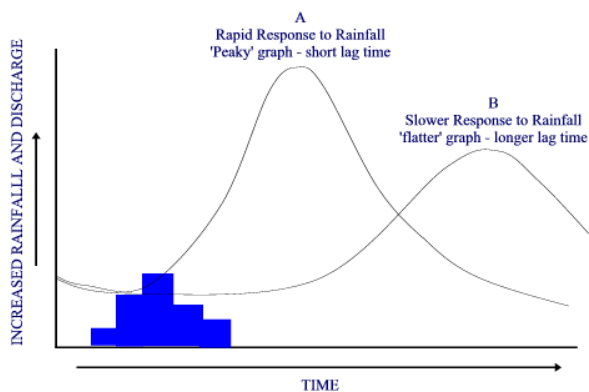


## Different management strategies can be used to protect river landscapes from the effects of flooding

List some physical and human causes of flooding – make sure you can explain how each leads to flooding:

Physical/Natural	Human

State the characteristics of the two hydrographs below. An example has been done for you.



A	B
<ul style="list-style-type: none"> <li>Impermeable rock</li> </ul>	<ul style="list-style-type: none"> <li>Permeable rock</li> </ul>

What is hard and soft engineering?

Hard engineering is

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Soft engineering is

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Complete the table below showing the advantages and disadvantages of hard and soft engineering:

Method	Advantages	Disadvantages
Hard: dams and reservoirs		
Hard: straightening embankments		
Hard: Flood relief channels		
Soft: Flood warnings and preparation		
Soft: Floodplain zoning		
Soft: planting trees and river restoration		

An example of a flood management scheme in the UK: Boscastle, Cornwall

Briefly outline why Boscastle needed a flood management project:

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List 5 of the strategies used in Boscastle to reduce the risk of flooding:

- .....
- .....
- .....
- .....
- .....

Complete the table below showing the advantages/successes and disadvantages/failures of the flood management scheme:

	Successes	Failures
Social		
Economic		
Environmental		

Overall, to what extent do you think the flood management scheme in Boscastle was a success? Why?

[illegible]